The OPEN DOOR *to* INDEPENDENCE

MAKING MONEY FROM THE SOIL

WHAT TO DO — HOW TO DO

ON CITY LOTS
SUBURBAN GROUNDS
COUNTRY FARMS

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BACK TO THE LAND

THOMAS E. HILL

THE OPEN DOOR TO INDEPENDENCE

Making Money From the Soil

WHAT TO DO—HOW TO DO

ON

CITY LOTS, SUBURBAN GROUNDS
COUNTRY FARMS

*Together with Outline Maps of All Parts of the United States,
Irrigated Regions, Climates, Cities, Villages, Market
Towns, Locations and Populations*

HOW TO FERTILIZE SOIL

Landscape—Beautify—Cultivate—and Successfully Grow Fruits,
Flowers, Vegetables and Grains.

WHILE OBTAINING FOOD AND SUPPORT

How to Have Comfort and Luxury on the Farm, in the Suburb, and on the City Lot

HOW TO CARE FOR DOMESTIC ANIMALS

Sheltering, Feeding, Humanely and Profitably Increasing Breeds and Flocks

By THOMAS E. HILL

Practical Farmer and Scientific Agriculturist

Author of

"Hill's Manual," "Hill's Album of Biography,"

"Hill's Practical Encyclopedia," Etc.

CHICAGO
HILL STANDARD BOOK COMPANY

1915

S501
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PREFACE

The purpose of this volume is to enable people to utilize, beautify and enjoy the use and ownership of land. "BACK TO THE LAND" does not necessarily mean removing from one location to another, but rather the utilization of land wherever you are—your home garden and grounds, either city, suburb, or your country farm.

Nevertheless, this volume does teach you how to go back to the land and shows you how to choose the location most likely to meet your requirements and realize for you the best results.

This volume tells where desirable land is located, how far there, the climate, and population of over 43,000 market towns. It tells how to subdue the land, fertilize, plant, cultivate, grow the best fruits and grains, the use of agricultural tools; how to utilize domestic animals, breed flocks, grow flowers, beautify the home surroundings, how to prosper and enjoy rural life.

Within these pages more than one thousand subjects pertaining to farming, gardening, home building and care of domestic animals are treated practically in such plain language that beneficial results are certain to be obtained by all persons who follow directions.

THOMAS E. HILL

Index of Guide to Land

[An Alphabetical Index to One Thousand Subjects and Titles covered in this book will be found on pages 441-445. Index to Illustrations, pages 446-448.]

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General Index of States

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And Brief Mention of 120 Points of Interest Located Thereon, See Pages 6, 7, 8 and 9

TO GET INFORMATION

About Irrigation, Renovation of Worn-out Land, Statistics of States, Etc., See Alphabetically Arranged Index

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A GUIDE TO LAND

How to Use the Soil for Pleasure and Profit.

Ever since the days "when Adam delved and Eve span," the soil has furnished man's greatest and most natural means of livelihood. In fact, a man is never more of a man than when engaged in garnering a living from the bountiful bosom of Mother Earth.

The importance of the soil as a natural resource, and the pleasure and profit to be derived from land culture, are recognized today as never before in the history of the race. Congestion of population in urban centers, resulting in unemployment, poverty, disease, distress, squalor and crime, has turned the eyes of thousands of city residents to the opportunities afforded on every hand to gain health, happiness and financial freedom, by intelligent use of available land.

But the stumbling-block in the way of the city or suburban resident hitherto has been the question, how to set about it? How to realize the natural desire to get "back to the land"? How to utilize the garden space, the vacant lot, the suburban acre, or the possible truck farm or quarter section, so as to make them yield the profit that other men and women have wrested from their land, with bettered health and untold pleasure? The city man has hesitated to turn to the land for a living because of lack of exact knowledge how to make it pay. Now he need hesitate no longer, for in this book will be found in plenty just the kind of information and advice he requires, based upon the results of actual experience on the land and having all the weight and advantage of expert authority.

This is the first and only book to give this information to the land-hungry and the seeker after economic freedom. The slightest inspection will suffice to show that the book is replete with the most valuable features. Its "Guide to the Land" is the most comprehensive ever published, and the most useful to those seeking a locality for settlement, because it shows the characteristics of all available localities, including conditions of climate, soil and transportation, the kinds of crops that may be raised, and all the possibilities for profit that exist in the soil. Besides all this, a vast amount of useful information of a general character respecting each locality, is given in the Guide.

The Guide, however, important as it is, forms only one of the many features of this book that will appeal to the man or woman who feels the irresistible call "back to the land." It may not be necessary to look for a new location—and in that case this book will tell you what you can do with the land

A Guide to Land—Continued

you have, though it be but the backyard of a city lot. It is packed full of the most practical kind of information on all subjects of interest to those who would know the joy and gain the benefit of raising the things that spring from the soil and the creatures that thrive upon them.

The best methods of agriculture, of horticulture, of stock-breeding, of dairying, of raising poultry for profit, of market gardening, fruit culture, bee-keeping, and a host of other profitable pursuits upon the land, are here described in full. The language of the book is that of the practical man, easily understandable and plain in direction and advice; but the information given is based upon exact science, upon knowledge gained by experience. It is akin to the information that would be gained by attendance at one of the great agricultural colleges, those splendid institutions that have done so much of late years to increase the efficiency of American agriculture and the comfort of rural homes; and that are yearly sending out their thousands of young men and women equipped with scientific ability to make two ears of corn grow where only one grew before, or to make the home of the ruralite healthier, happier and more prosperous by approved methods of domestic science. To those who cannot attend a school of agriculture, this book will bring, in a form for ready reference, many of the benefits of a technical training for living off the soil.

The business of farming is today at the flood-tide of prosperity. Every product of the soil is in great demand and the rewards of the agriculturist far exceed all previous records. No wonder then that the thoughts of hundreds of thousands of men in all walks of life are turned toward the business in which, more than in any other, the individual is his own master, the arbiter of his own destiny.

Nature stands ready to enter into partnership with any man who will undertake soil-cultivation in earnest, and will help him to success. And this book will show him how to start right in the oldest, greatest and most lucrative business the world has ever known. It is a book for everybody, since everybody is interested in the land; a book for the business man, the parent and the teacher; for the dweller in the city and the tiller of the soil. From its pages the young may learn, or may be taught, how the wonderful products of Nature are made available for man's use, and every seeker after independence and comfort may learn how to secure them from the soil.

The World and Its Divisions of Land and Water

THE EARTH AS IT APPEARS IN SPACE

Showing Earth, Sun, Moon, a Comet and various Planets as they revolve in the immensity of space.

- Admitting the theory that the earth, in its interior, is filled with liquid fire which finds vent, from time to time, in volcanic eruption, it is easy to understand how, in the remote past continents may have been thrown up, the moisture on the earth's surface settling into the hollows, thus making the oceans, seas and lakes.

MAP OF THE PRINCIPAL DIVISIONS OF THE EARTH

Displaying the central situation of the United States in relation to other countries of the world.

Relief Map Showing Mountains, Oceans, Lakes, Rivers and Plains

HARVEST TIME IN DIFFERENT PARTS OF THE WORLD.

In January the wheat is harvested in Australia, New Zealand, Chile and the Argentine Republic.

In February and March the harvest has extended into upper Egypt and India.

In April it is in lower Egypt, India, Persia, Syria, Asia Minor, Cyprus, Mexico and Cuba.

In May it reaches perfection in Algeria, Central Asia, China, Japan, Morocco and Texas.

In June it has reached into Oregon, California, Alabama, Mississippi, Georgia, North Carolina, South Carolina, Virginia, Kentucky, Tennessee, Kansas, Arkansas, Colorado, Utah, Missouri, Turkey, Greece, Italy, Spain, Portugal and the South of France.

In July it has extended into New Zealand, New York, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Iowa, Wisconsin, Southern Minnesota, Nebraska, Upper Canada, Roumania, Bulgaria, Austria, Hungary, South of Russia, Germany, Switzerland and the South of England.

In August the harvest is actively going forward in Central and Northern Minnesota, Dakota, Manitoba, Lower Canada, Columbia, Belgium, Holland, Great Britain, Denmark, Poland and Central Russia.

In September and October it has reached up into Scotland, Norway, Sweden and the North of Russia.

In November it is proceeding in Peru and South Africa, and in December it is in Burmah.

FOREIGN CITIES, DISTANCES FROM CHICAGO.

	Miles.
Amsterdam, Holland	4,897
Antwerp, Belgium	4,912
Athens, Greece	6,567
Berlin, Germany	5,147
Bremen, Germany	5,147
Brindisi, Italy	6,117
Brussels, Belgium	4,887
Christiania, Norway	5,562
Constantinople, Turkey	6,732
Rangoon, India	12,822
St. Helena, West of Africa	10,192
Bahia, Brazil	6,782
Bermuda, E. of U. S.	1,692
Colon, Columbia	3,217
Havana, Cuba	2,312
Livingston, Guatemala	3,407
Nassau, Bahama Is.	2,067
Pio Janerio, Brazil	7,642
Singapore	11,328
Stambridge, Australia	1,933
Adelaide, Australia	1,933
Hongkong, China	9,678
Honolulu, Sand. Is.	4,733
Melbourne, Aus.	11,353
Yokohama, Japan	7,813
Well'ton, N. Zealand	9,878

Part of the Western Hemisphere, Including North American Continent.

Map of the North American Continent.

Occupied, two thousand or more years ago, by the Mound Builders; more recently by the red men, called Indians; opened to civilization by Christopher Columbus, who discovered the Bahama Islands, October 12, 1492.

This map and three others taken from "Hill's Guide," by Thomas E. Hill, published by Laird & Lee, Chicago, Ill.

When examining the map of North America figures will be found extending from left to right, beginning with A 1 and A 2, in the Arctic regions; succeeding which are B 1, etc., in the regions south of latitude 80; while south of latitude 70 are C 1, and so on, down to Central America. Letters and figures on the map indicate important localities. By examining the map the letters and figures will be readily found indicating points that are thus described.

Localities and Objects Designated on Map by Letters and Numbers

A 1. North Pole.	E 28. Quebec, Can.
A 2. Highest Point of Arctic Exploration.	E 29. Nova Scotia.
B 1. Point Barrow.	E 30. Gulf of St. Lawrence.
B 2. Cape Sabin.	F 1. San Francisco.
B 3. Baffin's Bay.	F 2. Sierra Nev. Mts.
B 4. Greenland.	F 3. San Diego.
B 5. Spitzbergen.	F 4. Salton Lake.
C 1. Siberia, Russia.	F 5. Colorado River.
C 2. Behring's Strait.	F 6. Mex. Boundary.
C 3. Alaska.	F 7. Rocky Mts.
C 4. Yukon River.	F 8. Denver, Colo.
C 5. Can. Dominion.	F 9. Santa Fe.
C 6. Mackenzie River.	F 10. Indian Ter.
C 7. Gt. Bear Lake.	F 11. Arkansas River.
C 8. Gt. Slave Lake.	F 12. Red River.
C 9. Hudson Bay.	F 13. Mississippi River.
C 10. Hudson Strait.	F 14. St. Louis, Mo.
C 11. Davis Strait.	F 15. Ohio River.
C 12. Iceland.	F 16. Cincinnati, O.
C 13. Norway.	F 17. Allegheny Mts.
C 14. Arctic Circle.	F 18. Charleston, S. C.
D 1. Mt. St. Elias.	F 19. Cape Hatteras.
D 2. Mt. Fairweather.	F 20. Wash'gton, D. C.
D 3. Sitka, Alaska.	F 21. Philadelphia, Pa.
D 4. Mt. Brown.	F 22. Bermuda Isl's.
D 5. Lake Winnipeg.	F 23. Atlantic Ocean.
D 6. Winnipeg.	G 1. Pacific Ocean.
D 7. Lake Nipigon.	G 2. Guadalupe Is.
D 8. Labrador.	G 3. Tropic of Canc'r.
D 9. Strait of Belle Isle.	G 4. Low. California.
E 1. Vancouver Is.	G 5. Gf. of Calif'nia.
E 2. Victoria, B. C.	G 6. Mexico.
E 3. Mt. St. Helens.	G 7. Sierra Madre.
E 4. Portland, Ore.	G 8. Rio Grande.
E 5. Columbia River.	G 9. Monterey, Mex.
E 6. Boundary Line.	G 10. Gulf of Mexico.
E 7. Salt Lake, Utah.	G 11. Galveston, Tex.
E 8. Yellowstone Park.	G 12. New Orleans.
E 9. Missouri River.	G 13. Florida.
E 10. Dakota.	G 14. St. Augustine.
E 11. St. Paul, Minn.	G 15. Havana.
E 12. Duluth, Minn.	G 16. Cuba, W. Indies.
E 13. Lake Superior.	G 17. Watling Island.
E 14. Mackinac.	H 1. Mexico City.
E 15. Lake Michigan.	H 2. Pocomatepetl.
E 16. Chicago.	H 3. Vera Cruz, Mex.
E 17. Lake Huron.	H 4. Yucatan, S. A.
E 18. Detroit, Mich.	H 5. Guatemala.
E 19. Lake Erie.	H 6. Honduras.
E 20. Cleveland.	H 7. Nicaragua.
E 21. Buffalo, N. Y.	H 8. Nicaragua Lake.
E 22. Lake Ontario.	H 9. Caribbean Sea.
E 23. Montreal, Can.	H 10. Jamaica.
E 24. New York, N. Y.	H 11. Hayti, W. Inds.
E 25. Boston, Mass.	I 1. Ist. of Panama.
E 26. Mt. Wash'gton.	I 2. Aspinwall.
E 27. St. Lawrence R.	I 3. U. S. of Col'bia.
	I 4. Venezuela, S. C.
	I 5. Equator.

Description of Notable Objects on the North American Continent.

A 1. The North Pole. An imaginary point where the lines of longitude are supposed to converge.

A 2. The Point Near the North Pole, reached by arctic navigators, being Lockwood Island, discovered by the Greely expedition in May, 1883, and supposed to be about 450 miles from the North Pole. Failing to get supplies, the expedition started southward, and camped at Cape Sabin (see B. 2), about 420 miles southwest of Lockwood Island, where they were rescued in a dying condition by the relief expedition under guidance of Commander W. S. Schley, 7 being rescued alive, 17 having died before relief arrived.

B 1. Point Barrows. The northernmost point of Alaska, and the most northern point of the United States' possessions.

B 2. Cape Sabin. A locality that will always be notable as the place where the Greely explorers went into camp and waited for relief, which did not come until the majority of the party had died.

B 3. Baffin's Bay. So named after William Baffin, who first explored the region in 1816. It is a large inland sea, 1,000 miles long and 500 miles wide.

B 4. Greenland. A region of unknown extent northward, said to have been discovered in the ninth century by an Icelander. Dr. Kane extended his explorations northward, across Greenland, to within 520 miles of the North Pole. The whole face of the northern portion is covered with a sheet of ice and snow. Greenlanders are widely scattered throughout the colder regions of the north.

B 5. Spitzbergen. A group of islands covering about 30,000 English square miles. Covered with nearly perpetual snow and glaciers.

C 1. Siberia. A vast territory in North Asia, belonging to Russia, 4,000 miles long and 2,600 wide.

C 2. Behring's Strait. Explored by Vitus Behring in 1728; is nearly 50 miles wide from Alaska to Siberia, with three uninhabited islands nearly midway between. Towards the middle the water is about 120 feet in depth. With a railroad spanning the distance between Alaska and Siberia, either above water or in a tunnel under the water, nearly all portions of the world could be traversed by continuous railways.

C 3. Alaska. Belongs to the United States; comprises 565,862 square miles; population in 1900, 63,592. A small proportion are whites. Purchased of Russia, in 1867, for \$7,200,000. Alaskan waters are the home of the fur seal, the largest weighing about 700 pounds.

C 4. Yukon River. The principal river of Alaska; rises in the Rocky Mountains, in the Canadian Dominion, flows 2,000 miles, and empties into the Pacific ocean some 400 miles southwest of Behring Strait.

C 5. Canadian Dominion. A vast area of country in the northern part of North America, usually designated as British America, contains 3,500,000 square miles, extending from the Atlantic to the Pacific Ocean, and from the United States to the Arctic Ocean. Population in 1901 was 5,528,847.

C 6. Mackenzie River. An important river of British America, 1,773 miles long. Runs through Athabasca and Great Slave Lakes, and empties into the Arctic Ocean.

C 7. Great Bear Lake. By observing a perfect map of North America it will be seen that a chain of lakes extends from the Arctic Ocean, near Alaska, eastward to the Gulf of St. Lawrence. The most northerly of these is Great Bear Lake, the area of surface of which is estimated to be 14,000 square miles.

C 8. Great Slave Lake. Next, south of Great Bear, is Great Slave Lake, 300 miles in length by 50 in width, and like other lakes in this region, wholly frozen over for six months in the year.

C 9. Hudson Bay. A great inland sea, on the borders of which the Hudson Bay Company, which was established in 1670, held control until 1869; at which time their possessions were transferred to the Dominion of Canada for the sum of \$1,500,000, they only reserving their trading posts and a small amount of land around each post.

C 10. Hudson Strait is a body of water joining Hudson Bay with the Atlantic Ocean; is 450 miles in length, by 60 miles in width.

C 11. Davis Strait. So called from the name of the navigator who first discovered it. Connects Baffin's Bay with the Atlantic Ocean, being at its narrowest point 160 miles in width.

C 12. Iceland. An island 300 miles in length by 200 miles in width; in the northernmost part of the Atlantic in the confines of the Arctic Ocean; belongs to the kingdom of Denmark. Is about 800 miles from Norway and 300 from Greenland. Settled by Norwegians in the latter part of the ninth century; has thus been open to civilization over 1,000 years. Possessed once a climate much more warm than now.

In spite of cold and poverty its people have been noted for literary attainments and scientific acquirements. Population, 1901, 78,470.

C 13. Norway. Formerly formed with Sweden one joint kingdom; is 1,100 miles long and 250 miles wide; has, however, its own government, legislative machinery, army and navy, after the manner of each separate State in the United States.

C 14. Arctic Circle. A circle drawn around the North Pole which is supposed to divide the arctic regions from the temperate zone.

D 1. Mt. St. Elias. A volcanic mountain between Alaska and British America; is 19,000 feet in height and is one of the highest peaks in North America.

D 2. Mt. Fairweather. In southeast Alaska; is 14,900 feet, or 2 1/2 miles, in height.

D 3. Sitka. The former capital of Alaska, on the coast, in the southernmost part of that territory.

Points of Interest in the Central Part of North America

D 4. Mt. Brown. Is 15,900 feet high, in the Rocky Mountains, near Mt. Hooker, in the same range of mountains; the latter being 15,675 feet in height.

D 5. Lake Winnipeg. Is 90 miles long of Minnesota; is 264 miles long, 85 miles wide.

D 6. Winnipeg. Capital of Manitoba; celebrated for its schools and advanced civilization. Population, 1901, 90,204.

D 7. Lake Nipigon. An important lake at the head of Nipigon River, renowned as a resort for fishermen.

D 8. Labrador. A portion of the North American continent supposed to have been visited by the Northmen in the ninth century; is a cold, frigid region a large portion of the year, and is settled largely by the Esquimaux. Is under English rule.

D 9. Strait of Belle Isle. A narrow neck of water separating Labrador from Newfoundland.

E 1. Vancouver Island. Is 270 miles long, 50 miles wide and has, with its chief town, Victoria, a large and growing population. Under British rule.

E 2. Victoria. Capital of the province of British Columbia; stands at the southeast extremity of Vancouver Island.

E 3. Mt. St. Helena. In the southeast of Washington State; 13,400 feet high. Mt. Hood, in northern Oregon, is 11,225 feet high.

E 4. Portland, Ore. Population 1900, 90,426. This is a region, owing to mild, moist and favorable climate, of remarkable fruit and vegetable production.

E 5. Columbia River. Largest stream on the western coast of the United States, being 1,000 miles long.

E 6. Boundary Line, between the United States and the British Dominion.

E 7. Salt Lake. An extensive sheet of salt water, 70 miles long and 30 miles wide, having an average depth of 7 or 8 feet, and nowhere over 20 feet in depth. Its surface is over 4,200 feet above the sea. Nine islands are found in this lake, some of which are 3,250 feet above the level of its surface. No living creature is found in its waters, which constitute one of the purest and most concentrated brines in the world. Receives fresh water from two sources, but has no outlet.

E 8. Yellowstone Park. Is 65 miles long and 55 miles wide; contains from 5,000 to 10,000 springs, and 50 geysers that throw water to a height of from 50 to 200 feet. Was set apart by Congress as a public park in 1872.

E 9. Missouri River. The longest continuous river in the world; springs out in the Rocky Mountains, in Montana, runs north 200 miles, thence east 1,200 miles, thence southeast to the mouth of the Kansas River, thence east to the Mississippi, thence south, in the union with the Mississippi, to the Gulf of Mexico; its entire length being 4,506 miles; 2,540 miles being navigable, in high water, up from the Mississippi.

E 10. Dakota. So called from the Dakota Indians; was set apart as a territory in 1861, and admitted into the Union as two states in 1889. Bountiful wheat-growing region.

E 11. St. Paul. Population 1900, 163,065.

E 12. Duluth. Population, 1900, 52,969.

E 13. Lake Superior. Is the largest body of fresh water in the world, being 355 miles long and 160 wide; is 600 feet above the level of the sea; its average depth is 1,000 feet, its bottom thus being 400 feet below the level of the sea.

E 14. Mackinac. An island located at the northern extremity of Michigan, in the Straits of Mackinac; is a national park 3 miles long by 2 miles wide; is much frequented as a summer resort.

E 15. Lake Michigan. The second in size of the great fresh water lakes; lies wholly in the United States, 240 miles long and 88 miles wide in some places.

E 16. Chicago. In the vicinity of Chicago, and to the westward, throughout the Mississippi valley, are the great prairies where the rank growth of vegetation has blossomed and gone to decay, every year for centuries, creating a wondrously fertile soil, adapted to the growth of that important cereal known as corn.

E 17. Lake Huron. One of the five great lakes. Separates the Canadian dominion from the State of Michigan. Area, 20,000 square miles. Depth, 1,000 feet. Its surface is 584 feet above the level of the ocean. Contains 3,000 islands.

E 18. Detroit. Population, 1900, 285,704.

E 19. Lake Erie. Length, 240 miles; breadth, from 30 to 60 miles. Average depth about 120 feet.

E 20. Cleveland Population, 1900, 381,768.

E 21. Buffalo. Population, 1900, 352,387.

E 22. Lake Ontario. Easternmost of the five great lakes, is 196 miles long and 55 miles wide, being, in some places, 600 feet deep.

E 23. Montreal. The largest city of Canada. 400 miles from New York, 180 miles from Quebec and 2,750 miles from Liverpool, England. Population, 1901, 267,730.

E 24. New York City. Population, 1905, 3,948,191.

E 25. Boston. Population, 1904, 588,482.

E 26. Mt. Washington. One of the highest of the White Mountains, in the State of New Hampshire, is 6,285 feet high; has a carriage road and railway to its summit, on the top of which is a signal service station and a hotel.

E 27. St. Lawrence River. Rises at the lower end of Lake Ontario and empties into the Gulf of St. Lawrence, being 750 miles long. Including the chain of lakes it is 3,200 miles long up to Duluth.

E 28. Quebec. The location where this city is situated was discovered by Jacques Cartier in 1533, and founded by Champlain in 1608. Throughout the Canadian Dominion one of the principal sports of the country is that of tobogganing on the frozen snow, in the long winter season. Capital of the Province of Quebec. Population, 1901, 68,840.

E 29. Nova Scotia. A small province belonging to the British Possessions 280 miles long and from 50 to 100 miles in width. Contains about 400 lakes and a population of 459,572. Capital city, Halifax.

E 30. Gulf of St. Lawrence. Lies westward of Newfoundland, and is the entrance to the St. Lawrence river.

E 31. Newfoundland. An island and province of the British Possessions at the eastward extreme of the North American continent; is 370 miles in length, 290 in breadth.

F 1. San Francisco. Population, 1900, 342,782.

F 2. Sierra Nevada Mountains. Extending 450 miles in length along the eastern boundary of California.

F 3. San Diego. Seaport city and port of entry, having a superior harbor, in lower California. Modern discovery by Cabrillo in 1542. First settled in 1769. A new town commenced in 1867. Has many attractions both as a summer and winter resort. Will become a large city. Population in 1900, 17,700.

F 4. Salton Lake. A newly formed lake in southern California.

F 5. Colorado River. Rises in southeastern Utah, flows first west and then south 2,000 miles, emptying into the Gulf of California.

F 6. Boundary Line of Mexico. Extending from the Pacific Ocean to the Gulf of Mexico, a distance of about 1,400 miles.

F 7. Rocky Mountains. Extending from Mexico to the Arctic Ocean, a distance of 2,500 miles, being over 1,000 miles wide in the U. S.

F 8. Denver. Population, 1900, 133,859.

F 9. Santa Fe. Capital of New Mexico. An old Spanish-Mexican town, founded in 1605.

F 10. Indian Territory. A region having about 10,000 square miles, originally set apart by the government in 1848 for the use of the Indians.

F 11. Arkansas River. Excepting the Missouri, the largest branch of the Mississippi. Rises in the Rocky Mountains and flows 2,170 miles, southeastward, to the Mississippi, being navigable for eight months of the year for a distance of 800 miles from its mouth.

F 12. Red River. Rises on the east border of New Mexico.

F 13. Mississippi River. The principal river of North America and, including its chief branch, the Missouri, the longest in the world. Rises in the highlands of Minnesota and flows southward 2,616 miles.

F 14. St. Louis. Population, 1900, 575,238.

Notable Localities and Objects in Southern North America

F 15. Ohio River. Formed by the union of the Allegheny and Monongahela at Pittsburgh, Pa.; thence flows southwest to the Mississippi 950 miles. Navigable through its entire length.

F 16. Cincinnati. Population, 1900, 325,902.

F 17. Allegheny Mountains. Extending from Cape Gaspe, on the Gulf of St. Lawrence, southwest to Alabama, 1,300 miles. Are the dividing ridge between the Atlantic and the Mississippi valley.

F 18. Charleston. Population, 1900, 55,807. Since the early settlement of the States this has been a region celebrated for the growth of cotton.

F 19. Cape Hatteras. A dangerous point for ships on the sea, at the extreme eastern point of North Carolina.

F 20. Washington. Population, 1900, 278,718.

F 21. Philadelphia. Population, 1900, 1,293,697.

F 22. Bermuda Islands. So named because first discovered by Bermudez, a Spaniard, in 1527. Were colonized in 1609. There are 500 islets, which, in all, contain about 12,000 acres, the whole occupying about 20 miles in length by 6 miles in breadth.

F 23. Atlantic Ocean. That ocean, at the eastward of America, which divides the old world from the new, extending from the Arctic circle on the north to the Antarctic circle on the south; is 5,000 miles wide at the widest and 1,600 miles in width at the narrowest point.

G 1. Pacific Ocean. That great body of water at the westward of America, being about 9,000 miles long by 10,300 miles broad, at its greatest breadth, its area covering about two-fifths of the entire globe.

G 2. Guadeloupe Island. Three hundred miles to the westward of lower California.

G 3. Tropic of Cancer. That line which is supposed to be the northern boundary of the equatorial region.

G 4. Lower California. That portion of California which is principally in Mexican territory; a very dry, rocky and forbidding region having a population numbering about 12,000 persons, the most of whom live near the southern extremity of the peninsula.

G 5. Gulf of California. Divides lower California from the rest of Mexico. Is 700 miles long and from 40 to 100 miles wide.

G 6. Mexico. Occupies the southern part of the North American continent, occupied by a race of beings, about the seventh century called the Toltecs; subsequently, in the twelfth century, by the Aztecs, who remained here until the conquest of the country, by Cortez, in 1519. Present population is little less than 14,000,000.

G 7. Sierra Madre. The name of the southern portion of the Rocky Mountains which are in Mexico.

G 8. Rio Grande River. Has a total length of about 1,800 miles, and for 1,100 miles forms the boundary between Mexico and the United States. Navigable for 450 miles from the sea.

G 9. Monterey, Mexico. The most thriving city of Northern Mexico, having, in 1900, a population of 62,266. Founded in 1596.

G 10. Gulf of Mexico. Basin of the Atlantic Ocean, covering an area of 800,000 square miles.

G 11. Galveston. Population, 1900, 37,780.

G 12. New Orleans. Population, 1900, 287,104.

G 13. Florida. The most southern portion of the United States, 400 miles long; average width, 120 miles. A very general and favorite resort, in the winter season, because of its mild climate.

G 14. St. Augustine. The oldest city in the United States. The region hereabouts first made known to Europeans by Ponce de Leon, who landed near the city in 1512. The city, itself, founded in 1565. A favorite resort for people from the north in the winter season. Widely known because of its magnificent Ponce de Leon hotel.

G 15. Havana. The capital of Cuba and the most important city in the West Indies. Founded by Velasquez in 1511. Population of Havana and its suburbs, 1899, 235,981.

G 16. Cuba. Largest of West India Islands. Length, 750 miles; average width, 50 miles. Population about 1,500,000. The white people of Cuba are of Spanish descent, and among the ladies are types of a very high order of beauty.

G 17. Watling Island. One of the Bahamas, being the island on which, it is supposed, Columbus first landed, October 12, 1492, upon his arrival in the New world, 70 days after leaving Spain.

H 1. Mexico City. Capital of the Mexican Republic. Situated on an elevated plateau; is laid out with great regularity, being about three miles square. Supposed to have been founded by the Aztecs in 1325. Population, 1900, 368,777.

H 2. Volcano Popocatepetl. Largest volcano in Mexico, a mountain about 10 miles southwest of Mexico City. Is 17,720 feet above sea level. Though it emits smoke, no eruption has taken place since 1540.

H 3. Vera Cruz. Leading harbor on the eastern coast of Mexico, 200 miles from the Mexican capital; built in semicircle and surrounded by a strong wall. Population about 17,000.

H 4. Yucatan. A Mexican peninsula jutting into the Gulf of Mexico. Discovered by the Spaniards in 1517.

H 5. Guatemala. In Central America. Area, 48,290 square miles; nearly as large as Ohio. Has a population of 1,842,134. Many Northerners have recently come here and engaged in the cultivation of coffee and bananas.

H 6. Honduras. A Republic in Central America about the size of Indiana, having a population of 744,901. Was discovered by Columbus on his fourth voyage, in 1562(?). Is being rapidly opened to settlers from the United States. Area, 42,658 square miles.

H 7. Nicaragua. A Republic of Central America, near the size of the State of New York. Population about 500,000. Has several smoking volcanoes, and a soil that produces, in abundance, all the fruits and vegetables of the tropics. Area, 49,200 square miles.

H 8. Lake Nicaragua. A sheet of water 110 miles long and from 30 to 50 miles wide.

H 9. Caribbean Sea. That part of the Atlantic Ocean, between the coasts of Central and South America and the large islands of the West Indies.

H 10. Jamaica. One of the West India Islands belonging to England, a little less in size than New Jersey. Length, 135 miles; 21 to 49 miles wide. Population, 581,000.

H 11. Hayti. Largest of the West India Islands, Cuba excepted; 400 miles long, 150 miles wide at the widest point. Is near the size of New Hampshire. Population about 1,425,000, nearly all negroes.

I-1. Isthmus of Panama. Narrow neck of land, connecting North and South America, a high range of mountains forming the barrier between the Atlantic and Pacific Oceans, which, at this point, are about 31 miles apart.

I-1. Panama Canal. The route for this canal was first surveyed in 1527; Panama railroad built in 1850-1855; Panama Canal Company organized by De Lesseps, 1879; work on canal begun 1881; Canal company failed, 1888; De Lesseps and others sentenced to prison for fraud, 1893; new French canal company formed, 1894; De Lesseps died, 1894; canal property offered to the United States, 1902, for \$40,000,000; accepted, 1903; a canal treaty made with Colombia, January, 1903, was rejected by Colombia in August, 1903; Revolution; organized the Republic of Panama in November, 1903; United States treaty with Panama for purchase of territory five miles in width on each side of canal November, 1903.

I-2. Aspinwall. Sometimes called Colon, is built on the coral island of Manzanilla. Was founded by the Panama Railway Company, in 1850, and derives its name from W. H. Aspinwall, one of the principal railway shareholders.

I-3. United States of Colombia. The name for several confederated States, in this portion of South America, the area of which is 502,000 square miles; about seven times as large as the six New England States.

I-4. Venezuela. A portion of Northern South America. Includes nineteen separate States and Territories, and contains a population of 2,108,825. Republican government.

I-5. Equator. The imaginary partition line midway between the North and South Poles; divides the northern from the southern hemisphere, and crosses those regions which, being directly under the sun's vertical rays, are the warmest parts of the earth.

STATE AND THE 67 COUNTIES OF ALABAMA
With Their Boundaries

Location and Population
of
ALABAMA COUNTIES

Lo-
ca-
tion COUNTIES Pop.
1910

1....	Lauderdale..	30,936
2....	Limestone..	26,880
3....	Madison..	47,041
4....	Jackson..	32,918
5....	Colbert..	24,802
6....	Franklin..	19,369
7....	Lawrence..	21,984
8....	Morgan..	33,781
9....	Marshall..	28,553
10....	DeKalb..	28,261
11....	Marion..	17,495
12....	Winston..	12,855
13....	Cullman..	28,331
14....	Blount..	21,456
15....	Etowah..	39,109
16....	Cherokee..	20,226
17....	Lamar..	17,487
18....	Fayette..	16,248
19....	Walker..	37,013
20....	Jefferson..	226,476
21....	Saint Clair..	20,715
22....	Calhoun..	39,115
23....	Cleburne..	13,385
24....	Pickens..	25,055
25....	Tuscaloosa..	47,559
26....	Shelby..	26,949
27....	Talladega..	37,921
28....	Clay..	21,006
29....	Randolph..	24,659
30....	Sumter..	28,699
31....	Greene..	22,717
32....	Hale..	39,115
33....	Bibb..	22,797
34....	Perry..	31,222
35....	Chilton..	23,187
36....	Coosa..	16,624
37....	Tallapoosa..	31,034
38....	Chambers..	36,056
39....	Choctaw..	18,483
40....	Marengo..	39,923
41....	Dallas..	58,401
42....	Autauga..	20,038
43....	Elmore..	28,245
44....	Lee..	22,867
45....	Washington..	14,454
46....	Clarke..	30,987
47....	Wilcox..	33,810
48....	Lowndes..	31,894
49....	Montgomery..	82,178
50....	Macon..	26,049
51....	Bullock..	30,196
52....	Russell..	25,937
53....	Monroe..	27,155
54....	Conecuh..	24,433
55....	Butler..	29,030
56....	Crenshaw..	23,313
57....	Pike..	30,815
58....	Barbour..	32,148
59....	Mobile..	80,854
60....	Baldwin..	18,178
61....	Escambia..	18,889
62....	Covington..	32,124
63....	Coffee..	26,119
64....	Dale..	21,873
65....	Henry..	20,943
66....	Geneva..	26,230
67....	Houston..	32,414
Total.....		2,138,093

ALABAMA TOWNS WITH 1910 POPULATION

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A								
Abbeville	65	1,141	Ashville	21	278	Benton	48	644
Abercrombie	33	350	Athens	2	1,715	Berry	18	372
Abernath	25	800	Atmore	61	1,060	Bessemer	20	10,864
Acton	26	1,500	Attalla	15	2,513	Basar	11	384
Adamsville	20	649	Aubrey	20	318	Billingsley	42	256
Adgar	20	1,271	Auburn	44	1,408	Birmingham	20	132,685
Alabama City	15	4,313	Austinville	8	671	Black	66	485
Alameda	46	218	Autaugaville	42	313	Bladen Springs	39	425
Albertville	9	1,544	Avondale	20	4,015	Blount	33	2,500
Aldrich	26	451	B			Blossburg	20	1,518
Alexander City	37	1,710	Bangor	14	208	Blount Springs	14	371
Aliceville	24	647	Banks	57	307	Blountsville	14	314
Allenton	47	268	Barlow Bend	46	217	Blowhorn	14	287
Alton	20	200	Bartelle	10	1,614	Bluffton	16	318
Altosna	15	1,071	Bay Minette	60	749	Boaz	9	1,010
Andalusia	62	2,480	Bear Creek	11	614	Boligee	31	200
Anderson	1	226	Beatrice	53	349	Bolling	55	351
Anniston	22	12,794	Belcher	58	211	Bon Secour	27	378
Ariton	64	431	Bellamy	30	514	Birachead	33	257
Arkadelphia	13	207	Belle Ellen	33	418	Brantley	56	803
Ashford	67	479	Bellwood	66	201	Brewton	61	2,185
Ashland	28	1,062				Bridgeport	4	2,115

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Alabama Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Brierfield	33	2,081	Equality	33	230	I			Mount Andrew	58	307
Brighton	21	1,502	Eufaula	38	4,250	Iverness	51	211	Mount Hope	7	300
Brumpton	21	251	Eumala	66	231	Ireland Hill	37	325	Mount Vernon	50	380
Brooklyn	54	358	Eutaw	31	1,001	Irwin	27	98	Mount Willing	48	231
Brookside	20	623	Evergreen	54	1,582	Irondale	20	572	Mulga	20	409
Brookwood	25	1,559	Ezra	20	250	Isom	14	281	Murford	27	400
Browns	41	200							Murray	20	1,000
Brundidge	57	815	F			J			N		
Buena Vista	53	208	Fairhope	60	590	Jackson	46	1,379	Nanafalia	40	600
Burnsville	41	208	Fairview	8	237	Jacksons Gap	37	207	Natural Bridge	12	214
Butler	39	351	Falkville	48	335	Jacksonville	22	2,231	Nauvoo	19	392
			Faulsdales	40	352	James	51	424	Newbern	32	515
C			Fayette	18	636	*Jasper	19	2,509	New Brockton	63	328
Caddo	25	300	Finchburg	53	230	Jefferson	40	204	Newburg	6	255
Cahala	41	214	Fisk	3	311	Jemison	35	413	New Decatur	8	6,118
Calumet	19	355	Fitzpatrick	51	398	Jernigan	52	500	New Hope	3	301
Camden	47	648	Five Points	38	200	Johns	20	500	New Market	3	300
Campbell	37	896	Flat Creek	40	217	Jonesboro	20	1,979	Newsite	37	300
Capitol Heights	49	403	Flomaton	61	539	Jones Mills	53	442	Newton	64	534
Carbon Hill	19	1,627	Floral	62	2,439				Newville	65	522
Cardiff	29	426	Florence	1	6,689	K			Nokomis	61	209
Carrollton	4	441	Foley	69	218	Kellyton	36	315	North Birm-		
Carrbury	4	208	Forest Home	55	321	Kennedy	17	261	ingham	20	2,000
Catherine	6	256	Fort Davis	31	200	Kimberly	20	800	Northport	25	500
Center	6	256	Fort Deposit	48	893	Kinsey	67	340	Notasulga	50	512
Centerville	33	730	Fort Payne	10	1,317				O		
Central Mills	41	208	Fredonia	38	250	*Lafayette	38	1,632	Oakhill	47	311
Chambers	4	250	Fruitdale	45	278	Lagarde	15	266	Oakman	19	1,065
Chatham	45	218	Fruithurst	23	257	Lahusage	10	250	*Oakonta	14	609
Chelsea	26	413	Fulton	46	518	Lamison	47	250	*Opelika	44	1,734
Chepultepec	14	212	G			Landersville	7	241	Opp	62	863
Choccolocco	22	250	Gadsden	15	10,557	Langdale	38	3,820	Orville	41	255
Chunchula	59	211	Gallion	30	532	Langston	4	314	Osceola	16	270
Citronelle	59	935	Gallons	32	208	Lanier	27	300	Oxford	22	1,090
Clanton	35	1,133	Gantt	62	321	Lapine	56	250	Oxmoor	20	501
Clayton	38	1,139	Gantts Quarry	27	314	Larkinsville	4	216	*Ozark	64	2,229
Clio	38	580	Garden City	13	200	Lawrenceville	65	200			
Coalburg	20	250	Garland	55	250	Leads	20	810	P		
Coal City	21	685	Gate City	29	700	Lehigh	14	300	Paint Rock	4	534
Coal Creek	29	381	Gaylesville	16	204	Leighton	5	540	Palmetto		
Coaling	25	250	Geneva	66	969	Leitch	48	341	Beach	60	325
Coal Valley	19	410	Georgiana	55	969	Lethathatchee	48	341	Palmetto	20	284
Cochrane	24	209	Giard	32	214	Lillita	30	213	Pana	15	251
Coden	59	250	Glass	32	200	Lima Rock	35	300	Patton	19	309
Coffee Springs	66	503	Glen Carbon	36	200	Lincoln	27	250	*Pell City	21	530
Collinsville	10	673	Glencoe	15	500	*Linden	40	1,900	Perdue Hill	53	282
Columbia	67	1,122	Glenale	69	600	Lineville	28	1,053	Petrey	56	214
Columbiana	6	1,075	Glenville	52	282	*Livingston	39	877	Phoenix	44	1,555
Comer	23	200	Glenwood	76	336	Loachapoka	44	357	Pickensville	24	214
Cordova	19	1,741	Good Water	36	710	Lockhart	62	600	Piedmont	22	2,226
Corona	19	1,571	Gordo	24	707	Longview	26	250	Pinckard	64	541
Cottondale	25	581	Gordon	67	293	Louisville	58	483	Pine Apple	47	627
Cottonwood	65	578	Goshen	57	347	Lower Peach	47	700	Pine Grove	51	274
Courtland	7	478	Graces	20	500	Tree	47	700	Pine Hill	47	170
Covington	20	515	Graham	29	284	Lowndesboro	48	481	Pine Level	49	250
Crawford	52	218	Grantsville	67	216	Luthers Store	4	250	Pinkney	21	358
Crossville	10	250	Grayville	39	1,000	*Luverne	56	1,384	Piper	33	500
Cuba	39	659	Greeley	25	300	M			Plateau	59	209
Culman	13	2,139	Green Pond	33	250	Maben	20	200	Pleasant Hill	41	506
Curt Station	13	200	*Greensboro	32	2,048	McCallum	19	200	Pleasanton	16	261
Curtistown	15	200	*Greenville	55	3,377	McFall	22	200	Pleasant Ridge	31	350
D			*Grove Hill	46	314	McGehee	16	250	Pletcher	66	284
Dadeville	37	1,193	Guin	11	356	McKinley	40	214	Pocahontas	19	300
Daleva	67	218	*Guntersville	9	1,145	Madison	3	426	Point Clear	60	431
Daleville	61	529	Gurley	3	750	Magazine	59	250	Poley	62	317
Daphne	60	718	Gurnee	26	200	Magnolia	40	521	Polard	61	509
Dayton	40	382				Magnolia Sprgs.	60	244	Porter	20	226
Decatur	8	4,328	Hackleburt	11	286	Manchester	19	507	Portersville	10	218
Deer Creek	19	279	Haleyville	12	1,111	Maplesville	35	511	Powderly	20	341
Demopolis	49	2,417	*Hamilton	11	422	Marbury	42	617	Powers	32	250
Dixons Mills	49	210	Hanceville	13	464	Margaret	21	600	Pratt City	20	3,485
Dolomite	20	2,500	Hardaway	50	300	*Marion	34	1,834	*Prattville	42	2,222
Dora	19	916	Hargrove	33	350	Marion June	41	199	Prentice	40	284
Dothan	67	7,016	Hartford	66	1,159	Marvel	33	421	R		
Double Springs	12	205	Hattiesburg	8	1,374	Marvyn	49	200	Ragland	21	483
Dozier	56	288	Hatchechubbess	52	250	Mathews	49	200	Ramer	49	314
Duncanville	25	249	*Hayneville	43	400	Maylene	26	350	Ramsey	30	309
Dunn	20	1,018	Headland	65	1,090	Maysville	8	218	Randolph	33	350
E			*Hefflin	23	839	Mehama	7	344	Red Bay	6	472
Eastaboga	27	298	Helena	26	400	Memphis	24	200	Red Level	62	317
E. Birmingham	20	531	Henryvellen	20	459	Midland City	61	539	Reform	24	550
East Lake	20	4,108	Herbert	54	300	Midway	51	464	Repton	54	331
East Tallasse	37	2,020	Highnote	66	300	Millport	17	529	Republic	20	350
East Thomas	20	1,500	Hillsboro	7	204	Minter	59	318	Richmond	41	282
Electric	43	315	Hobbs Island	3	212	*Mitchell Sta.	51	296	Riderville	35	500
Edwardsville	23	393	Hobson City	22	344	*Mobile	59	51,321	Riley	53	200
Effie	54	307	Hokes Bluff	15	312	*Montevallo	53	616	River Falls	62	700
Elarnville	58	200	Hollins	38	688	Montevallo	49	923	Riverside	53	700
Elba	63	1,179	Hollywood	4	234	*Montgomery	49	38,136	Riverside	21	277
Elberta	36	317	Holt	25	584	Moore's Bridge	25	311	River View	38	200
Elvira	20	1,126	Houston	12	200	Morris	20	299	Roanoke	29	2,034
Enon	51	317	Hull	25	372	*Moulton	7	351	Robertsdale	60	340
Ensley	20	9,155	*Huntsville	3	7,611	Moundville	32	253	*Rockford	36	600
Enterprise	63	2,322	Hurtsboro	52	764	Mountain Creek	35	314	Rock Mills	29	349
Epas	30	374							Rock Run	16	308

Alabama Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Rockwood	6	240	Silver Hill Sta.	60	360	Texas	11	300	Wallace	61	204
Round			Slocomb	66	896	Theodore	59	300	Warrior	20	660
Mountain	16	210	Sloss	20	265	Thomas	20	1,500	Warriorstand	50	400
Rue	25	272	Smith Hill	33	432	Thomaston	40	200	Waterloo	1	435
Russell	59	208	Snowdown	49	260	Thomasville	46	1,181	Watkins	21	200
*Russellville	6	2,046	Snow Hill	47	509	Thompson	51	263	Watson	20	1,000
Rutledge	56	230	Somerville	8	265	Thorsby	35	500	Waybeck	61	200
	S		Spring Garden	16	310	Tilden	41	224	Webb	67	256
Saco	57	230	Spring Hill	59	200	Town Creek	7	345	White Plains	22	202
Saginaw	26	214	Springville	21	350	Townly	19	235	Wedowee	29	435
Saint Florian	1	450	Stafford	24	570	Triana	3	200	Weogufka	36	200
Salem	44	309	Stamp	10	260	*Troy	57	4,961	West Blocton	33	892
Samson	66	1,350	Standing Rock	38	381	Trussville	20	742	Westend	20	2,500
Sandusky	20	491	Stanton	35	410	*Tuscaloosa	25	8,407	*Wetumpka	43	1,103
Sandy Ridge	48	281	Stevenson	4	574	*Tuscumbia	5	3,324	Whistler	59	2,000
Sanford	62	742	Stewart	32	255	*Tuskegee	50	2,803	White Oak		
Saraland	59	260	Stocks Mill	16	300		U		Springs	58	249
Sayre	20	600	Stockton	60	943				White Plains	32	202
Sayreton	20	644	Stouts			*Union Springs	51	4,055	Whitfield	30	219
*Scotsboro	4	1,019	Mountain	13	580	Uniontown	34	1,836	Wilmer	59	560
Scott Station	34	219	Suggsville	46	336		V		Wilsonville	26	933
Scyrene	46	203	Sulligent	17	619				Winfield	11	419
Seale	52	312	Summerfield	41	383	Valley Head	10	233	Woodlawn	20	2,848
Searles	25	781	Sumterville	30	380	Verbena	35	400	Woodstock	33	590
Section	4	250	Sycamore	27	560	*Vernon	17	423	Woodville	4	860
*Selma	41	13,649	Sylacauga	27	1,456	Vincent	26	995	Woodward	20	795
Seloca	20	314		T		Vinegar Bend	45	540	Wylam	20	3,099
Seminole	60	209	*Talladega	27	5,854		W				
Shady Grove	57	510	Tallasse	43	1,347				Yellow Pine	45	506
Sheffield	5	4,865	Taylorville	3	284	Wadley	29	426	Yolande	25	1,040
Shelby	26	753	Tecumseh	16	200	Wadsworth	42	224	York	30	710
Shorter	50	510									

Opportunities in Agriculture and Varied Enterprises.

ALABAMA.

This state, 330 miles in length by 154 miles in width, traversed by numerous large navigable rivers, which readily carry the products of the state to the great thoroughfares of ocean transportation, offers many inducements to people seeking new and desirable location for settlement on land.

The variety of climate resulting from difference of latitude permits the following of that kind of farming which is satisfactory to agriculturalists and horticulturalists who have had certain experience in cultivating the soil, and to those who have had no agricultural experience, the large diversity of opportunity here for getting a living appeal very strongly to the land seeker.

Thus those people who are fond of fruit culture, find climate and soil adapted to their wants in the southern counties bordering on the Gulf of Mexico.

SOIL IN SOUTHERN ALABAMA.

The southern part of the state has an alluvial soil, light, but highly productive and favorable for raising fruits. Cotton and corn are produced, and there are extensive forests of pine in this region.

COTTON AND MINERAL LAND OF ALABAMA.

Further north, towards the middle of the state, is a prairie region admirably adapted to the raising of cotton.

The great mineral section is in the eastern and northeastern part of the state. Here are the iron mines and the coal lands which have contributed so largely to the building up of the iron manufacturing in Birmingham and the surrounding country.

It requires but a moment of consideration to realize that a combination of iron ore and prolific coal beds, in close vicinity of each other, combined with the rapid development of the South, in railroad building and manufacturing, all tends to the making of numerous large cities and the giving of large numbers of people employment.

In the western part of the state is a manufacturing district which is well supplied with water power.

LUMBER AND VARIOUS INDUSTRIES.

In the southern part of the state are forests of cypress, yellow pine and magnolia. Also the fig and pomegranate, olive, apricot and orange trees, grasses, the cereals and corn in the valleys. Cotton is raised in the northern parts of the state.

In the southern parts of the state are grown sugar, rice and some indigo. Tobacco is grown to some extent.

ALABAMA NORTH AND SOUTH.

From a circular entitled "North and South" we gather items of interest concerning different parts of the state.

While many people will be attracted to the southern counties of Alabama, to most people the northern part of the state is equally attractive.

"North and South" says, speaking of one of the northernmost counties:

"Lauderdale County, Alabama, must be a good county, or Andrew Jackson, 'Old Hickory,' would not have invested in real estate in Florence, as he did in 1818. 'Old Hickory' had traveled over all this Southern country, and had the reputation of knowing a good thing when he saw it, and one of the first things he did after reaching Lauderdale County, Alabama, was to buy some land. In those days the 'boom fever' caught the people about as it does now, and Andy was not exempt.

"Lauderdale County is in the great 'Middle Belt' half way between the North and South, avoiding both extremes as to heat and cold, and has many other advantages that make it a desirable place to live. It is seldom a county is found that offers as much as Lauderdale County does, both in agricultural and manufacturing advantages.

AS A FARMING REGION.

"As a farming section, Lauderdale is all that could be desired. They raise a great diversity of crops and the climate conditions are most favorable. Land can be bought from \$10 per acre up, and while a bale of cotton to the acre is always considered a satisfactory yield, and sometimes less, a farmer near Florence, by giving his crop a little extra care, and by the liberal use of fertilizer, produced two bales of cotton to the acre. Cotton culture, however, is of little consequence to the Northern reader, who is as a rule unfamiliar with the methods of cotton growing, but looks to the growing of corn and wheat as his legitimate calling, for he knows more about the business.

A Milder Climate.

"Lauderdale County offers strong inducements to the man that desires to come to a milder climate,

Alabama Opportunities in Agriculture and Varied Enterprises

even though he does not wish to farm. The many factories, foundries, etc., in Florence offer the workman something he cannot get in some Northern cities; that is, **work every day in the year**, if he wants it. A man can live for less, fuel costs him less, and there are plenty of other advantages offered here that are not to be found in the North.

ONE OF THE BEAUTIFUL CITIES OF THE SOUTH.

"Just above the head of the beautiful and broad Mobile Bay lies the **city of Mobile**, the second in age of all the cities on the Southern coast, as well as the second in size and importance. From her wharfs sail ships to all the ports of the world, loaded with cotton, coal, iron, lumber and naval stores. Mobile was the **first capital** of the French province, and so remained until 1763, when it became a British dependency. A few years later Spain became her master and only reluctantly gave way in 1813 to American troops sent over from New Orleans. No city in the South has shown greater progress in the past few years. **Innumerable large modern buildings** have been constructed. No city of like size anywhere in this country has better hotels. **The street car system** is exceptionally good, while the major portion of this city is well paved with asphalt and brick. Government Street, running from the business center of the city far out into the suburbs, is one of the finest residence streets in the South and has many handsome homes.

CLIMATE ONE OF THE PRINCIPAL ATTRAC-TIONS.

"The climate is one of its principal attractions—never too cold in winter, rarely damp and with an abundance of **warm sunny days**. Mobile has the distinction of being the **originator** of the carnival street parades and today vies with New Orleans in the beauty and splendor of the Mardi Gras display.

"Some of the finest deep and shallow water game fishing in the country is to be had in easy reach of Mobile, and the "snapper banks," near the Point, are noted for the immense numbers of finny inhabitants and their delicious flavor, while **tarpon**, **Spanish mackerel**, green trout, pompano and the game, fighting redfish are found in limitless quantities, while in the woods, not far distant, wild turkeys and big game abound for the sport of the hunter. The privileges of both the yacht and golf clubs are easily obtained by visiting tourists.

"There are beautiful places to be seen in and about Mobile; no more picturesque drive exists on the gulf coast than the famous shell road, which runs for ten or twelve miles along the crest of the bluffs under a green arbor of odorous magnolias.

A GREAT WINTER RESORT.

"The eastern shore of Mobile Bay has become as famous a winter resort as it was a summer resort in years gone by. With each returning winter a large number of tourists from the North, East and West visit this section and either rent cottages for the season or stay at one of the numerous hotels or boarding houses. Each day furnishes a round of sport and amusement. Fishing and sailing parties are of daily occurrence, while hunting parties go to the interior of Baldwin County after quail and wild turkey. The principal resorts on the eastern shore are Point Clear, Zundels Wharf, Battles Wharf, Montrose, Daphne and Fairhope. All of these points are reached by boat from Mobile. High bluffs follow the coast line nearly the entire length of the eastern shore, giving a magnificent, unobstructed view of the bay.

The shore line along the coast is broken by innumerable bays, rivers and bayous, and down these water courses immense quantities of timber find their way to the mills and to ports from which it is exported to the four quarters of the globe. The shipping is protected by the outlying islands and the peninsula of Florida jutting out as it does into the ocean breaks the severity of the Atlantic storms, and the immense losses sustained along the Atlantic seaboard and in Southern Florida are here unknown. The recent devastating West Indian hurricane, which wrought such great damage to the orange groves in Florida, caused scarce a ripple on the waters along the Riviera.

THE RIVIERA OF THE GULF COAST.

Extending from Mobile westward along the Gulf Coast to New Orleans are many interesting cities, which will be found described in connection with our description of other states.

"Tall thriving trees confess'd the fruitful mould;
The verdant orange ripens here to gold;
Here the blue fig with luscious juice o'erflows,
With deepest red the full pomegranate glows;
The balmy spirit of the western gale
Eternal breathes on fruit untaught to fail.
Each dropping pear another pear supplies,
On orange oranges, figs on figs arise;
The same mild season gives the blooms to blow,
The buds to harden, and the fruits to grow."

The fame of Europe's Riviera has been sung in song and poetry for many centuries. When the Londoner tires of the damp fogs and the Parisian finds the winds along his beloved boulevards too keen, they go to Southern France or Spain or along the historic and beautiful shores of fair Italy or Sicily for health, pleasure and repose.

Had the bard who voiced his appreciation of that fair country in the lines quoted at the head of this column been residing in this country he would have found the same inspiration where the waters of Mississippi Sound lovingly embrace the shores of Southern Alabama and Mississippi.

His description of the fair land along the Mediterranean fits this section like a lady's glove. Without the spiteful gleam of Vesuvius' treacherous fires; with no fear of earthquakes; no camorrist or black hand feudists to levy tribute on the honest residents; with all of the charm of the European resort and none of its drawbacks, this surpassingly beautiful Creole Coast can well lay claim to be called the Riviera of America.

This coast has not the rugged mountain background of its Old World rival, but it has a restful and entrancing sweetness and beauty all its own.

Endowed with a superlatively glorious climate; peopled by the descendants of those gracious Southern cavaliers whose names were synonymous with courtly manners and superb hospitality; with a history reaching far back into the romantic centuries of the young republic's birth, across whose stage have stalked majestic Indians, swaggering swash-bucklers, roving adventurers, daring explorers, and even lawless pirates, it is indeed a country worth while.

FOODSTUFFS FOR THE WORLD.

Above its towering pines the colors of many nations waved before our forefathers, with inspired outlook into the future, secured title to this fair land and unfurled the glorious stars and stripes and bade the foreign nations withdraw their governors and leave this coast in trust for the future rulers of the universe—the American farmers—who must furnish the foodstuffs for the world.

For many generations this has been the playground of the South. When the big crops of cotton were finally floated to the market in the antebellum days, the aristocratic planters were wont to foregather here and idle away the winter hours amidst the health-giving pines, fanned by the invigorating salt-laden zephyrs that the grand old ocean tempered by the warmth of the gulf stream and sent to the sun-kissed shores of this delightful land.

Here they would sit beneath gigantic oaks, all garlanded and festooned with wonderful growths of moss that had been gathering for untold ages and listen to the hissing laughter of the rippling wavelets that seemed but as the pulse-beats of the mighty ocean's great tides, gently caressing the pearly sands. The storm-tossed seas were prevented from dashing against the coast by the chain of islands that the Architect of the Deep has so benignly placed in the gulf a dozen miles from shore to form a natural barrier and protection.

THE BATHING.

These islands also serve to tone down the ocean's waves, and no one who has not enjoyed the pleasure can realize the ecstatic enjoyment to be derived from the sea bathing in the waters along the Gulf Coast. The water is shallow, the beach hard. The water is always of a delightful temperature. There are no big breakers that knock one down and roll them along the beach. No life lines are necessary, undertows are practically unknown and the life savers who are so prominent at the resorts on the Atlantic coast are never seen here.

The Territory of the Great North, a United States Possession

ALASKA

Having the Largest River, the Deepest Frozen Ground, the Longest Sunshine Days, the Highest Mountain—A Region of Unknown Possibilities.

BORDER LAND OF THE ARCTIC SEA.

An Undeveloped Region Rich in Precious Metals. Figures Herewith

Indicate the following: 1 Dutch Harbor; 2 Pribilof Islands; 3 St. Matthew Island; 4 St. Lawrence Island; 5 Cape Prince of Wales; 6 Nome; 7 St. Michael; 8 Coal Mines; 9 Point Barrow; 10 Circle; 11 Valdez; 12 Skagway; 13 Muir Glacier; 14 Juneau; 15 Wrangel; 16 Sitka; 17 Waterway Seattle-Alaska; 18 Sitka; 19 Karluk; 20 Kadiak; 21 Central Alaska R. R.; 22 Copper River R. R.; 23 Yukon River.

POPULATIONS.

The 1910 Census gives Cape Prince of Wales Settlement, (5), a population of 396; St. Michael, (7), 857; Circle, (10), 230; Eagle, 458; Karluk, (19), 447; Kadiak, (20), 341; Treadwell, (14), 522; Wrangel, (15), 868; besides populations we mention elsewhere.

Alaska, region first visited by Bering in 1732. Bering was a Dane who belonged to the Russian navy. In command of a fleet he was sent out by Peter the Great of Russia, to explore the Arctic Sea and Strait, afterwards named for him.

Alaska Territory was purchased from Russia in 1867 for \$7,200,000, the purchase being negotiated by Wm. H. Seward, then U. S. Secretary of State. Area of the territory, 577,300 square miles, aggregate area of the islands in the territory, 8,194 square miles. Length of territory 1,100 miles, width 800 miles. Length of sea coast estimated at 26,000 miles.

Acres in Alaska surveyed, 7,125; acres unsurveyed, in 1910, are 368,028,975.

Capital of the Territory, formerly Sitka; is now Juneau.

Comparative Size. Alaska is two and a half times as large as Texas. It is eight times as large as all New England. It has the highest mountain, Mt. McKinley, in North America. Mt. McKinley 20,300 feet. It has the greatest seal fisheries, greatest salmon fisheries and largest river—the Yukon. Standing on its bank, 150 miles from its mouth, the opposite bank cannot be seen. It is 20 miles wide 700 miles from its mouth. With its tributaries it

is navigable for 2,500 miles. It discharges one-third more water than the Mississippi.

Number of reindeer in territory, 8,194.

AGRICULTURE AND TILLABLE LAND

Agriculture is yet in its beginning in Alaska. Aided by greenhouses, which will start plants in the spring, it is probable that horticultural products will become a source of large profit adjoining the cities and villages of the country.

The Summer Sun of 90 degrees above, and 18 and 22 hours of sunshine, during the day, so warms the soil as to permit the growth of grasses, berries and the ripening of various kinds of vegetables, during the three months from June 15 to September 15.

TILLABLE LAND IN ALASKA

Tillable land, in southern Alaska, is estimated at from 2,500,000 to 3,200,000 acres. In the Yukon district at 460,000 acres.

Grasses are the most valuable plant products, including timothy, Alaska red top, blue grass and orchard grass. Wild barley and rye flourish.

Berries of fine flavor grow abundantly in the Yukon district.

Alaskan Facts

At Eagle, 110 miles from Dawson, and lying 5 miles in American territory, the gardens produce and mature potatoes, cabbages, cauliflower, lettuce, turnips and radishes. Other vegetables, peas, beans, etc., are also being grown. Barley, oats and flax mature perfectly at Sitka.

The number of growing days there is given at 122. At St. Michaels, killing frosts occur from September 2 to 22, giving 106 growing days. Average annual temperature here is 26 above. Summer temperature reaches 77 above and winter 55 below.

At Eagle, on the Yukon river, ice begins running from May 4 to May 16. The river is clear of ice by May 19 and closes by October 10.

KLONDIKE TOWN—LARGE PERMANENT IMPROVEMENTS

Dawson has a permanent resident population of about 7,000, a school house costing \$40,000, public buildings which cost \$250,000, and two daily newspapers.

DISTANCES GOING TO ALASKA

In going to Nome by water, across the Pacific ocean, the route leads from Seattle to Dutch Harbor, one of the Aleutian Islands. Distance from Seattle to Dutch Harbor, 2,100 miles; time 8 days. From Dutch Harbor to Nome, 800 miles; time, 3 days. Fast boats may go in less time. From Seattle to Skagway, by water, 1,000 miles; time, 4 days. From Skagway to White Horse, by rail, 112 miles; time, 10 hours. From White Horse to Dawson, by Lewes and Yukon rivers, 450 miles; time, 2 days.

From White Horse to Dawson, in winter, passengers are conveyed by sleighs. Each sleigh will carry nine passengers. Frequent road houses occur on the way. From Dawson to Eagle, 110 miles. From Eagle to U. S. line, 5 miles. From Seattle to St. Michaels, by way of Dawson, 2,988 miles. Nome is 120 miles from Cape Prince of Wales. It is proposed to tunnel under Bering Strait from Cape Prince of Wales to Russian territory, a distance of about 50 miles, the tunnel to an island midway in the strait being about 25 miles in length.

Owing to a strong current always flowing northward the strait is never, or seldom ever, frozen over in the winter. The depth of water here averages from 120 to 180 feet.

Expense of going to Alaska from Seattle to Nome, via Pacific Ocean, is from \$30 to \$125. Freight costs from \$7 to \$22 per ton.

Passenger fare from Seattle to Dawson, by way of Skagway, \$80. Returning from Dawson to Seattle, by way of Skagway, \$100. The journey up the river from Dawson to White Horse requires more time and is more expensive than in going down. One of the leading transportation companies charges \$250 for passage to Nome via Skagway, White Horse and St. Michaels, returning to Seattle, the place of starting, by boat, via Dutch Harbor.

Gold. The annual output of gold in the territory is from \$6,000,000 to \$7,500,000, two thirds of which has latterly come from Nome.

FACTS ABOUT ALASKA GOLD

Klondike gold varies in size and appearance from particles of Indian meal up to grains of rice. For purpose of transportation it is melted and run into oblong form about the size of ordinary building brick.

Ice. As ice breaks up in Bering Sea about June 15 and closes interior Alaskan ports about October 10, it is seen that freight for this point must be received and removed within a period of a little over three months.

DEPTH OF GROUND NOT FROZEN

With summer days, filled with warm sunshine from 18 to 22 hours, each 24 hours, the ground thaws to a depth of about two feet from the surface. From that depth downward, a depth of 95 feet, the earth is frozen solid.

Ice closes navigation on the Yukon river by October 10, and continues usually until May 20, of the next year.

Juneau, named from Joseph Juneau, a mining prospector, the capital of the territory, is the location of the Alaska Land office, and has a varying population of about 2,000. Parties desiring to engage in agriculture, mining or to obtain government land in the territory, will address the Land Commissioner at Juneau. In going into the interior of Alaska by the Skagway route it is well to stop off for a time at Juneau and gather general information about the country.

Mining in Alaska. Up to the present time the most of the gold taken from Alaska has come from the top soil. The Treadwell quartz mine at Juneau is one exception. This mine, which a San Francisco builder named Treadwell, took for a debt of \$150 when it was a mere prospect hole, now employs 1,200 workmen and runs 80 stamps.

Hundreds of millions in gold are supposed to be hidden in the rocks of Alaska, and when exploring enterprise opens this wealth to the world, the great influx of population will begin and the area of Alaska's prosperity will commence.

U. S. MINING REGULATIONS AND BRITISH

While the resident of Alaska must be a citizen, or have declared intention to become a citizen, before he can secure a mining claim, British law in the Klondike will permit the miner to obtain a claim without being naturalized. A certain amount of development work is required, however, or money deposited each year, to hold a claim.

Nome. This town has a resident population in winter of 2,500 and 6,000 additional in the summer. There are in the summer, also, from 12,000 to 15,000 people scattered about on this peninsula where Nome is situated. The inhabitants of this town and vicinity get their supply of outside news from two semi-weekly newspapers published in Nome.

Nome has no harbor, and seagoing vessels cannot get within one mile of the coast. If rough water prevails, passengers sometimes have to wait several days before they can be taken ashore by lighters, which come out from Nome to take off passengers and freight.

Postal facilities. During the winter period of eight months the mail comes into Nome by dog team from Dawson, and as the mail cannot exceed 400 pounds in weight, no newspapers or magazines from the outside world can be received within that time.

Roads. A determined effort is being made to provide the Yukon district with good roads, the British government assisting in the enterprise. Aided by motor carriages this will greatly assist in opening the country long before the advent of railroads. Hundreds of miles, radiating from Dawson, are to be laid out and improved in the near future.

As the fall of snow is light and what falls lies steadily on the ground, people will soon be traversing the country with motor sleighs.

Routes to Alaska. While Skagway with its population of 1,200 is as yet the best entrance into the Yukon country, it is probable that Valdez and Cordova, located on Prince Williams Sound, will become towns of much importance and two of the main points of entrance to the interior of the country.

Valdez has a population of 1,000 and is the point furthest north, having an excellent harbor which is not closed by ice in the winter. Railroad building has begun from Cordova which is the starting point of the Copper River Line.

To test agricultural possibilities thoroughly, the United States government gives the settler 320 acres of land under homestead conditions.

AGRICULTURAL EXPERIMENT STATIONS

The possibilities of this region in the growing of food stuffs have yet to be more fully tested. Agricultural experiment stations have been established at Kanai, Cooks Inlet and at Sitka, and these, with stations which will be started in the interior of the country on the Yukon, will show what can be grown.

Climate. Dawson and other points in the interior of Alaska. The thermometer shows summer at 90 above, and winter's cold at 60 and 70 below. The air is still and dry at that temperature and is no more uncomfortable than when the thermometer shows 20 and 25 in the States.

The Japanese current modifies the temperature along the southeastern coast up to Cook's Inlet. At Sitka the temperature ranges from 85 above to 4 below. Barley, oats and flax have matured here and at Skagway perfectly.

The rainfall along the southern coast is about 100 inches a year.

Controller Bay. Is in an extensive region of United States government possession, southwest of Valdez, which has large coal deposits. In order to get out this coal the government has been disposed to sell tracts of land where it lies to capitalists who have the means to mine it. The result is a company has started to build the Copper River railroad which leads to the mines, the town of Cordova, at the terminus of the railroad, containing several hundred people has sprung up, and hope has been expressed that the incoming of capital would tend to the development of Alaska. At this period 1911, the government is being criticised for selling its valuable coal beds to a private syndicate, it is alleged, to the detriment of others who would like to take out and ship coal to the various towns on the Pacific Coast. The outcome of the controversy will probably be the renting of the coal lands on such favorable conditions as will induce capital to open the mines and pay a royalty to the government on each ton of coal taken out and shipped away.

STATE AND THE 14 COUNTIES OF ARIZONA
With Their Boundaries

Location and Population
of
ARIZONA COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Mohave..	3,773
2.....	Yavapai..	15,894
3.....	Cocconino..	8,130
4.....	Navajo..	11,491
5.....	Apache..	9,196
6.....	Yuma..	7,733
7.....	Maricopa..	34,488
8.....	Gila..	16,780
9.....	Pinal..	9,045
10.....	Graham..	23,547
11.....	Greenlee..	2,218
12.....	Pima..	22,818
13.....	Santa Cruz..	6,766
14.....	Cochise..	34,591
Total.....		204,354

CITIES AND VILLAGES
OF ARIZONA.
Having Population of 100
and Over in 1910.

Towns	Loca.	Pop.
A		
Agua	7	100
Alhambra	7	200
Arivaca	12	100
Arlington	7	100
Ashfork	2	150
B		
Bellevue	8	100
Benson	14	909
Bisbee	14	9,019
Blackwater	9	250
Bowle	14	214
Bronnell	12	231
Bryce	10	271
Buchan	7	445
C		
Camp Verde	2	381
Canille	13	237
Casa Blanca	9	1,284
Casa Grande	9	334
Cave Creek	7	114
Central	10	345
Cerro Colorado	12	219
Chiracahua	14	203
Chloride	1	465
Christmas	8	223
*Clifton	11	4,874
Cochran	9	117
Columbia	2	124
Combabi	12	251
Concho	5	261
Congress	2	578
Constellation	2	258
Copper Creek	10	116
Cottonwood	2	127
Courtland	14	581
Crowley	8	157
Crown King	2	211
D		
Dome	6	100
Don Luis	14	255
Douglas	14	6,437
Dudleyville	9	100
Duncan	11	1,381
Duquesne	13	156
E		
Eden	10	541
Esculla	12	218
F		
Fairview	10	218
*Flagstaff	3	1,613
*Florence	9	807
Fort Apache	4	255
Fort Huachuca	14	421
Fort Thomas	10	151
Fortuna	6	695
Franklin	11	100
G		
Gila Bend	7	210
Glendale	7	357
*Globe	8	7,087
Groom Creek	2	317

Arizona Towns with 1910 Populations Having 100 People and More.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
H			N			O		
Hackberry	1	118	Naco	14	231	Octave	2	500
Hamburg	14	157	*Nogales	13	3,515	Owens	1	384
Harshaw	13	100	P			Paradise	14	117
Hayden	8	417	Parker	6	410	Pearce	14	718
*Holbrook	4	421	*Phoenix	7	11,133	*Pima	12	571
Hubbard	10	112	Pine	8	100	Pinedale	12	116
J			Pinetop	4	116	Pirihelville	14	1,520
Jerome	2	2,393	*Prescott	2	5,092	Quartzsite	6	318
Jerome Junction	2	100	R			Rice	8	385
K			Roosevelt	8	871	Rosemont	12	175
Kelvin	9	115	S			Sacaton	9	251
*Kingman	1	1,000	Safford	10	929	Saint David	14	574
L			Saint Johns	5	1,211	*Saint Carlos	8	3,065
Lehi	7	331	San Carlos	8	3,065	Santa Cruz	13	104
Liberty	7	157	T			W		
Lowell	14	2,500	Tempe	7	473	Walker	2	153
M			Teviston	14	208	Warren	14	175
McCabe	2	314	Thatcher	10	901	Wellton	6	218
Mammoth	9	473	Toltec	9	109	Wenden	6	160
Matthews	10	218	*Tombstone	14	1,582	Wickenburg	7	570
Matthewsville	10	224	Toreva	4	551	Wilcox	14	581
Maxton	2	207	Troy	9	200	Williams	3	1,267
Mesa	7	1,692	Tubac	13	318	Winkelman	8	471
Metcalfe	11	2,511	*Tucson	12	13,193	Winslow	4	2,381
Miami	8	741	Twin Buttes	12	314	Y		
Middlemarch	14	100	Y			*Yuma	6	2,914
Mohave City	1	182	Z					
Morenci	11	5,010						
Mowry	13	531						

The New State of Arizona. Admitted to the Union in 1911

ARIZONA

Large Territory in Southwest Portion of the United States. Inducements Offered to New Settlers in Arizona

Arizona, including a State of 113,916 square miles, was first visited by Spanish explorers in 1538. The Gulf of California, the Colorado and Gila rivers were discovered in 1542, and two boats ascended the Colorado to the Grand Canyon.

By treaty with Mexico in 1846 all that portion of the present State north of the Gila river was ceded to the United States. At that time the white population included but a few hundred in the vicinity of Tucson, there being no whites in the central and northern parts of the territory.

THE GADSEN PURCHASE.

In 1854 the Hon. James Gadsden, then minister from the United States to Mexico, negotiated the purchase of the territory lying between the Gila river and Sonora, Mexico, for \$10,000,000, that addition to the territory being known as the "Gadsden Purchase." This purchase added to the United States 30,000 square miles of territory, an area about the size of South Carolina. At that time the Southern Pacific railroad was in contemplation and was afterwards built on this territory of the Gadsden purchase.

The face of the country in Arizona consists largely of high broad plains, the elevation of more than half of the territory being above 5,000 feet.

The principal river, the Colorado, noted for its Grand Canyon, is 2,000 miles in length and navigable 400 miles for boats of light draft. The Gila, another large river of the State, is about 500 miles long, four-fifths of this stream being in Arizona. The Salt, Verde, Black and other rivers empty into the Gila river.

Gila Monster. Speaking of Gila reminds us to explain that the "Gila monster," of which we sometimes hear, is simply a large lizard found in the sands of New Mexico, Arizona and Texas, and is harmless so far as human beings are concerned, though its bite, which is poisonous, is said to be fatal to small animals.

The climate is tropical in the southwestern section of the State, temperate in the valley regions and frigid in the mountain districts in the winter season. The air is dry and clear.

Rainfall. The average annual rainfall in the upper portion of the State is 16.1 inches. In the southern part only about 3 inches.

Agriculture here becomes important, therefore, in proportion as artificial waterways are extended. The area of Arizona farming land includes 1,000,000 acres, of which about 200,000 acres are now under cultivation.

With a sufficiency of moisture all the products of the sub-tropics are grown here in abundance. The future of this region in agriculture, depends upon irrigation, which capital and engineering ability will, in time, supply, and is already supplying, as seen in the Salt river project in Maricopa county, which we describe elsewhere.

Much of the general situation in Arizona may be known from the following:

ARIZONA IN OUTLINE.

A Grand Field Rich in Mining and Agricultural Possibilities.

Not only are there thousands of square miles of mineral lands in this State yet unexplored but in no part of the world are there to be found a greater number of natural curiosities than are to be seen in this region.

Entering Arizona from the west, on the Santa Fe railroad, the tourist may change cars at Williams and go north sixty-four miles to the Grand Canyon, and the greatest natural curiosities in the world.

The Colorado river has cut a channel in the soft rock for a distance of over 200 miles, sinking so low in the rock as to make the sides of the chasm rise perpendicularly at some points on either side to a height of over one mile.

The general government has set aside, in the northern part of Mohave county, 2,893 square miles of area as a national park, in a portion of which is the Cataract Canyon, at which point it is wisdom for the tourist to remain for several days, going out sight-seeing from the well-kept hotels which the guest finds on arrival here.

MANY NATURAL CURIOSITIES.

Numerous points of interest claim attention in this region beside the rocky canyon, among them being the San Francisco mountains and the plateau in the midst of a desert, while the varied scenery of plain and mountains, which rise up here twelve and thirteen thousand feet, add sublimity to the scene.

Petrified Forest. To see other very interesting features of the State, the tourist returns to Williams and goes eastward by rail to Holbrook, only a few miles from which station are the great Natural Bridge in Navajo county and the world-famous petrified forest, covering a tract of about 2,000 acres, once heavily timbered, which geologists surmise, in the rise and fall of the earth's crust from volcanic upheavals, may once have been in the bottom of a great inland sea. Again, in another epoch, covering possibly thousands of years, this sea may have receded, an earth may have formed above these monarchs of the forest, to be washed away from this plain by the floods that followed in the subsequent centuries; and here at last these giants of a vast prehistoric age lie glistening in the sunshine, mute evidences of great changes on the earth's surface when the world was young.

The stranger in gazing on this remarkable scene can only wonder what unexplained phase of nature changed these trees into such beautiful precious stones, including chalcedony, topaz, onyx, cornelian, agate and amethyst.

What a remarkable forest it must have been in the olden time to have grown these great trees 150 and 200 feet in height and, at largest parts, 10 feet in diameter.

In this petrified forest are gems enough to supply the world. The wonders of Egypt are as nothing compared with this vast forest turned to stone.

Cliff Dwellings. All over Navajo county are the ruins of prehistoric cities. In Apache county the remains of cliff dwellings are never failing objects of interest to the curiosity hunter and archeologist. Days and weeks can be passed here in a study of cliff dwellings and the remains of aqueducts, constructed for the purpose of irrigation by a people thousands of years ago.

It is impossible to go by rail and visit the interesting points in Arizona without retracing our steps at some points on the journey. Before leaving this region, however, we visit a remnant of a tribe of cliff and cave dwellers who live in a wild retreat known as Cataract Canyon, a class of people found in no other part of the world, a race of human beings who represent the age before history began, primitive man, a living picture of what our ancestors were perhaps 50,000 years ago.

Returning westward, we stop at Flagstaff, a town so named from the fact that a government expedition, many years ago, camped at this point on the Fourth of July, trimmed up a tall pine tree and floated a flag from its top. The name was thus given to the place before a house was erected in the town.

OF GREAT INTEREST TO LUMBERMEN.

Flagstaff is located on the edge of a vast pine forest in which it is estimated there are billions of feet of lumber. Landseekers interested in the lumber business should understand that thousands of acres of superior pine are waiting here for the incoming of enterprising lumbermen.

The journey is continued westward and a stop made at Prescott. This is a central point for the mining interest, but is only one of the important mining centers of the State.

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The Clark Copper Mine. Southward from Prescott, some thirty miles, is the copper mining section of the United Verde District at Jerome. It is here where Senator W. A. Clark has acquired a part of his large fortune. The claim is made that the United Verde mine has yielded for several years, and now gives a profit of \$9,000,000 a year.

As the digging of precious metals out of the earth is a most fascinating work, and as Arizona has many mountains throughout the entire State in which there is vast treasure yet to be explored and developed, the landseeker in search of good opportunity for investment in mining will wish to know something about prospects here. In explanation it may be said that no brief article can do this subject justice.

The air here is full of mining intelligence and news of new discoveries being made every week, but to verify reports and fully understand the subject the inquirer should spend a good deal of time right here on the ground.

PROFITS IN COPPER MINING.

Published reports give the following:

The "Fortuna" mine, 27 miles south of Yuma, has paid \$50,000 profit each month for several years.

The "Pearce" mine, in Cochise county, near Sulphur Springs, has given \$20,000,000 to its owners in the past eight years.

The "Bisbee" mine, in Cochise county, has paid \$20,000,000 in dividends to its stockholders in the past 20 years.

The "Vulture" mine, 60 miles from Phoenix, though hardly opened yet, has already turned out \$10,000,000 in profits.

THE OPENING OF A COPPER MINE.

To people who have never seen the opening and development of a copper mine it will be interesting to visit the Mascot Copper mine, located 16 miles east of Wilcox, Cochise county, in Arizona, on the side of the Dos Cabezas mountains. Prospectors years ago discovered this mine, had specimens of the ore assayed, learned that the ore carried a certain per cent of gold and silver along with copper, sold out the property to a syndicate of capitalists, who incorporated a company capitalized at \$10,000,000, shares being placed at \$10 each.

Knowing that a good copper mine holds out for a lifetime, investors have bought shares fast enough to keep a force of men at work since the beginning, uncovering the ore and doing preparatory work at an expense of several thousand dollars per month, making ready for sending the ore by gravity down to a smelter in the valley below.

Visitors are not only made welcome but they are transported from Wilcox to the mine by automobiles, are given an interesting country ride and an opportunity to investigate copper mining, which is one of the great industries of Arizona. Our map shows the location of the Mascot copper mine.

AGRICULTURAL POSSIBILITIES.

The ultimate source of great wealth in this region will be agricultural production.

Arizona is blessed with a delightful climate. There are numerous elevated plains in the upper part of the State where the weather is cool and frosts prevail in the cold seasons of the year, but in the southern part of the country the climate is such as will produce in perfection oranges, dates, figs, lemons, olives and peaches several weeks earlier than can be given in other regions of the same latitude. The possibilities in fruit culture are shown in the strawberry, which, by attention, can be kept in bearing here for eight months in the year.

As the average rainfall of the entire State is but about 7 inches a year, the universal want of the country is irrigation—more water for growing crops.

ANCIENT IRRIGATION WORKS HERE.

It is clearly evident that the inhabitants of this region, in the remote past, overcame this difficulty by aqueducts. The engineering talent of the present age will, in similar manner, surmount this trouble.

Arizona is so large in area and so diversified in opportunities for the land seeker in lumbering, mining, ostrich raising, dairying, fruit growing or poultry enterprise we know not what to particularly describe.

It should be understood that Arizona has many regions where delightful homes may be made and fortunes acquired.

We will let Mr. E. J. Bennitt, of Phoenix, tell about a single section. This is but one. There are many others.

STORY OF AN AUTO RIDE

By E. J. Bennitt.

"I wonder if, after all, it will prove a fool's errand?"

Thus Jacob Harris queried himself, seeking, yet expecting no answer, as he seated himself comfortably on a plush cushion and looked out of the car window. Of mature years, spent mainly in the Middle West, he had acquired a modest competence for his family. But the long, cold winters, during which he suffered exposure in the protection of what he was able to acquire in the fruitful summer seasons, were sapping his vitality. He dreaded the inclemencies and chances of crop failure that, any season, might reduce his savings to a minimum. He had seen some literature of the Salt River Valley and had been induced to spend a few dollars in personally investigating the seemingly fairy-tale claims. "I will never be a rich man anyway," he mused, "and perhaps I ought to let well enough alone."

"Phoenix," announced the conductor, and an hour later Jacob Harris was in conversation with a Phoenix real estate dealer to whom he had been recommended. A tour of the valley was arranged to begin the next morning, and the rest of that day was devoted to sizing up the city, visiting the Phoenix Board of Trade, examining the maps of the county and territory, the exhibits of fruits and products, and inquiring of those he met concerning the crop returns of the many products raised in the valley. He had read all this in the literature, but knowing the world pretty well, knew that what the Arizona people wanted was the investment of his money. He did not doubt their honesty, but he knew the vision of the immigration agent is sometimes distorted. He wanted to know what others who had been enticed to Phoenix before him, had to say about it. And what they said fully verified what he had read. In the afternoon he climbed the court house tower where he secured a panoramic view of the valley. Spread around him lay a modern city of 18,000 inhabitants, and beyond, stretching away over an area of 100,000 acres were green fields, comfortable farm houses and miles of tree-lined country roads, a community that, with Phoenix for its center, numbers approximately 23,000 people, served by the Phoenix postoffice and its 100 miles of rural routes. Northwest some ten or twelve miles, are Glendale and Peoria and surrounding farms, numbering several hundreds of inhabitants. To the east, and across and up Salt River, beyond the line of vision, lay Tempe and Mesa, nine and seventeen miles away, respectively, the commercial centers of another 100,000 acres of land, equally as rich and as well suited for agriculture as that before him.

THE VALLEY A PARALLELOGRAM

Jacob Harris noted that the general form of the valley is a parallelogram, averaging 20 miles wide and 40 miles long, hedged in by mountain ranges that rise abruptly from the valley plain. Entering at the northeast corner, where the Granite Reef Diversion Dam is located, Salt River winds sinuously in a generally direct course to the southwest corner of the valley, and thence onward 100 miles further to its junction with the Colorado. Crossing the valley diagonally, the river leaves Phoenix, Scottsdale, Ahambra, Glendale and Peoria on what is known locally as the "north side," and Tempe, Mesa, and surrounding lands on the "south side." Looking toward the site of the Granite Reef Dam again, twenty-three miles away, he learned that fifty miles further up the river, through an impassable canyon, is the site of the Roosevelt Storage Dam, now nearly complete, at the junction of Tonto Creek and Salt River. This dam will form a storage basin, making the largest artificial lake in the world.

It would take too long to tell what Mr. Harris saw in the foreground—the city of Phoenix. It is all told in the literature of The Phoenix Board of Trade & County Immigration Commissioner, which is supplied for the asking. The story is of a modern city of brick houses, churches, schools, railroads, parks, the territorial capitol, and all public utilities. Mr. Harris returned to the hotel, tired and hungry, his head already crammed with information that was rolling in on him like a tidal wave. At the hotel that evening he met an engineer of the reclamation service. Before he knew it, he was listening to an outline of the reclamation plan and irrigation system.

Jacob Harris went to bed also, impressed but still doubtful. He wanted to see some of that "desert" land. This was all "town talk" and it seemed too

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good to be true. He yearned to hear an inharmonious chord and even a "knocker" would have been welcomed.

Early next morning he was whirling away in an automobile with the realty agent. They passed the seven fine brick school buildings in Phoenix and the territorial capitol costing \$130,000, without suspicion of a penny of graft, standing in the midst of a beautiful park of green lawns and thousands of varieties of shrubbery. Continuing, they speed through the residence sections of the city, fronted by attractive street parks, and then—to the country. Out Grand Avenue a mile and a half they came to the Territorial Fair Grounds, where three annual exhibitions had been given, equal to the big eastern state fairs. The corporation has a balance in the treasury and the best mile track west of Memphis. They traveled straight west ten miles, passing small ostrich farms, finally arriving at the largest one in the United States, containing about 1,900 acres, where hundreds of these valuable birds are grazing in alfalfa pastures. Mr. Harris learned that the valley has three-fourths of all the ostriches in America and they are money makers.

THE SUGAR-BEET DISTRICT

Seven miles north found them in the Glendale-Phoenix country, as rich a sugar-beet and general farming soil as can be had anywhere. Half of it is cultivated; all will be soon. Thence east through the town of Glendale and on to the big mill of the Arizona Sugar Company, that cost approximately a million dollars to build. Straight east, for six miles more, the party traveled through equally as rich a country until Central Avenue was reached, that being a boulevard that runs ten miles due north from Phoenix to the Arizona Canal. Down the avenue with orchards, grain fields and farm homes all around. Three miles from Phoenix they arrived at the government Indian school, a collection of fine buildings that would put many state universities to shame, where are being fed, clothed and educated in grammar courses and manual training, a thousand native children. From this point the auto turned east for seven miles, through farms and orchards to the heart of the orange belt.

Thence the machine was headed for the "south side," crossing the river at Tempe, a beautiful city of 1,500 inhabitants, with the territory's chief normal school and grammar and high schools. Adjacent is the Lily Brand condensed milk factory, affording a fine market for dairymen. Six miles east of Tempe is the town of Mesa, with about the same population, also with fine homes, stores, banks, churches, schools, and high school, creamery, vineyards, orchards, etc. Lying directly south of a line through Tempe and Mesa is an agricultural area ten miles square, all titled land, and as good as any in the valley, but only partly in cultivation, for want of sufficient settlers. Its possibilities are everything agricultural and horticultural and the prices are lower, as it is the latest section of the valley to be settled.

After a ten-mile spin through that region, the machine went flying Phoenixward, the most notable institution passed on the way being the territorial asylum for the insane, three miles from Phoenix. After traveling through seventy miles of orchards of citrus and deciduous fruits, olives, alfalfa pastures, oat, barley and wheat fields, corn, sorghum, cantaloupes, watermelons and other acreage crops, strawberries and truck gardens, by country and city creameries and public institutions, Mr. Harris was set down at his hotel.

He had marveled from the first at all the good things he saw, but the question on his mind was: "What is there for the poor man and where will he find his 'desert' land for homesteading?" Long before his trip was over he learned that there is no "desert" land as the easterner speaks of it, and no possibilities for homesteading within the reservoir district, but that there is plenty of titled land, unimproved, at \$50 an acre. It is not a "cheapland" country, except relatively speaking, but it is a "good-land" country whose produce pays interest and big profits on a high valuation. He was reminded that half the ranches he had passed had from 100 to 300 acres in them, and he needed no telling that twenty

acres is ample for any man to farm who does his own work. The secret of it is that the Government builds reservoirs for settlers, not for speculators. The poor man's opportunity is to buy a farm from the excess holdings of some earlier settler, in an ideal climate and community, with the advantages of the most modern and comfortable surroundings, and take up life not as a pioneer but as a country gentleman, moderately well-to-do and independent.

Jacob Harris is now an enthusiastic Salt River Valley rancher and can testify that he did not come here on a "fool's errand."

WHAT CAN BE DONE WITH \$2,000

By J. W. Spear.

The man with \$2,000 can do any one of a long list of things which, with ordinary fortune and judgment, will return much more than interest. It is assumed that the question is asked in behalf of those who have no remunerative occupation, and with their capital propose to be independent, thus narrowing it to an agricultural proposition.

Good land costs from \$75 to \$250, including irrigation water. Assume the middle ground of \$100 per acre. Buy fifteen acres. Pay for it \$1,000 cash and mortgage for the rest, placing the other \$1,000 in the bank to draw upon for the first year's support and for necessary equipment. Utilize credit as far as possible with safety and assurance of meeting obligations. Begin in the fall. Build a small, comfortable house until able to build a better one—say a \$400 mansion, unless you are single, then live in a tent. Some credit could be secured on the house. Procure team, wagon, plow, and other needfuls. Establish an account at the grocery store. Plant almost anything you like that will grow in the latitudes between Milwaukee and New Orleans, preferably, for early revenue, truck, etc. Later you may decide that a ten-acre orange orchard is what you want with five acres of truck; but as it takes six or eight years for oranges to make returns of consequence, and in the interim only the space between rows can be utilized, wait for oranges until you have more money.

A LITTLE LAND WELL TILLED

Put five acres into deciduous fruits of various kinds. In the months that follow plant between trees for a year or so, vegetables for family use and market. Later do not use for other things soil vitality that belongs to the trees. Plant an acre of strawberries. There will be some return the first year, a big yield the next. An acre of asparagus will be a money-maker if you know how. James Davis, of Mesa City, made \$60 on one-eighth acre of green peas, marketing them in February. He says he can raise beets the year round, returning \$400 per acre at from 1 cent to 3 cents per pound. He realized \$130 from one-quarter acre Irish potatoes, an exceptional result; but he knows the truck business.

Put in two acres of alfalfa for the horses. You still have about five acres for cantaloupes. Plant in March, harvest during July. Many small patches have returned net, except for owner's labor, \$200 per acre; some more than \$300. Plant sorghum or some other crop to follow cantaloupes. One man handles five acres of cantaloupes; but fifteen acres intensively farmed will require some help. It might be better to try fewer crops and more acreage to each at first; but the small farm must be diversified and worked intensively. The farmer must work hard and live economically until he has paid out. In this climate he can work 365 days annually. Keep chickens. H. B. Lehman, of Glendale, deals in them almost exclusively. Returns last year were \$2,254, less \$890 expenses, net, \$1,364. Five acres would make a splendid chicken ranch. A few hundred dollars would stock it.

Some have started by renting land for the cantaloupe season at \$10 to \$15 per acre. That only requires cost of living while making the crop, but the renter is not building his own home place, though experience may be worth the delay.

It is an ideal country for the apriary, poultry, vegetables, and for small fruits on a \$2,000 basis. With more money there is a much wider field.

STATE AND THE 75 COUNTIES OF ARKANSAS
With Their Boundaries

LOCATION AND POPULATION OF ARKANSAS COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Benton..	33,389	21.....	Pope.....	24,527	40....	Crittenden..	22,447	59.....	Dallas...12,621	
2.....	Carroll..	16,829	22.....	Van Buren..	13,509	41.....	Polk.....17,216	60.....	Cleveland..	14,481	
3.....	Boone...14,318	23.....	Cleburne..	11,903	42..	Montgomery..	12,455	61.....	Lincoln...15,118		
4.....	Marion..10,203	24..	Independence..	24,776	43.....	Garland..27,271	62.....	Desha...15,274			
5.....	Baxter..10,389	25.....	Jackson...28,501	44.....	Saline...16,657	63.....	Little River..	13,597			
6.....	Fulton..12,193	26.....	Craighead..	27,627	45.....	Pulaski...86,751	64.....	Hempstead..	8,285		
7.....	Randolph..	18,987	27.....	Poinsett...12,791	46.....	Lonoke...27,983	65.....	Nevada...19,314			
8.....	Clay.....23,690	28.....	Mississippi..	30,468	47.....	Prairie...13,853	66.....	Ouachita...21,774			
9.....	Washington..	33,389	29.....	Sebastian..	52,278	48.....	Monroe...19,907	67.....	Calhoun...9,894		
10.....	Madison..16,056	30.....	Logan.....26,350	49.....	Lee.....24,252	68.....	Bradley...14,518				
11.....	Newton...10,612	31.....	Scott.....14,802	50.....	Hot Springs..	5,022	69.....	Drew.....21,960			
12.....	Searcy...14,485	32.....	Yell.....26,323	51.....	Grant.....9,425	70.....	Miller...19,555				
13.....	Stone.....8,946	33.....	Perry.....9,402	52.....	Jefferson...52,734	71.....	Lafayette...13,471				
14.....	Isard...14,561	34.....	Conway...22,729	53.....	Arkansas...16,103	72.....	Columbia...23,820				
15.....	Sharp...11,688	35.....	Faulkner...23,708	54.....	Phillips...33,535	73.....	Union...30,722				
16.....	Lawrence..	20,001	36.....	White...28,574	55.....	Sevier...16,616	74.....	Ashley...25,268			
17.....	Greene...3,852	37.....	Woodruff...20,049	56.....	Howard...6,898	75.....	Chicot...21,987				
18.....	Crawford..	23,942	38.....	Cross...14,012	57.....	Pike...15,565					
19.....	Franklin..	20,638	39....	St. Francis..	22,548	58.....	Clark...23,686				
20.....	Johnson..	19,698							Total.....	1,574,449	

Arkansas Cities and Villages With 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
	A										
Abbott	31.....	300	Alma	18.....	565	Alston	52.....	350	Antoine	57.....	324
Alco	13.....	200	Almond	23.....	308	Altus	19.....	659	Apex	29.....	200
Atix	19.....	500	Almyra	53.....	252	Aly	32.....	215	Appleton	21.....	319
			Alpena Pass...	3.....	314	Amity	58.....	813	Arden	63.....	424

Arkansas Cities and Villages With 1910 Populations

[illegible]

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Arkansas Cities and Villages With 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Saginaw	S	50.....251	Strong	73	465	Valley Springs	3	208	Weiner	27	232
Saint Francis	8	459	Stuttgart	53	2,740	*Van Buren	18	3,878	Weldon	25	250
Saint James	13	314	Success	8	379	Vandervoort	41	599	Wesson	73	694
Saint Paul	10	430	Sugar Grove	30	284	Vannsdale	38	571	West Fork	9	264
Saint Vincent	34	500	Sulphur Rock	24	252	*Varner	61	920	West Hartford	29	280
*Salem	6	865	Sulphur Springs	1	543	Vick	68	250	Wheatley	39	330
Sandy Ridge	28	700	Sunnyside	75	500	Victor	50	218	Whelen Springs	58	292
Saratoga	56	400	Swan Lake	52	250	Vincent	40	229	Whipple	22	284
*Searcy	36	2,331	Swifton	25	290	Vineyard	49	250	Wickes	41	286
Settlement	22	230				Viola	6	275	Wideman	14	270
Seyppel	40	250	T						Wideners	39	245
*Sheridan	51	481	*Texarkana	70	5,655	W			Wilmor	69	929
Sherrill	52	350	Thorney	10	292	Wabbaseka	52	251	Wilmot	74	622
Shuloh	23	351	Thornton	67	611	Waldo	72	597	Wilson	28	521
Silica	44	284	Traskwood	44	228	*Waldron	31	984	Wilton	63	294
Siloam Springs	1	2,405	Trumann	27	300	Walkers	18	372	Winchester	69	300
Smithville	16	308	Tucker	52	264	Walnut Hill	71	300	Winslow	9	289
Spadra	20	640	Tukerman	25	583	Walnut Ridge	16	1,798	Winthrop	63	600
Springdale	9	1,755	Tupelo	25	205	Walnut Tree	32	244	Womble	42	552
Springfield	34	316	Turrell	40	200	Wareagle	68	263	Woodson	44	342
Stamps	71	2,316	Tyronza	27	250	*Warren	68	2,057	Wrightsville	45	318
Staple	64	274	U			Warsaw	45	284	Wyanoka	40	590
Star City	61	396	Union	6	284	*Washington	64	399	*Wynne	58	2,553
Stevens	66	572	Uniontown	18	246	Webb City	19	291	Y		
Sterling	75	618							*Yellville	4	463

General Description of Arkansas

Future of the State

A Portion of the United States Just Awakening to Its Natural Advantages.

This State belongs to the great basin of the Mississippi Valley. Parts of the Eastern portion, bordering on the Mississippi, are low, swampy and are annually overflowed, but westward the country gradually attains a higher elevation, passing off into the hills which lead up to the Ozark Mountains.

While subject to sudden changes, the climate, as a whole, is exceedingly delightful. Examination of any map showing water courses will reveal hundreds of streams in the State, the majority of which can supply power for manufacturing.

The Arkansas, Red, White, and Black Rivers, each hundreds of miles in length, all aid in giving the State more interior water navigation than any State in the Union, besides over 4,000 miles of railroads. And yet, with these natural advantages, the State has been slow in development largely because this is a heavily timbered State and also because the old settlers, having little ambition, have been willing to let things jog along in the same old rut.

Their desires have been few and they have had all they wanted. With soil and climate good to them, it has been easy to get enough and they have rested content. They have heard no call to new life and have not waked up to new conditions.

Three-fifths of the State still has its forest covering, and nearly all this is commercial timber, for which there is an increasing demand at a good price, there being some sixty varieties of trees within the boundaries of the State.

Back from the Mississippi for a distance of 25 and 60 miles is a belt of hardwood. In the southern part of the State spreads a broad area of pine.

GREAT WEALTH IN TIMBER.

With lumber increasing in value every year it is impossible to estimate the great wealth of Arkansas in timber. In one of the late years more than \$25,000,000 worth of lumber was shipped out of the State, much of it going to furniture and wagon works in the central states.

It is estimated that of standing pine in the State, there are 50,000,000,000 feet, and of hardwoods sufficient to supply all the furniture, wagon, automobile and piano factories in the United States for the next twenty years.

With limited transportation service in the State, until recently, it was natural that the timber should remain untouched, and here it is now in readiness for export at a good price. But, better yet, to be cut and used in local factories, giving employment to tens of thousands of workmen who may become residents of the State.

Today Arkansas is an ideal State for enterprising lumbermen and for all kinds of factories, the products of which are made from hardwoods.

NATURAL COTTON FIELD.

But not alone in timber is the State blessed. One-half of the tillable land in the State is especially adapted to the growing of cotton, and one-tenth of America's cotton is already produced in this State.

The adaptability of this soil to cotton growing is shown in the fact that the average yield per acre of seed cotton, upon the uplands here, is 500 and 800 pounds, and from 1,000 to 2,000 pounds on the bottom lands.

Of the more than 1,000,000 bales produced in this State yearly, only a small fraction, up to the present time, is manufactured into goods in this State. This cotton, at large expense, is shipped to New England, to Europe, and to all cotton markets of the world, and this too, while the rapid running streams of Arkansas are full of power which would convert this cotton into the manufactured product at great profit.

Enterprising cotton manufacturers are invited to investigate the advantages offered by this State in the production of cotton goods.

But Cotton and Wool-growing and the Dairy are not the only raw materials waiting for factories. This is a glorious country for sheep.

A large share of the State seems especially made for sheep growers. No hot summers to exhaust the vitality of the flock, and no cold winters to destroy the animals. No blizzards at lambing time to prevent the increase, and no drouths to cut off feed in the summer time.

Being the natural field for the wool-grower, this should be a center for the woolen industry, and what is said here of sheep may be said of the Angora goat. With a sunshine climate, with a highly fertile soil, with exemption from drouth, through 52 inches of rainfall every year, causing an abundance of pasture, goats, sheep, and all kinds of stock become a source of large profit to stockmen.

No better region can be found than this for the dairy business. With an abundance of pure running water, luxuriant grasses, a mild climate, here are all the essentials for the successful dairyman.

FOUNDATION FOR GREAT WEALTH

Overlooking Best Opportunities. That the foundation for great wealth is here is shown in the fact that of 28,000,000 acres of arable area in the State, only about 5,000,000 acres are under cultivation.

The truth is that land-seekers, overlooking the rich opportunities that lie in this State, have floated by to other regions where land speculators were holding out brilliant inducements to new settlers. During all this rush for the West, these fertile Ar-

Arkansas Opportunities in Agriculture and Varied Enterprises

kansas lands have remained **right here** biding their time, the forests improving in the meantime, the acres in the mineral lands advancing in value, and the State as a whole, getting ready to join the grand march in the great industrial advance now, beginning to sweep over the Southwest.

The land-seeker, becoming interested, will naturally ask the price of land, a question not easily answered to the satisfaction of the enquirer.

Price usually depends upon the production and rental value of a property. Thus, land at \$150 an acre, in some localities may be cheaper than land at \$1.50 an acre at other points.

What can be produced on the land? Where can the produce be sold? What price, and what profit can be realized? What are the prospects for future growth in values? All these are determining factors.

We can only give a general outline of the advantages of a region and suggest that the land-seeker investigate for himself.

In the search for good opportunities to engage in agriculture, fruit growing, stock raising, mining or manufacturing, the land-seeker will find the advantages offered by this region are superior, and that Arkansas lands are cheap, very cheap, because there is more land here than people.

VALUE OF LANDS.

By reference to our map and table of counties, the position of every region and county in the State, herewith described, can be readily understood.

Thus, in **Crawford County**, the soil of which is adapted to the growth of the peach and the grape, seventy-five per cent of the acreage is yet covered with timber; while the southern part of this county is underlaid with coal. Prices: Wild land, \$3 to \$6 per acre; improved farms, \$30 to \$150 per acre.

It should be understood the wild lands are usually covered with forest, the timber on which will pay, and frequently much more than pay, for clearing the land.

Washington County, an upland region, elevated 1,500 feet, is the land of the **big red apple**. An Italian Colony came in here a few years ago, absolutely almost penniless, and in six years they owned 2,300 acres of land, were out of debt and have their land under a high state of cultivation. Wild land is yet low in price in this County.

Benton County, the center of the Ozark apple region, reaps an annual income of \$1,000,000 from 3,000,000 of apple trees in the county.

The county is in a very high state of cultivation, fruit raising and general farming being the rule. Improved land here is worth from \$40 to \$200 per acre. Unimproved land is worth from \$6 to \$12 per acre.

Madison County, Ozark Mountain region. Resources: Fruit, iron, lead, zinc, asphaltum and fine quarries of marble. Fine orchard lands low in price here.

Carroll County. Resources: Fruit, lumber, famous medicinal springs, summer and winter resort, Eureka Springs, becoming an excellent market for fruit and vegetable production.

Great demand here for canneries, sawmills and woodworking institutions. Parties seeking new locations for business are invited to come to Eureka Springs.

Fulton County. Resources: Fruit, cotton. County nearly all covered with heavy forests. Land, \$4 per acre. Timber will pay for clearing. Mammoth Springs in this County, gives rise to a full-fledged river, an active, beautiful great stream, adjoining which is a flour mill and a cotton mill, the United States fish hatchery and a pleasure resort, with large and commodious hotels, etc.

Sharp County. A very picturesque region. Resources: Fruit, timber and iron. Soil rich and very cheap. Stately growths of timber, numerous running streams.

WILD LAND \$3 AND \$6 AN ACRE.

Craighead County. Much dense forest here yet, but rapidly being cleared away. Jonesboro becoming

a large manufacturing center. County well supplied with railroads. Wild land \$3 and \$6 an acre.

Little River County. Resources: Great abundance of timber, level land, **hardwood** on river bottoms, **pine** on uplands, well supplied with railroads, soil and climate adapted to fruit and truck raising. Lands from \$3 to \$8 wild; from \$8 to \$20 per acre improved.

Hempstead County. One of the oldest in the State, a peach and tomato country. Yet unimproved farms here can be had for **\$1 per acre**. Timber is being removed and the county rapidly settling.

Lafayette County, in the great pine belt, highly fertile soil underlaid with clay subsoil. County well watered and drainage perfect. Wild land worth from \$2.50 to \$4 per acre. Climate delightful.

Columbia County. This is the poor man's county. With \$500 the man can be well established on a 40-acre farm and making money. A cotton, fruit and grape country. The quick, **fertile soil** here gives a family a living the first year.

Hot Springs is not only the most widely known city in Arkansas, but it has an international reputation. Its visitors come from all countries and all conditions of life. The United States government has proven its faith in the curative powers of its waters by its ownership and control of the springs. The hotels are equal to those of Chicago and New York.

The water from the springs, with a daily flow of over 800,000 gallons, is not only used for baths, but it is delicious to drink. A large number of complaints have yielded to its power.

Hot Springs has a **hotel capacity** of 20,000, and there is never a season that it is not filled. With its twenty-three bath houses and its ninety-five doctors, it is pre-eminently a Sanatorium. Nevertheless, out of its fifty thousand annual visitors, a large proportion consists of people who have come solely on account of the climate, and the opportunities to have a good time. The death rate is low—6.11 per thousand for residents and for visitors 1.32. Total 7.45. Minus the decimals, New York stands at 25, Boston 21, Philadelphia 17, Chicago 19, Los Angeles 10.

Hot Springs has **two banks**, two daily papers, nineteen churches, fifteen schools, twelve livery stables, water works, electric and gas light, electric street railway, fire department, local and long distance telephone system, New York, Chicago and New Orleans market reports by direct wire, police system, an athletic arena and baseball park, and one of the finest mile racing tracks in America.

If a business trip to Arkansas, for a personal investigation of opportunities herein set forth, is being planned, Hot Springs should by all means be included in the itinerary.

With the vast concourse of capitalists who make this their yearly playground, from which prospecting expeditions are made, there is perhaps **no point in Arkansas** which affords a better opening for a real estate business, covering a list of properties embracing every section of the state.

Area of State. Length, north and south, 240 miles; average breadth, 228 miles. Length of State on Mississippi River, from 300 to 360 miles.

Climate. Temperate and healthful. Average temperature throughout the year, 62.2 degrees. January average 40 above, July average 81 above. Warmest on record 106; Coldest 12 below. Extremes of temperature are rare. It is a land of delightful sunshine for nine months in the year, and the other three months are not unpleasant. Rainfall 53.6 inches a year.

HISTORY.

Arkansas. Visited by the Spaniards, under De Soto, 1541. Settled by the French, in 1685. Was a part of the French Colony of Louisiana, which was purchased by the U. S. in 1803.

Continued a part of Louisiana territory until 1812. Including Indian Territory, was organized as a Territory in 1819. Admitted as a State, June 15, 1836.

STATE AND THE 58 COUNTIES OF CALIFORNIA

With Their Boundaries

Location and Population
of
CALIFORNIA COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Del Norte..	2,417
2.....	Siskiyou..	18,801
3.....	Modoc..	6,191
4.....	Humboldt..	33,857
5.....	Trinity..	3,301
6.....	Shasta..	18,920
7.....	Lassen..	4,802
8.....	Tehama..	11,401
9.....	Plumas..	5,250
10....	Mendocino..	23,929
11.....	Glenn..	7,172
12.....	Butte..	27,301
13.....	Lake..	5,528
14.....	Colusa..	7,732
15.....	Sutter..	6,328
16.....	Yuba..	10,042
17.....	Sierra..	4,098
18.....	Nevada..	14,955
19.....	Placer..	18,237
20.....	Sonoma..	48,394
21.....	Napa..	19,800
22.....	Yolo..	13,926
23.....	Solano..	27,559
24....	Sacramento..	67,806
25.....	Eldorado..	7,402
26.....	Amador..	9,086
27.....	Alpine..	300
28.....	Marin..	25,114
29....	Contra Costa..	31,674
30....	San Joaquin..	50,731
31.....	Calaveras..	9,171
32....	San Francisco..	416,912
33.....	Alameda..	246,131
34.....	San Mateo..	26,585
35.....	Santa Cruz..	26,140
36.....	Santa Clara..	27,738
37.....	Stanislaus..	22,522
38.....	Tuolumne..	9,979
39.....	Mono..	2,042
40.....	Monterey..	24,146
41.....	San Benito..	8,041
42.....	Merced..	15,148
43.....	Mariposa..	3,956
44.....	Fresno..	75,657
45.....	Madera..	8,368
46.....	Kings..	16,233
47.....	Tulare..	35,440
48.....	Inyo..	6,971
49....	San Luis Obispo..	19,383
50.....	Kern..	37,715
51....	Santa Barbara..	27,738
52.....	Ventura..	18,347
53....	Los Angeles..	504,131
54....	San Bernardino..	56,706
55.....	Orange..	34,436
56.....	Riverside..	34,696
57.....	San Diego..	61,665
58.....	Imperial..	13,591
Total.....		2,377,549

Towns	Loca.	Pop.
B		
*Bakersfield ..	50..	12,727
Balboa ..	55..	500
Banning ..	56..	1,000
Barstow ..	54..	500
Beaumont ..	56..	407
Belvedere ..	34..	450
Belmont ..	28..	431
Benali ..	24..	532
Bend ..	8..	862
Benecia ..	23..	2,360
Ben Lomond ..	35..	500
Berkeley ..	33..	40,434
Beverly ..	53..	250
Bieber ..	7..	513
Biggs ..	12..	403
Big Oak Flat ..	38..	263
Elipine ..	48..	250
Bishop ..	48..	1,190
Black's Station..	25..	292
Blocksburg ..	4..	366
Blue Canyon..	19..	200
Blue Lake ..	19..	800
Blythe ..	56..	200
Boca ..	18..	214
Bodie ..	39..	750
Bostonia ..	57..	400
Boulder Creek..	35..	411
Brawley ..	58..	881
Brentwood ..	29..	325
*Bridgeport ..	39..	300
Brown ..	50..	200
Brownsville ..	16..	274

CALIFORNIA TOWNS WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A								
Acampo ..	30..	200	Anderson ..	6..	837	Buena Park..	55..	200
Adin ..	3..	500	Angel Island ..	28..	285	Bulwinkle ..	4..	200
Alameda ..	33..	25,883	Angels Camp ..	31..	3,000	Burbank ..	53..	400
Albion ..	10..	500	Antioch ..	29..	1,124	Burlingame ..	34..	565
Alhambra ..	53..	5,021	Aptos ..	35..	278	Burnett ..	53..	500
Allegheny ..	17..	200	Arbuckle ..	14..	742	Butte City ..	11..	279
Alma ..	36..	300	Arcadia ..	53..	696	Byron ..	29..	350
Alpaugh ..	47..	250	Arcata ..	4..	1,121	C		
Altaville ..	31..	300	Aromas ..	41..	300	Calixico ..	58..	797
Alton ..	4..	200	Arrowhead ..	54..	200	Calistoga ..	21..	751
*Alturas ..	3..	916	Arroyo Grande ..	49..	300	Cambria ..	49..	288
Alvarado ..	23..	612	Artesia ..	53..	500	Campbell ..	36..	700
Alviso ..	26..	402	*Auburn ..	19..	2,376	Campo ..	31..	200
Amador City ..	26..	854	Avalon ..	53..	1,000	Camptonville ..	16..	387
Anaheim ..	55..	2,628	Azusa ..	53..	1,477	Capay ..	22..	304

California Cities and Villages, with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	
Carmel	40	500	Fellow	50	500							
Carpenteria	51	300	Felton	35	439	L	Canada	53	250	Oakdale	37	1,035
Casper	10	285	Fernado (San)	53	439		La Crescenta	53	210	*Oakland	33	150,174
Castroville	40	800	Ferndale	41	905		La Grange	37	285	Oakley	20	251
Cayucas	49	316	Firebough	44	400		La Habra	55	235	Occidental	20	279
Cedarville	3	500	Florence	53	751		La Jolla	57	511	Oceanco	49	250
Centerville	33	561	Florin	54	385		*Lakeport	13	870	Ocean Park	53	3,119
Ceres	37	200	Folsom	24	1,500		La Mesa	57	507	Oceanside	57	673
Charter Oak	53	200	Forrestown	12	222		La Miranda	53	213	Olema	28	305
Cherokee	12	216	Forest	17	342		Larkspur	28	591	Ontario	54	4,374
Chico	12	3,750	Foresthill	19	658		Lathrop	30	261	Orange	55	2,920
China	54	1,444	Fort Bidwell	3	362		Laton	40	410	Orland	11	836
Claremont	53	1,114	Fort Bragg	10	2,408		Latrobe	25	313	Ormus	44	261
Clayton	29	268	Fort Jones	2	136		Laverne	28	308	Orogrande	54	261
Clearwater	53	250	Fortuna	4	883		Lawrence	36	205	*Oroville	52	2,585
Clements	30	317	Fosteria	31	400		Leeland	48	250			
Cloverdale	20	233	Fowler	44	675		Le Grand	42	256	P		
Clovis	44	1,200	Fredaliba	54	213		Lemoore	46	1,017	Pacheco	29	251
Coachella	56	1,500	French Camp	50	233		Lincoln	19	1,404	Pacific Grove	40	2,381
Coalinga	44	4,199	French Corral	18	250		Lindsay	47	1,814	Paige	47	412
Colesgrove	55	200	*Fresno	44	24,892		Little Shasta	48	210	Palo Alto	36	4,486
Colfax	19	615	Fullerton	55	1,725		Little Shasta	2	514	Parkfield	40	207
College City	14	208	Fulton	30	400		Livermore	35	2,050	Parlier	44	505
Colma	23	390					Lockeford	29	697	Pasadena	53	30,291
Colton	54	3,993	G				Lompoc	51	1,482	Paso Robles	49	1,441
*Colusa	54	1,582	Galt	24	985		Lonepine	48	251	Penryn	19	231
Compton	53	922	Garberville	4	284		Longbeach	53	17,809	Perkins	21	251
Concord	29	703	Garden Grove	55	401		Long Valley	7	205	Pescadero	34	984
Copperopolis	31	412	Georgetown	25	724		Loomis	19	307	Petaluma	20	5,880
Coram	6	666	Germantown	11	235		Lordsburg	53	954	Petaluma	58	256
Cordeila	28	281	Geyersville	20	411		Lorengo	33	350	Piedmont	33	1,719
Corning	8	972	Gibsonville	17	203		Los Alamitos	55	310	Pike	17	210
Corona	56	3,540	Gilroy	36	2,427		Los Angeles	51	607	Pinchot	53	250
Coronado	57	1,477	Glendale	53	2,746		*Los Angeles	53	310,198	Pinole	29	798
Corte Madera	28	360	Glendora	53	1,500		Los Banos	42	745	Piru	52	210
Cottonwood	46	450	Glen Ellen	20	1,020		Los Gatos	36	2,332	Pittsburg	6	305
Coulterville	43	350	Goleta	50	511		Los Olivos	51	203	*Placerville	25	1,918
County Farm	53	225	Gonzales	40	812		Lower Lake	13	395	Pleasanton	28	251
Covelo	10	300	Graniteville	18	246		Loyalton	17	983	Pleasant Valley	25	251
Covina	53	1,652	Grass Valley	18	4,520	M	McKittrick	50	212	Plymouth	26	508
Coyote	36	225	Greenville	9	417		*Madera	45	2,404	Point Arena	10	497
Cozzens	50	200	Greenwood	15	307		Mammoth	6	650	Point Reyes	28	214
*Crescent City	1	1,114	Gridley	12	987		Magalia	12	243	Pomona	53	10,207
Crescent Mills	9	300	Grizzly Flats	15	250		*Mariposa	43	431	Pope Valley	21	266
Creston	49	200	Guadalupe	51	524		*Markleeville	27	150	Port Costa	29	1,921
Crockett	29	1,800	Gualala	10	215		*Martines	29	2,115	Portersville	47	2,696
			Guerneville	20	633		*Marysville	16	5,430	Port Kenyon	4	207
D							Maxwell	14	350	Porterville	10	276
Daguerre	54	450	Half Moon	34	1,501		Mayfield	36	1,041	Pottsville	19	239
Danville	29	200	Hamilton City	11	1,016		Melitta	30	220	Princeton	14	309
Danunt	47	207	*Hanford	46	4,829		Menlo Park	34	813	Puente	53	250
Davenport	35	892	Harrison	34	252		*Merced	42	302			
Davis	22	832	Hawthorne	53	210		Michigan Bar	24	714	Q		
Decoto	33	220	Haywards	33	2,746		Michigan Bluff	19	479	Quartz	38	210
Delano	50	437	Healdsburg	20	2,011		Middletown			*Quincy	19	319
Del Mar	57	250	Hemet	56	992		Lake	13	710			
Diamond	29	2,372	Hermosa	53	679		Midland	50	510	Ramona	57	210
(Black)	29	2,372	Higley	50	241		Mikon	22	22	Randsburg	50	1,021
Diamond Spg	25	267	Highland	50	1,600		Millbrae	24	343	Raymond	45	510
Dinuba	47	970	Holden	30	341		Mill Valley	28	2,551	*Red Bluff	8	3,530
Dixon	23	827	*Hollister	41	2,308		Milpitas	36	401	*Redding	6	3,572
Dorris	2	214	Holtville	58	729		Milton	32	759	Redlands	54	10,449
Dos Palos	47	350	Honcut	12	418		Mission	32	759	Redondo Beach	53	2,935
Downey	53	1,500	Hopland	10	802		*Modesta	37	4,031	*Redwood City	34	2,442
*Downville	13	206	Hueneme	52	812		Mojave	50	281	Redwood	41	1,600
Drytown	26	216	Huntington Pk	53	1,299		Mokelumne Hill	31	1,061	Requena	1	408
Duarte	53	600	Hydesville	4	317		Monrovia	53	3,576	Richmond	29	6,802
Duncans Mills	20	300				Montague	2	274	Rio Dell	4	313	
Dunsmuir	12	1,719	I			Monte	53	350	Rio Vista	23	881	
Durham	12	250	Igerna	2	204		Montecito	51	821	Riverdale	44	281
Dutch Flat	19	400	Imperial	58	1,257		Monterey	40	4,923	Riverside	56	15,212
			Imperial Beach	57	204		Monticello	21	232	Rocklin	19	1,026
E			*Independence	48	407		Morgan Hill	36	507	Rohnerville	4	610
Eastville	3	400	Indianola	56	250		Murphy	31	748	Roseville	19	2,608
Edgewood	2	200	Inglewood	53	1,536	N			Ross	28	556	
El Cajon	57	500	Ione	26	876		*Napa	21	5,791	Round Valley	48	213
*El Centro	58	1,610	Iowa Hill	19	456		National City	57	1,733	Rust	29	517
Eldorado	25	311	Irvington	33	1,010		Needles	54	1,501	Rutherford	21	211
Eldridge	20	800					*Nevada City	18	2,689	S		
Elk Creek	11	213	J				New Almaden	36	250	*Sacramento	24	44,693
Elk Grove	24	467	Jackson	26	2,035		Newark	33	520	Saint Helena	21	1,606
El Mirra	23	317	Jamestown	38	611		Newcastle	19	503	*Salinas	40	3,736
El Modeno	55	200	Johannesburg	50	307		Newhall	53	510	*San Andreas	31	1,683
Elrio	52	250	Johnsvalley	19	311		Newman	37	862	*San Bernar-		
Elsinore	56	488	Julian	57	309		Newport Beach	55	445	dino	54	12,779
Emerald Bay	53	206					Niles	33	1,387	San Buena		
Emercy	33	2,613	K				Nordhoff	52	218	*Ventura	52	2,915
Encinitas	57	200	Kelseyville	13	902		Norman	11	244	*San Diego	57	39,518
Esccondido	57	1,334	Kennett	6	2,511		No. Bloomfield	18	510	San Fernando	53	1,150
Etna Mills	2	518	Kernville	50	2,100		No. San Diego	57	250	*San Francisco	32	44,612
*Eureka	4	11,815	Kimberly	6	625		No. San Juan	18	312	Sanger	44	2,010
Exeter	47	500	King City	40	537		Norwalk	53	513	San Jacinto	56	898
			Kingsburg	44	634		Novato	28	405	*San Jose	36	28,946
F			Klau	49	201					San Juan	41	326
*Fairfield	23	834	Knights Ferry	37	573					San Juan		
Falroaks	24	500	Knights Lndg	22	367					Capistrana	55	510
Fall Brook	57	300										
Fall River Mills	6	350										
Farmington	30	236										

California Cities and Villages, with 1910 Populations

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
San Leandro...33...	3,471	Sheepbranch...31...	219	Tehachapi...50...	385	Vista Grande...34...	2,124
San Lorenzo...33...	350	Sheridan...19...	218	Tehama...8...	221	Volcano...26...	433
San Lucas...40...	349	Sierra City...17...	512	Temecula...56...	220		
*San Luis		Sierra Madre...53...	1,308	Templeton...49...	308	W	
Obispo...49...	5,157	Sierraville...17...	350	Thermal...56...	721	Walnut Creek...29...	550
San Luis Rey...57...	315	Silver Lake...54...	211	Thomasson...23...	315	Washington...18...	359
San Martin...36...	408	Simons...53...	312	Tiburon...28...	207	Washington (Broderick)...	22...
San Mateo...34...	4,334	Sisson...2...	635	Tipton...47...	366	Watsonville...35...	4,416
San Miguel...49...	611	Soldiers Home...53...	2,361	Tobin...34...	250	Watts...53...	1,922
San Pablo...29...	487	Soledad...40...	563	Tomales...28...	424	*Weaverville...5...	1,100
San Pedro...53...	3,500	Somerset...2...	219	Touckee...18...	1,239	Westport...10...	593
*San Rafael...28...	5,934	Sonoma...20...	957	Tulare...47...	2,758	Wheatland...16...	481
*Santa Ana...55...	8,429	*Sonoma...38...	2,029	Turlock...37...	1,573	Whitehouse...6...	300
Santa Clara...35...	4,348	Soquel...35...	426	Tustin...55...	810	Whittier...53...	4,550
*Santa Barbara...51...	11,659	Soulsbyville...38...	250	U		Williams...14...	630
*Santa Cruz...35...	11,146	So. Pasadena...53...	4,649	*Ukiah...10...	2,136	Willetts...10...	1,154
Santa Maria...51...	2,260	South San		Upland...54...	2,384	*Willow...11...	1,139
Santa Monica...53...	7,847	Francisco...34...	1,989	Upper Lake...13...	205	Wilmington...53...	266
Santa Paula...52...	2,216	Stanford Univ...36...	700	Urban...25...	315	Windsor...20...	483
*Santa Rosa...20...	7,817	Stega...29...	510	V		Winters...32...	910
Santa Ynez...51...	250	*Stockton...30...	23,253	Vacaville...23...	1,177	Woodbridge...30...	203
Saratoga...39...	1,500	Stonyford...14...	315	Vallejo...23...	11,340	*Woodland...22...	3,187
Sausalito...28...	2,383	Suisun...22...	641	Valley Springs...31...	298	Woodside...34...	205
Sawtelle...53...	2,143	Summerland...31...	250	Vallicita...31...	318	Wrights...36...	289
Scales...53...	217	Sunolgie...33...	328	*Ventura...52...	2,955	Y	
Scotia...4...	513	*Susanville...7...	688	Vina...8...	218	Yolo...22...	284
Scott Bar...2...	212	Sutter...15...	410	Vineburg...20...	215	Yountville...21...	307
Sebastopol...20...	1,233	Sutter Creek...26...	2,015	*Visalia...47...	4,539	*Yreka...2...	1,134
Selma...44...	1,750	Sycamore...14...	204			*Yuba City...15...	1,160
Shasta...6...	634	T					
Shasta Retreat...2...	617	Tailorsville...19...	245				

Opportunities in Agriculture and Varied Enterprises

Diversity of industries. The state of California, 770 miles long and 375 miles wide, is a region especially interesting to the land seeker. It is a land of opportunity. The adventurer here may engage in a variety of enterprises, with prospects of success.

Mining for gold and silver has been and yet is a most profitable work. Successful mining enterprises are in operation in San Bernardino, Inyo, Mono and other counties, while the vast mountain ranges, extending throughout the length of the state, contain great quantities of mineral yet to be discovered.

FRUIT GROWING AND GENERAL FARMING.

Wheat raising employs large numbers of workmen. Fruit growing is rapidly developing. The refining of petroleum, and its conversion into fine oils will be an immense enterprise in future years.

The climate of California is favorable for grape growing and the manufacture of a favorite wine of world wide reputation. The installation of great irrigation works will call for the service of multitudes of men. The development of power for manufacturing, transportation, heating and lighting from the immense water-power now going to waste will come forward soon. The utilization of the vast asphaltum beds for road making is close at hand.

The fisheries, sugar making, poultry growing, dairying, lumbering, seed growing, furniture making and other industries are all just on the verge of unlimited development.

NEWCOMER MAY TAKE HIS CHOICE.

Here is the raw material in wonderful abundance. It is only for the newcomer to make his selection of what he will do. The Panama Canal was opened for traffic in the fall of 1914 and the event was celebrated by great expositions in 1915 in San Francisco and San Diego. Henceforth the shipment of California products to the Eastern States and to Europe will be greatly facilitated.

The land seeker may come, if most convenient, on either the Santa Fe or Southern Pacific railways into California and begin investigation at San Diego, in San Diego County.

STATE YET THINLY POPULATED.

In this great state, three times as large as New York, the population is still relatively small, but it is increasing rapidly.

It takes but a little time to become impressed with the vast possibilities of California. Thirty million acres here are in forest. Much of this being covered by the famous red woods of such immense size as to give a million feet of lumber to the acre.

So abundant is this timber and so prolific in great trees as to cause the government to put ten million

acres of this timber area into national parks, leaving yet enough for manufacturing and export for generations to come.

It only wants a very brief time in consideration to note the future probabilities of California. Here is a state with an area sufficiently large to permit the residence of fifty millions of people within its borders; here is soil for growth of grain, vegetables and fruits; here are mountain streams for irrigation and power for manufacturing; here are mild temperature and sunshine; here are metals, marbles, oils and all the essentials for production of food, building, raiment and furnishings.

TO BE A GREAT MANUFACTURING CENTER.

Here is enough of raw material to put many million at work and the transportation facilities to carry the products of these many millions to all parts of the world.

The average rainfall ranges from ten to twenty inches in northern California and is less in the southern part of the state, but artesian wells and irrigation are expected to give a sufficiency of moisture for crop raising.

The mild weather of the winters in southern California is attracting a larger and a larger number of residents to Los Angeles, San Diego and other southern California cities every year, the consequence being a steady advance in real estate values, particularly in the suburbs of these cities.

AGRICULTURISTS AND HORTICULTURISTS.

To land seekers wishing to engage in agriculture or horticulture it will be interesting to know that in 1907 there were over 30,000,000 acres of government land in California yet open for homestead settlement.

To investigate farming or to engage in fruit raising it is well to go out to Bakersfield in Kern county and follow down the San Joaquin valley northward to San Francisco, stopping from time to time at the various towns on the way while passing through Tulare, Kings, Fresno, Mercer and other counties in the San Joaquin valley.

This valley contains upward of 30,000 square miles, being nearly four times the size of Massachusetts. There are a dozen counties in this valley, but if the seeker for land can go no farther he should go into Kern, Tulare, Kings and Fresno counties at least.

Three thousand oil wells are in Kern county and in this county can be seen the operation of one of the California irrigation systems.

The great fruit orchards will interest the visitor in Tulare county.

California Opportunities in Agriculture and Varied Enterprises

COST OF PLANTING FRUIT ORCHARDS.

Fruit land here costs from \$50 to \$75 per acre. The cost of preparation of the land and planting trees (apples, peaches or prunes) amounts to \$25 per acre of seventy-five trees. They come into bearing on the average on the fifth year. Four years care will cost about \$24 an acre for this period. Counting interest on the investment and incidentals, by the time the fruit orchard comes into bearing the cost in this locality is \$160 per acre.

The crop of prunes, at three cents a pound, will yield \$150 per acre. Deducting \$15 per acre for drying, \$10 per acre for interest and \$12 per acre for care and the net return is \$112 per acre.

Thus, suppose a person were to buy and put in ten acres of prunes, the profits per year, after the crop came into bearing, would be \$1,120 per year.

The returns would be the same for peaches or apples. Various fruit and land companies in Tulare county who capitalized their lands at \$200 an acre have paid profits of from 27½ to 38½ per cent.

There are 7,500 acres under cultivation in citrus fruits in Tulare county, with an output of 30,000,000 pounds a year, more than half of which are dried.

PICKING AND PACKING FRUIT.

The picking, packing, drying and canning of the crop calls for the services of some 4,000 people, mostly boys and women. Everybody in the county works while the rush is on. Girls in the packing houses and canneries make from \$1 to \$1.75 per day and boys, by whom most of the picking is done, make from \$1.50 to \$2.50 per day.

Orange land may be had at \$25 to \$100 per acre, the price depending upon whether the land is ready for use or must be developed by the purchaser. An orchard four years old begins to bear. The profits run from \$125 to \$200 per acre when in full bearing.

Raisins are also an important product of Tulare county. When in full bearing, at six and seven years, the yield is from a ton to a ton and a half per acre, and the returns, when the market is normal, average around \$100 per acre. Raisin land in this district may be had at from \$30 to \$50 per acre. Lands higher in price are those closely adjacent to large cities.

Fresno is a fine county containing 5,000 square miles, being larger than the state of Connecticut, and has a population of only about 41,000, of which nearly half live in Fresno city.

The rainfall here is about ten inches a year. Fresno county produces annually two or three million bushels of wheat, besides other grains, ten or fifteen million pounds of wool, a million dollars' worth of deciduous fruit, four or five million pounds of figs, hundreds of car loads of raisins and a million dollars' worth of wine. One creamery in Fresno (and there are six) produces 6,000 pounds of butter a day. These are but a fraction of the total product.

Good raisin land may be had in Fresno county for \$35 an acre and upward. The returns are estimated at \$80 and \$100 per acre. Figs pay \$250 to \$275 per acre.

UNLIMITED POSSIBILITIES.

The entire state of California is a land of boundless possibilities. The southern counties, including San Diego, Los Angeles, Riverside, Orange and San Bernardino counties, send 30,000 cars of oranges to eastern markets every season and the growers make a profit of \$250 to \$400 an acre.

There are broad ranges of land yet in southern California devoted to dry ranching, where thousands of acres are plowed with steam plows and wheat is harvested with great combination headers and threshers. This land, it is expected, will later, as the county settles up, come into fruit raising with greater profit.

CONDENSED FACTS RELATING TO THE STATE.

Altitude. Highest points, feet: Mt. Whitney, Tulare county, 14,887; Mt. Shasta, Siskiyou county, 14,442; Mt. Tyndall, Tulare county, 14,380; Mt. Karveah, Tulare Co., 14,000; Mt. Lyell, Mono county, 13,217; Mt. St. Bernardino, Bernardino county, 8,376; Mt. Hamilton, Santa Clara county, 4,450; Mt. Lowe, Los Angeles county, 4,000; Mt. Diablo, Alameda county, 3,876.

Climate. Average temperature: At Sacramento, Sacramento county, January 46, July 72. Highest 110, lowest 19 above zero. Rainfall 20.9 inches.

At San Diego, San Diego county, January 54, July 67, highest 101, lowest 32. Rainfall 10.5 inches.

History. Explored by Spanish 1542. San Diego

founded by Spanish missionaries 1769, who established in all twenty-one missions in California extending north from San Diego to San Francisco. Territory became part of Mexico 1822. Pioneers from United States entered 1826. Fremont's expedition 1844-5; gold found in Coloma, Eldorado county, 1848. Ceded by Mexico to United States, 1848.

Notable places. Cliff House and Seal Rocks in San Francisco. Leland Stanford University at Palo Alto, Santa Clara county, thirty-four miles from the city.

Lick Observatory on Mt. Hamilton, Santa Clara county, 26 miles from San Jose, the latter place being 51 miles from San Francisco.

The Yosemite valley, Mariposa county, containing six square miles shut in by sheer walls from 3,000 to 5,000 feet high.

Near this valley are the big redwood trees in Calaveras and Mariposa counties. The Yosemite lies eastward of San Francisco some over one hundred miles.

The guide books mention many other very interesting places to visit in California.

San Francisco—This metropolitan city stands pre-eminently the financial center of the Pacific Coast. This has long been wholesale headquarters for all leading enterprise westward from the Rocky Mountains. It stands in the midst of a group of wealthy cities, which aid in maintaining its supremacy. These towns include Oakland, Sacramento, Berkeley, San Jose, Alameda, Stockton, Vallejo, Santa Cruz, Eureka, Santa Rosa and others.

But while much may be said favorable to cities in the northern part of California, there are also many important and prosperous cities in the southern part of the State. Here, for example, is

Los Angeles, the metropolis of southern California. This city is particularly notable from its very rapid growth in the past few years. Coming here for only temporary residence visitors find delightful, healthful climate, mingled with such beauty and other attractions as to induce them to remain permanently. Here is a group of southern California cities, the citizens in which claim that the Los Angeles district is the Garden Spot of the Universe. These cities include Pasadena, San Diego, Long Beach, Riverside, Redlands, Santa Ana and others.

California Big Trees. Forty-seven miles from Milton Station, on the Stockton and Copperopolis (Cal.) Railway, the tourist comes upon the Calaveras Big Trees, the highest of which tapers upward a distance of 435 feet, and has a circumference, near the ground, of 110 feet, while another, forty miles from Visalia, on King's River, measures 44 feet in diameter. This is the largest in California. The Mariposa group of forest giants comprises 600 trees, 125 of which are each over 13 feet thick, while several are from 30 to 33 feet in diameter. One, remarkable for its grand dimensions, rises to a height of 90 feet and there throws out a limb having a thickness of six feet. The route to the Yosemite Valley passes near these monsters.

The Yosemite Valley. Reached by four stage routes. Situated on the Merced River, Mariposa County, Cal., 220 miles (by road) from San Francisco. The Valley contains a level plateau about 6 miles long and from ½ to 1 mile wide, and is surrounded by granite cliffs, rising almost perpendicularly to a height varying from 3,000 to 6,000 feet. From the tops of these cliffs spring magnificent and beautiful cataclysms. All through the valley flowers abound, relieved with plants and shrubs, and their varied hues and odors are delightful to the senses. The valley has been known since 1851, and is the property of the State, set apart for a public resort. The name Yosemite, given to it by the Indians, means "Large Grizzly Bear." "El Capitan" is a solitary stone pillar, with a perpendicular elevation of 3,300 feet. The "Bridal Veil," a cataract of great beauty, falls over a cliff 900 feet high. Opposite to it is "The Virgin's Tears Creek," with a fall of 1,000 feet. "Cathedral Rock" is a granite pile, 2,660 feet high. "The Spires" are two graceful columns. "The Three Brothers" is a triplet group of rocks, the highest peak of which rises 3,830 feet. "Sentinel Rock" is 3,043 feet high. "The Yosemite Falls" is a grand piece of scenery, broken into cascades, the first having a fall of 1,500 feet; then shorter ones to a depth of 626 feet, and finally a plunge of 400 feet into the valley. East of the Falls is a bold peak, rising 3,030 feet above the valley. The "Half Dome" in the vicinity, is a granite crest rising nearly 5,000 feet above the valley. "North Dome" is 3,568 feet high. "Vernal Fall" descends about 400 feet. The "Cap of Liberty," a huge mass of rock, is 2,000 feet high. "Nevada Fall" is nearly 600 feet high. The views from the various points of the valley reached by travelers are among the sublimest in the world.

STATE AND THE 61 COUNTIES OF COLORADO

With Their Boundaries

Location and Population
of
COLORADO COUNTIES

Lo-
ca-
tion

COUNTIES

Pop.
1910

1.....	Moffat..	
2.....	Routt..	7,561
3.....	Jackson..	1,013
4.....	Larimer..	25,270
5.....	Weld..	39,177
6.....	Morgan..	9,577
7.....	Logan..	9,549
8.....	Sedgwick..	3,061
9.....	Phillips..	3,179
10.....	Rio Blanco..	2,332
11.....	Garfield..	10,144
12.....	Eagle..	2,985
13.....	Grand..	1,862
14.....	Summit..	2,003
15.....	Clear Creek..	5,001
16.....	Gilpin..	4,131
17.....	Boulder..	30,330
18.....	Jefferson..	14,231
19.....	Denver..	213,381
20.....	Adams..	38,872
21.....	Arapahoe..	10,263
22.....	Washington..	6,002
23.....	Yuma..	8,499
24.....	Mesa..	22,197
25.....	Delta..	13,688
26.....	Gunnison..	5,897
27.....	Pitkin..	1,556
28.....	Lake..	10,600
29.....	Chaffee..	7,622
30.....	Park..	2,492
31.....	Douglas..	3,192
32.....	Elbert..	5,331
33.....	Teller..	14,351
34.....	El Paso..	43,321
35.....	Lincoln..	5,917
36.....	Kit Carson..	7,483
37.....	Cheyenne..	3,687
38.....	Montrose..	10,291
39.....	San Miguel..	4,700
40.....	Dolores..	642
41.....	Ouray..	3,514
42.....	San Juan..	3,063
43.....	Hinsdale..	646
44.....	Mineral..	1,293
45.....	Rio Grande..	6,563
46.....	Saguache..	4,160
47.....	Fremont..	18,181
48.....	Custer..	1,947
49.....	Pueblo..	52,223
50.....	Otero..	20,201
51.....	Kiowa..	2,899
52.....	Bent..	5,053
53.....	Provers..	9,520
54.....	Montezuma..	5,029
55.....	La Plata..	10,812
56.....	Archuleta..	3,302
57.....	Conejos..	11,285
58.....	Costilla..	5,498
59.....	Huerfano..	13,320
60.....	Las Animas..	33,643
61.....	Baca..	2,516

Total.....799,024

COLORADO TOWNS WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			C			F		
Aguliar	60	858	Cedaredge	25	295	*Fair Play	30	265
*Akron	23	647	Center	46	385	Florence	47	2,712
Alamosa	57	3,013	*Central City	16	1,782	Florissant	33	268
Alma	30	301	*Cheyenne			*Fort Collins	4	8,212
Amity	53	251	Wells	37	272	Fort Garland	58	201
Animas	55	201	Coalercreek	47	676	Fort Logan	21	2,501
Antonito	57	681	Cokedale	60	502	Fort Lupton	5	614
Argo	19	201	Colorado City	34	4,333	*Fort Morgan	6	2,802
Arloa	51	202	*Colorado			Fountain	31	431
Arvada	18	841	Springs	34	29,078	Fowler	50	925
*Aspen	27	1,834	Como	30	411	Frederick	5	266
Atwood	7	251	*Conejos	57	301	Fruita	24	881
Ault	5	569	*Cortez	54	565	G		
Aurora	20	679	Coventry	38	401	Galatea	51	201
Avondale	49	251	*Craig	1	392	Gary	6	202
B			Crawford	25	201	*Georgetown	15	952
Bald Mountain	16	801	Creede	44	741	Gilman	12	351
Basalt	12	235	Crested Butte	26	904	*Glenwood		
Bayfield	55	227	Crestone	46	231	Springs	11	2,019
Beacon	60	350	*Cripple Creek	33	6,206	*Golden	18	2,477
Berthoud	4	758	Cucharas	59	351	Goldfield	33	1,112
Berwind	60	602	Curtis	34	502	Gorham	17	352
Blackhawk	16	668	D			*Grand Junc.	24	7,754
Blanca	58	351	Delagua	60	958	Granite	29	251
*Boulder	17	9,539	*Del Norte	45	843	Graycreek	60	576
*Breckenridge	14	834	*Delta	25	2,388	*Greeley	5	8,179
*Brighton	20	851	Denver			Guffmet	55	400
Brookhead	60	352	(capital)	19	213,381	Guffy	30	302
Brookside	47	201	Dolores	54	821	Gulch	27	401
Brush	6	997	*Durango	55	4,680	*Gunnison	26	1,626
*Buena Vista	29	1,041	E			Gypsum	12	301
*Burlington	36	368	Eaton	5	1,157	H		
C			Edgewater	18	712	Hastings	60	693
Calcite	47	202	Edith	56	293	Haxtum	9	341
*Canon City	47	5,162	Elkton	33	301	Hayden	2	314
Capulin	57	690	El Moro	60	351	Henderson	20	302
Carbondale	11	284	Engle	60	801	Hesperus	55	201
Carnero	46	251	Englewood	21	2,983	Higbark	33	251
D			Erie	5	596	Holly	53	724
Castle Rock	31	365	Espinoza	57	401	*Holyoke	9	659
			Estes Park	4	301			
			Evans	5	602			

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Colorado Cities and Villages with 1910 Populations—Continued

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Hotchkiss	25	602	Manassa	57	788	Paonia	25	1,011	*Silverton	42	2,153
Howardsville	42	301	Mancos	54	567	Perigo	16	201	Sneffels	41	751
*Hugo	35	343	Manitou	34	1,359	Pierce	5	352	Somerset	26	421
I			Manzanola	50	428	Pitkin	26	253	Sopris	60	302
Idaho Springs	15	2,154	Marble	26	782	Platteville	5	432	South Canon	47	1,321
Ideal	59	252	*Meeker	10	807	Portland	47	601	South Canon	11	203
Independence	33	801	Minturn	12	241	Primero	60	2,011	Starkville	60	1,002
J			Montclair	19	415	*Pueblo	49	44,395	Steamboat		
Jasper	45	301	Monte Vista	45	2,544	R			Springs	2	1,227
*Julesburg	8	962	*Montrose	38	3,254	Radiant	47	201	*Sterling	7	3,044
K			Morrison	18	251	Ramah	34	201	Sugar City	50	808
Kersey	5	304	Mountain View	18	391	*Redcliff	12	383	Superior	17	349
Kiline	55	501	Mt. Morrison	18	351	*Rico	40	368	Swink	50	310
L			N			Ridgway	41	376	T		
Lafayette	17	1,892	Nederland	17	446	Rifle	11	698	*Telluride	39	1,756
La Jara	57	448	Nevadaville	16	367	Rock Creek	12	351	Tercio	60	501
*La Junta	50	4,154	New Castle	11	493	Rocky Ford	50	3,231	Thomasville	27	202
*Lake City	43	405	New Windsor	5	1,503	Romeo	57	201	Tioga	59	253
*Lamar	53	2,977	*North Creede	44	1,101	Rosemont	33	501	*Trinidad	60	10,204
*Las Animas	52	2,011	North Longmont	17	262	Roswell	34	351	V		
La Veta	59	691	Norwood	39	212	Roubideau	25	202	Valverde	19	665
*Leadville	28	7,508	O			Rouse	59	551	Victor	33	3,162
Limon	35	534	Oak Creek	2	222	Rugby	60	252	W		
*Littleton	21	1,373	Olathe	38	458	Russell Gulch	46	702	*Walsenburg	59	2,423
Loma	24	801	*Ordway	50	705	Rye	49	252	Wellington	4	459
Longmont	17	4,256	Ortiz	57	501	S			Westcliffe	48	232
Louisville	17	1,706	*Ouray	41	1,644	Salida	29	4,425	Weston	60	601
Loveland	4	3,651	Overland	19	251	San Rafael	57	261	Whitehorn	47	502
Lufane	38	202	Oxford	55	501	Sanford	57	564	Williamsburg	47	556
Lupton	5	501	P			*San Luis	58	903	Windsor	5	935
Lyons	17	632	*Pagosa			Sedgwick	8	201	*Wray	23	1,001
M			Springs	56	669	Segundo	60	602	Y		
McKissick	5	201	Palsaje	57	201	Sheridan	21	498	Yampa	2	332
Maitland	59	351	Pallsades	24	903	*Silver Cliff	48	252	Yuma	29	833
						Silver Plume	15	462			

COLORADO

A YOUNG STATE—A MOST INTERESTING STATE OF GREAT POSSIBILITIES IN MINING, AGRICULTURE, PLEASURE AND HEALTH RESORTS.

For wild picturesque scenery in a State more than three times the size of New York, where mountain elevations are more than **14,000 feet high**, where **500 lakes** and **6,000 miles** of trout streams afford opportunity for fishing, where panthers, **grizzly bears**, wild cats, wolves, foxes, badgers, beavers, antelope, ducks, geese, rabbits, squirrels, doves, and mountain quail make opportunity for hunting, where **340 sunshiny days** in the year make an atmosphere so clear that objects can be seen **one hundred miles** away, where on the broad mesas and elevated plateaus the life-giving air is so full of ozone as to make the whole region one grand sanitarium; where there are **12,000 miles** of irrigating ditches which water

4,000,000 acres, 2,000,000 of which are under cultivation; where there are yet over 26,000,000 acres of government land ready for homestead settlement—wanting to investigate **all this**, and a good deal more, the land seeker may look up a railroad guide and learn that a **two thousand mile ride** from the Atlantic cities, and a thousand-mile journey from the central cities of the United States will take him into the center of this State, and to the **capital of Colorado**, where the rocks, the mines, the cascades, the tunnels and the singular freaks of nature will be found to have surpassed any description we can give of the State.

A LONG, DREARY RIDE.

Going westward from the Central States it may seem a dreary ride across the prairie and desert regions before reaching the destination, but **all at once** he will be surprised by entry into one of the most beautiful cities in the world, and the surprise is **all the greater** when it is known that the State has been settled but fifty years and came into the Union only about thirty years ago.

The Capital City of this young State is Denver, named from Gen. James W. Denver, a former governor of Kansas Territory, of which Colorado was then a part.

FACTS ABOUT DENVER.

Here are some facts about Denver. It has a population of 214,000; is located 5,200 feet above sea level; has 155 miles of street car lines; 155 churches; 73 public school buildings; 11 colleges and academies; a public library containing 75,000 volumes; 4 daily papers; 20 clubs; 23 hospitals and asylums; 5 national banks; 11 parks, one of them covering 330 acres; 7 theaters; 2 summer gardens, and many fine hotels.

An excellent way to see Denver is by "Seeing Denver" cars and automobiles, which make the circuit of the city several times each day during the summer season.

These cars leave from central points and take one

not only through the city itself but through the suburbs.

CANNOT DO JUSTICE TO THIS SUBJECT.

It is impossible in our sketch to enumerate the many interesting places to visit in Colorado, and it is equally difficult to describe the general appearance of the region. One writer says:

"The Rocky Mountains, in their majestic sweep through the North American continent, culminate midway in their course, and within the limits of the State of Colorado. Here is the 'crest of the continent'—its supremest uplift—where from a vast central plateau, itself 6,000 feet above the sea, rise hundreds of granite peaks into the regions of perpetual snow. Here the waters of a continent are divided and great rivers flowing to either ocean have their source. Here are canons and gorges, aweinspiring and stupendous, which testify to the hoary age of the mountains they cut asunder; and a score of peak-encircled parks; any one of which might constitute a principality.

"Here are the continent's treasure vaults, where veins of gold and silver seam the granite mountains.

"Here are medicinal springs for healing and refreshment; and here, under skies of deepest blue, lies a sun-bathed land with a climate whose delights and perfections the lowland dweller may not know."

Colorado Opportunities in Agriculture and Varied Enterprises

UNABLE TO DESCRIBE ALL.

But omitting descriptions of many interesting places we note two points: Colorado Springs and Manitou. The first with a population of 25,000 people, the last with half that number in the tourist season.

Colorado Springs is a resting spot for people who enjoy climate and scenery. It has broad streets and many beautiful homes. It is the quiet meeting place for the successful miner who comes down from the mountains to greet his friends from the East. It is the delightful rendezvous of wealthy cattle raisers, the rich tourist, and the invalid who has been instructed to go somewhere into sunshine and take up residence in pure invigorating air.

But a short distance away is Manitou, the "Saraboga of the West."

Nestling right here at the foot of Pike's Peak, in a charming valley through which runs a rapid stream at all seasons is this town, filled with tourists throughout the summer season.

There are fourteen springs in all, no two of them alike, and one of them the largest known soda spring in the world.

Five large hotels, several smaller ones, and many boarding-houses, here are filled to their utmost capacity during the summer.

OPPORTUNITIES FOR PERMANENT SETTLERS.

But leaving the watering places and pleasure resorts for the enjoyment of those who are temporarily in the State, we will examine the inducements that offer new settlers in Colorado.

Wherever there are mountains there are valleys between, and many of these in Colorado include broad plateaus, and nowhere in the United States is there better opportunity for the study of irrigation and its effects on crops than in this State.

To the American farmer irrigation is almost a new thing. There has never been any necessity for him to consider it in the wonderful growth of this republic. He has in his achievements, up to the present time, been independent of all things artificial in his work upon the virgin soil he plowed, and has been content with the timely rains that fell upon it.

But with the rapid spread of population much arid soil is found which can only be made habitable by artificial water supply.

ORIGINATORS OF IRRIGATION IN THIS REGION.

The Mormons were the first to intelligently apply irrigation in the territory now occupied by the United States. They had come far away from civilization at the East and settled in a region so hopelessly arid that it was a certainty no one could ever molest them there. But in order to live they must have moisture for their fields. They brought it from the mountain streams then running to waste, and the fertile fields of Utah testify to the worth of irrigation.

The next experiment, on a considerable scale, was at Greeley, Colorado. There the farmers, through much costly experience, have finally triumphed over sand and sage, rock and alkali, reclaimed the waste land, and made a model fruit and farm land, which has taught important lessons to others in the reclamation of arid land in Colorado, New Mexico, Arizona and California. We explain this elsewhere.

Like the annual overflow of the river Nile which enriches the Egyptian valleys, so the life-giving elements in irrigating water is of itself an important means of fertilization.

A striking illustration of the effect of irrigation is shown in the valley of the Arkansas river in Prowers, Bent, and Otero counties, a region where formerly there was only alkali, sage brush and sand. To witness this go southward from Colorado Springs forty miles to Pueblo, thence east about 100 miles. Somebody turned the waters of the Arkansas into the river valley in the vicinity of Rockyford, Otero County, and, behold, that barren valley became a garden spot where land yields 60 bushels of wheat to the acre, 6 tons of alfalfa to the acre, 25 tons of sugar beets, and 300 bushels of sweet potatoes to the acre.

ORIGIN OF THE ROCKYFORD MELON.

Here adjoining the Arkansas river, is the thriving young city of Rockyford, a town of 2,500 people, and here is the home of the original Rockyford cantaloupe, which has an established reputation in all the markets of the country.

It is here where orders are received for the Rockyford cantaloupe seed, the rich irrigated land here turning out in some cases 400 pounds of seed per acre. The merit of this melon is that it always grows

a uniform size, such that 45 melons can be packed in a standard crate 12x12x24, permitting dealers to make quotations on Rockyfords, knowing the quality of the melon and the exact number in a crate.

From this seed sent out it is estimated that there are now over 60,000 acres of Rockyford cantaloupes being cultivated and that there are 7,000 carloads consumed every six months.

MELONS AND SUGAR BEETS.

But what can be said of the irrigated land in the Arkansas river valley in relation to melons may be said of sugar beets, cabbages, tomatoes, cucumbers, asparagus, parsnips, carrots, apples, plums, cherries, peaches and all the small fruits.

In the purchase of farm property the land seeker will remember that price is measured generally by the capacity of land to yield money return. Thus, land at \$250 and \$500 per acre may be cheap, depending on improvements and profit to be obtained, while land at \$5 per acre may be dear.

Thus irrigated land in the vicinity of Rocky Ford is worth from \$200 to \$500 per acre, but equally as good land in this region may be bought at a price varying from \$30 per acre upwards.

Before leaving Colorado, the land seeker should return by way of Pueblo to Gunnison and thence to Montrose, in Montrose County.

The United States Government is at work in Montrose and Delta counties, for the purpose of utilizing rivers in these counties which will irrigate 120,000 acres of land. Irrigation projects by the government are also in contemplation in the vicinity of Green Junction, Mesa County, and along the White and Yampa Rivers in Routt and Rio Blanco Counties. See our mention of these elsewhere.

The Montrose and Delta project is expected to cost about \$3,500,000.

People who are attracted by Colorado climate and wish to buy fertile land in this State will do well to go to Montrose and there study the prospects for new settlers in the Uncompagire valley.

Altitude.—Highest points, Feet: Sierra Blanca 14,483. Pike's Peak, 14,271 and over forty mountains over 14,000 feet high.

Climate.—Average annual temperature at Denver: January, 27 degrees above; July, 72; highest, 105; lowest, 29 below; rainfall, yearly 14½ inches.

Dimensions.—Extreme breadth, east to west, 375 miles. Extreme length north to south, 270 miles.

History.—Colorado was partially explored by Lieut. Pike in 1806, and in 1819 by Col. Long, from whom Long's Peak is named. The American Fur Company followed in 1832 and Fremont in 1842-4. In 1854 colonists founded Conejos in the Rio Grande valley. Gold discovered in the northern part of the State in 1858. In 1859 thirty intelligent settlers came in. The Rocky Mountain News was published.

In 1861 the Territory of Colorado was established with 9 counties. Admitted to the Union in 1876 as "The Centennial State."

Notable Places.—Denver, Manitou Springs, and over twenty points described in the guide books where there are famous mountain resorts, fine parks, hot springs, mineral and other springs.

SPECIAL COLORADO FEATURES OF INTEREST.

John Sebastian, in behalf of the Rock Island, has lately issued a work on Colorado, from which we copy the following:

COLORADO: WHY IT ATTRACTS. THE IDEAL VACATION-LAND.

To any one who has not been to Colorado the fact that so many thousands of people do go each summer for a period of rest or recreation must certainly suggest that there are strong reasons for it.

One is at a loss to know where to begin in setting forth these reasons, for they are many and of equal importance.

First of all, Colorado is a state so completely unlike the one in which you live that you must see it if you are to fully realize what a wonderful country this is of the Stars and Stripes.

Colorado is a wide, free land of mountain heights and canon depths, of grassy plain and high plateau. It is a land of clear pure air and golden sunshine. It is a land of sparkling mountain streams and glassy-surfaced lakes. It is a land of many kinds of fish and fowl—wild animals roam the more inaccessible portions of the mountain country, emerging even to the remote lower levels.

Colorado, a Most Interesting Region for Tourist and Traveler

Should you seek health, or rest, or sport, or any of the various forms of pleasure, ranging from restful enjoyment to venturesome quest, Colorado will provide the one and the all, and of such a kind as to captivate and to bring you back another season to taste again the joys of the Rocky Mountain region.

Colorado is pre-eminently the place to do things, and to enjoy immensely the doing. There is not a dull moment in the program of the Colorado visitor. If one seeks the pleasure of gay company he may have it in abundance. If one seeks a quiet solitude in which to forget the whirl of business or of social life, and to get near to Nature in a mountain camp, then Colorado offers the very best place to enjoy each form of pastime.

If one is not ready to relinquish the comforts and conveniences of city life,—oh! Colorado's countless resorts offer up-to-date hotels, or less pretentious stopping places, where every wish is gratified, withal at reasonable cost.

A very important factor in Colorado's popularity is its central location and ready accessibility from any section of the country.

There are one-night trains from Chicago, St. Louis and Kansas City, while the service from a score of other large cities in the middle west is equally good. And it is but a two-nights' trip from the Atlantic seaboard to the Rocky Mountains.

With the double purpose of making it easy of reach for those of moderate purse and of making it the Mecca of the many, the custom is to grant throughout the summer, very low rates for the round-trip to Colorado from all quarters. Frequently special excursions are arranged which bring the cost of the trip to a minimum.

To him who would try Colorado for this season's outing, the word is: watch the newspapers and the magazines for announcement of this season's rates. It will pay to do so. Very favorable arrangements will be made to give you an opportunity to taste the "high life" in Colorado.

Denver, Colorado Springs, Manitou and Glenwood are the best known and most popular of Colorado's resorts. It may seem odd to include Denver, a city of 185,000, in this category, but it belongs there. Denver is a summer resort, as well as a rich and beautiful city. Its hotels are maintained very largely for the accommodation of summer visitors. It is a place where one could spend a month to excellent advantage. It is the best starting point for a large number of attractive one-day trips to and through the mountains. It has scores of good restaurants, hundreds of boarding houses, parks, summer gardens, and a street railway system that has few equals. The mountains are only thirty miles away—they look much closer, but they are really quite a long way off.

Colorado Springs is the aristocrat of Colorado cities, the home of several thousand unusually well-to-do and exceptionally cultivated people from all parts of the country. It has fewer hotels than Denver and their variety, especially in the matter of price, is not as great. But for the man or woman who wants to get away from the noise and racket of a big city, and yet feels the need of having right at hand the conveniences and comforts of metropolitan life, Colorado Springs is ideal.

A MOST DELIGHTFUL PLEASURE RESORT.

Manitou has been called the "Saratoga of the West," and worthily does it bear the title. Very much smaller than Colorado Springs, it, nevertheless, in the course of a summer, entertains more people. It is a pleasure resort, first, last and all the time. In this respect it differs from Colorado Springs, which is essentially a city of homes. Manitou has half a dozen large hotels and perhaps twice as many smaller ones, to say nothing of innumerable boarding houses. The springs and the hotel ballrooms are Manitou's centers of activity. In the season, any time from July 1 to the middle of September, Manitou is as gay as anyone would want.

Glenwood lies in the very heart of the Rockies, about 300 miles west of Colorado Springs. Its location is magnificent, in a valley through which flows one of the largest of Colorado's rivers. It is referred to at length elsewhere in this publication. Meanwhile, it may be said that mention is here made of it—and this is true also of Denver, Colorado Springs and Manitou—simply in order that the reader may know, before he arrives in Colorado, what are the dominant characteristics of its four leading resorts. Superficial as the comment has

been, it is, nevertheless, sufficient to give him a key to all four places.

However, it is only fair, not only to Colorado, but to the prospective visitor as well, to say that two of the four leading resorts of Colorado have little or nothing about them that is distinctively Coloradan. This is not intended as a reflection on either place. It means that with the exception of the always glorious climate, Manitou and Denver might be reproduced in any one of half a dozen other states without, being out of harmony with their surroundings.

DIFFERENT FROM MOST RESORTS.

Colorado is fortunate in possessing a number of resorts that are "different" from the general run of summering places. Their names? Estes Park is such a place. So, in a way, are the pretty lodges in Flatts Canon. So are any number of the smaller towns and resort places in the interior. They are located on the sides of mountains, on the banks of streams where famous fishing is to be had, or near springs whose waters come bubbling to the earth's surface—queer of taste, hot to the touch, but "wonderfully good for you."

These are the places that are truly and typically Coloradan. These are the places where one gets in touch with good old Mother Earth; where, for the first time in years, perhaps, one really realizes how beautiful is the blue sky and how fine is a lungful of air, fresh from snowy peaks.

It is to these out-of-the-way corners that your true lover of Nature hies. Not for him the great hotel, with its army of servants and crowded hallways. Not for him the gay promenade of beauty and fashion. He would woo the sweetest of all mistresses, Dame Nature herself. And so, for a period, his letters bear queer superscriptions: "Such-and-such a place, Rout County, by stage from Eagle, via Bogg's Ferry."

The really best way to see Colorado is to go first to Denver or Colorado Springs. There one can get one's bearings. They are the tourist's headquarters, the railroad and business centers of the State, the places from which all roads lead into the interior. North of Denver is a rich, irrigated region; east, the rolling plains, sloping gently towards the Missouri; west, a veritable sea of mountains; south lie those gems of cities, Colorado Springs and Manitou, and beyond is Pueblo—the "Pittsburg of the West."

One more paragraph and this rambling chapter is finished.

You will wish to know what sort of clothes to wear in Colorado. That depends largely on what you intend doing there. If you expect to spend most, if not all, of your time in the cities, rather than to "rough it," you should take with you clothing of the weight and texture you would wear at home at that time of the year. A light overcoat, or a wrap, should be included, as should an umbrella or a raincoat. You will, of course, have with you clothing for all the social occasions that are likely to arise. A pair of stout shoes, a soft hat and an old suit—these for mountain climbing, etc.—are also desirable.

COLORADO'S SCENERY AND CLIMATE ARE COMPARED WITH SWITZERLAND.

Just why the Alps should be so often referred to when the Rockies are mentioned is inexplicable to those knowing both.

While the Alps have isolated peaks such as Mont Blanc (15,781 feet), and the Matterhorn (14,836 feet), the mean elevation of the highest Alpine chain is only from 8,000 to 9,000 feet. Colorado possesses more than 120 peaks of over 13,500 feet, of which no fewer than thirty-five are higher than 14,000 feet.

The highest village in Europe is Avers Platz in Switzerland (7,500 feet). The highest inhabited point in Europe is the Hospice of St. Bernard in Switzerland (8,200 feet). In Colorado the mining town of Leadville, with 15,000 inhabitants, is over 10,000 feet above sea level. Other mining camps are still higher and some gold and silver mines are worked at an elevation of over 13,000 feet.

In Switzerland the cog-railroad from Vitznau to the summit of the Rigi Kulm (5,900 feet), has a length of four and a half miles, in which the ascent is 4,072 feet. In Colorado the cog-railroad from Manitou to the summit of Pike's Peak (14,147) has a length of eight and three-quarters miles, in which the ascent is 8,100 feet or an average of 846 feet per mile, the maximum grade being 1,320 feet.

STATE AND THE 8 COUNTIES OF CONNECTICUT

With Their Boundaries

Location and Population
of
CONNECTICUT
COUNTIES

Loca- tion	COUNTIES	Pop. 1910
1.....	Litchfield.	70,260
2.....	Hartford.	250,182
3.....	Tolland.	26,459
4.....	Windham.	48,361
5.....	Fairfield.	245,322
6.....	New Haven.	337,282
7.....	Middlesex.	45,637
8.....	New London.	91,253
Total.....		1,114,756

Cities and Villages
of
CONNECTICUT

Towns	Loca.	Pop.
A		
Abington	4	300
Adams	2	200
Addison	2	300
Aillingtown	6	300
Andover	3	384
Ansonia	6	15,152
Ashford	4	700
Avon	2	1,077

B		
Bakersville	1	600
Ballouville	4	250
Baltic	8	500
Bantam	1	500
Beacon Falls	6	623
Bean Hill	8	450
Berlin	2	3,728
Bethany	6	517
Bethel	5	3,292
Bethlehem	1	575
Black Hall	8	270
Bloomfield	2	1,513
Boardman	1	300
Bolton	3	450
Bottsford	5	700
Bozrah Street	8	399
Bozrahville	8	200
Branchville	5	230
Branchford	6	6,047
*Bridgeport	5	102,654
Bridgewater	1	600
Bristol	2	13,502
Broad Brook	2	1,300
Brookfield	5	600
Center	5	400
Brooklyn	4	2,358
Buckland	2	400
Burlington	2	1,218
Burnside	2	1,256

C		
Canaan	1	1,803
Cannon Station	5	203
Canterbury	4	300
Canton Center	2	230
Centerbrook	7	300
Center Groton	8	750
Central Village	4	1,021
Chaplinville	1	335
Chaplin	1	329
Cheshire	6	1,389
Cheshire Sta.	6	400

TOWNS OF CONNECTICUT WITH 1910 POPULATION.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Chester	7	1,328	East Port	5	2,000	Hamden	6	5,850
Chesterfield	8	266	Chester	5	2,000	Hampton	4	479
Clarks Falls	8	300	East River	6	330	Hanover	8	400
Clinton	7	1,384	East Thompson	4	275	Hartford		
Cobalt	7	321	East Windsor	2	3,362	(capital)	2	98,915
Colchester	8	1,990	East Windsor	2	3,362	Harwinton	1	1,213
Colebrook	1	684	Hill	2	425	Hawleyville	5	600
Colebrook	1	684	East Woodstock	4	350	Hazardville	2	1,200
River	1	684	Ellington	3	1,829	Hazardville Sta.	2	534
Collinsville	2	2,100	Elliot	4	200	Hebron	3	416
Columbia	3	510	Elmwood	2	300	Higginum	7	1,000
Cosmestocks	3	510	Enfield	2	9,712	Highland Park	2	250
Bridge	3	510	Essex	7	2,745	Highridge	5	335
Coscob	8	200	F			Higwood	6	250
Cranbury	5	500	Fairfield	5	6,134	Hockanum	2	500
Cromwell	7	2,031	Falls Village	1	600	Hopewell	2	500
D			Farmington	2	3,478	Hotchkissville	1	400
*Danbury	5	23,502	Forestville	2	3,207	Huntington	5	6,543
Danielson	4	5,335	G			I		
Darlen	5	3,916	Gaylordsville	1	400	Ivoryton	7	650
Dayville	4	400	Georgetown	5	500	J		
Deep River	7	1,484	Gildersleeve	7	1,456	Jewett City	8	3,023
Derby	6	8,991	Gilead	3	350	K		
Durham	7	500	Glago	8	800	Kensington	2	1,668
Durham Center	7	381	Glastonbury	2	4,796	Kent	1	400
E			Glenbrook	5	320	Kibbe	3	200
Eagleville	3	300	Glenville	5	800	Killingworth	7	651
East Berlin	2	780	Goshen	1	520	L		
East Canaan	1	500	Granby	2	571	Lakeville	1	1,075
Eastford	6	250	Greenfield Hill	5	1,000	Lebanon	8	1,221
Eastford	6	250	Greenwich	5	16,163	Ledyard	8	936
Eastford	6	250	Griswold	8	4,233	Liberty Hill	8	200
East Glastbury	4	513	Grosvenor Dale	4	900	Lime Rock	1	750
East Granby	2	684	Groton	8	6,495	*Litchfield	1	3,300
East Haddam	7	900	Guilford	6	3,001	Long Hill	5	400
East Hampton	7	1,400	Gurleyville	3	227	Longridge	5	430
East Hartford	3	8,138	H			M		
East Hartland	2	297	Haddam	7	400	Madison	6	918
East Haven	6	1,167	Hadlyme	8	200	Manchester	2	13,641
East Killingly	4	700	Hallville	8	400			
East Lyme	8	836	Hamburg	8	265			
East Norwalk	5	3,500						
Easton	5	300						

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. means Population. Star in Front of Name Indicates County Seat.

Connecticut Cities and Villages With 1910 Population

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
Manchester		No. Woodstock	4... 350	Sandy Hook	5... 1,176		
Green	2	Norwalk	5... 6,934	Sanford	5... 340		V
Mansfield	3... 200	*Norwich	8... 20,367	Saugatuck	5... 947		
Mansfield Center	3... 350	Norwichtown	8... 1,209	Scitico	2... 534	Vernon	3... 9,087
Mansfield Depot	3... 250			Scotland	2... 471	Voluntown	8... 847
Marble Dale	1... 220		O	Seymour	6... 4,786		
Marion	2... 279			Sharon	1... 1,482		W
Marlboro	2... 257	Oakdale	8... 325	Sharon Valley	1... 300		
Mechanicsville	4... 700	Oakville	1... 600	Shelton	5... 4,572	Wallingford	6... 11,155
Meriden	6... 27,265	Occum	8... 300	Sherman	5... 658	Wapping	2... 789
Mianus	5... 500	Old Lyme	8... 730	Silver Lane	2... 500	Warehouse	
Middlebury	6... 736	Old Mystic	8... 400	Silvermine	5... 400	Point	2... 1,250
Middlefield	7... 645	Old Saybrook	7... 1,431	Simsbury	2... 2,537	Warren	1... 432
Middle Haddam	7... 550	Oneo	4... 409	Somers	2... 500	Warrenville	4... 200
*Middletown	7... 11,851	Orange	6... 11,272	Somerville	5... 500	Washington	1... 500
Milford	6... 3,683	Ore Hill	1... 254	Sound Beach	5... 800	Washington	
Milldale	2... 350	Oronoque	5... 657	South Britain	6... 628	Depot	1... 457
Mill Plain	5... 400	Oxford	6... 952	Southbury	6... 460	*Waterbury	6... 73,141
Millstone	8... 200		P	South Cheshire	6... 290	Waterford	8... 3,097
Milltown	8... 500			South Coventry	3... 952	Watertown	1... 3,100
Monroe	5... 300	Packerville	4... 200	Southford	6... 250	Waterville	6... 1,800
Montwese	6... 550	Palmerton	8... 1,010	So. Glastonbury	2... 960	Wauregan	4... 400
Montville	8... 2,804	Pequabuck	1... 350	Southington	2... 3,411	Weatogue	2... 320
Montville Sta.	8... 667	Pine Meadow	1... 518	South Lyme	8... 200	Westbrook	7... 884
Moodus	7... 1,200	Pineorchard	6... 500	So. Manchester	2... 6,000	West Cheshire	6... 400
Moosup	1... 2,000	Plainfield	4... 6,719	South Meriden	6... 700	Westchester	8... 250
Morris	1... 400	Plainville	2... 2,822	South Norwalk	5... 8,968	Westchester Sta.	8... 250
Mount Carmel	6... 650	Plantsville	2... 1,500	Southport	5... 1,250	West Cornwall	1... 350
Mystic	8... 3,000	Pleasant Valley	1... 300	So. Wethersfield	2... 250	Westford	4... 232
	N	Plymouth	1... 5,021	So. Willington	3... 250	West Goshen	1... 315
		Pomfret	4... 400	South Wilton	5... 207	West Granby	2... 313
Naugatuck	6... 12,722	Pomfret Center	4... 531	South Windham	4... 400	West Hartford	2... 2,186
Nepaug	1... 445	Poquetanuck	8... 500	South Windsor	2... 650	West Haven	6... 5,274
New Britain	2... 43,916	Poquonock	2... 900	So. Woodstock	4... 350	Westminster	4... 200
New Canaan	5... 3,667	Poquonock		Springdale	5... 535	West Norwalk	5... 700
New Fairfield	5... 584	Bridge	8... 350	Square Pond	3... 200	Weston	5... 590
New Hartford	1... 2,241	Portland	7... 3,586	Stafford	3... 900	Westport	5... 4,259
*New Haven	6... 133,605	Preston	8... 1,507	Stafford Springs	3... 2,460	Westport Sta.	5... 947
Newington	2... 694	*Putnam	4... 7,280	Staffordville	5... 450	West Simsbury	3... 320
Newington Jct.	2... 347		Q	Stamford	5... 25,438	West Stafford	3... 257
*New London	8... 19,659			Stanwich	5... 503	West Suffield	2... 820
*New Milford	1... 5,000			Stepney	5... 350	West Thompson	4... 250
New Preston	1... 475	Quaker Hill	8... 200	Stepney Depot	5... 250	West Torrington	1... 453
Newtown	5... 3,012	Quinebaub	4... 300	Sterling	4... 450	West	
Niantic	8... 1,000		R	Stonington	8... 9,154	Woodstock	4... 350
Nichols	5... 300			Stony Creek	6... 1,100	Wethersfield	2... 3,148
Noank	8... 1,750	Rainbow	2... 312	Storrs	3... 200	Whitneyville	6... 400
Norfolk	1... 1,414	Redding	5... 400	Stratford	5... 5,712	*Willimantic	4... 11,230
Noroton	5... 600	Redding Ridge	5... 240	Suffield	2... 2,841	Willington	2... 352
Noroton Heights	5... 500	Reynolds Bridge	1... 300		T	Wilsonville	4... 220
North Ashford	4... 200	Ridgebury	5... 250	Taftville	8... 4,300	Wilton	5... 417
North Branford	6... 362	Ridgefield	5... 3,118	Talcottville	3... 550	Winchester	
North Canton	2... 200	Riverbank	5... 300	Tariffville	2... 570	Center	1... 8,679
Northfield	1... 600	Riverside	5... 240	Terryville	1... 2,500	Windham	4... 12,604
Northford	6... 367	Riverton	1... 200	Terryville Sta.	1... 350	Windsor	2... 4,178
North Franklin	8... 546	Rockfall	7... 200	Thomaston	1... 3,300	Windsor Locks	2... 2,997
North Granby	2... 415	Rockville	3... 7,977	Thompson	4... 4,804	Windsorville	2... 250
North Grosvenor		Rockyville	2... 1,026	*Thompsonville	2... 4,000	Winnipauk	5... 1,000
Dale	4... 2,900	Roundhill	5... 1,000	*Tolland	3... 1,036	*Winsted	1... 6,804
North Guilford	6... 500	Rowayton	5... 1,116	Topstone	5... 340	Wolcott	6... 581
North Haven	6... 2,164	Roxbury	1... 400	Torrington	5... 16,840	Woodbridge	6... 852
North Stamford	5... 852	Roxbury Falls	1... 200	Trumbull	5... 887	Woodbury	1... 852
No. Stonington	8... 500	Roxbury Station	1... 400		U	Woodstock	4... 350
Northville	1... 400		S			Woodstock	
North West-		Salem	8... 468	Uncasville	8... 667	Valley	4... 345
chester	8... 250	Salisbury	1... 3,522	Union City	6... 2,500		Y
North Wilton	5... 389			Unionville	2... 1,998	Yalesville	6... 1,500
North Windham	4... 200					Yantic	8... 600
North Woodbury	1... 700						

CONNECTICUT

Advantages Offered in this State for New Settlers

It is not always that the land-seeker is in search of land. If he has a family or children pent up in the city, his ambition is to get away from the congested metropolis and secure a home, either in the suburbs of a city or in a state where there is ample opportunity for abundant and regular employment, and where his family may have the advantage of good society and educational facilities.

HOW TO GET A LIVING.

The first consideration with the land-seeker, after providing the family with a comfortable home, is the means of obtaining revenue by which there can be support for the household. Even in new states, and upon government lands, the family is no sooner settled than the head of the household, who has been

trained possibly to some trade, or special vocation, often goes in search of a position in the line of employment to which he is accustomed.

The facilities for obtaining employment when he leaves his present place of abode is a subject that occupies the attention of every emigrant from one country to another, or when he leaves the city for life in the country.

WORK FOR ALL THE FAMILY.

In fact, it is usually more important to know that the family, in going to a new locality, can have constant employment and sufficient revenue to support the household than it is to immediately come into the possession of land.

It is because of the necessity for immediate rev-

Connecticut Opportunities in Agriculture and Varied Enterprises

enne that causes the city resident to go no further away from the city than the suburbs. He has made the change from cramped, unhealthy quarters, in the metropolis, out to the land where the children can have clean play grounds, sunshine and pure air. And yet he retains his position in the city and his income continues.

And so great numbers of land-seekers content themselves by going into the outer edge of the city, taking up what land they require for the home, while the head of the house, and perhaps several members of the family, continue employment in the metropolis.

LEAVING THE CITY FOR THE COUNTRY.

In breaking away from the city and taking up abode in a new regime, the ever serious question is, what can the emigrant do after he gets to his destination. Great numbers of people, who go from cities in the East to new and cheap lands in the West, are clearly determined to engage in agriculture, and horticulture, buy their land with reference to following that line of employment, and act accordingly.

But all people are not predisposed to getting a living from land. Noble as that vocation is, they are not adapted to that work and prefer mechanical, clerical, mercantile, professional or other employment.

In breaking up a city home, therefore, and going into a new regime without previous definite engagement as to what shall be done after settlement in a new state, it is a matter of most serious import to consider what are the various opportunities for obtaining a livelihood in the new state.

PRIVILEGES IN CONNECTICUT.

This brings us to an examination of the advantages offered in Connecticut. This is a representative New England State, which has long been settled, the land in farms being valued on the average at \$25.75 per acre. The size of the average farm is 107 acres, and of these there are on the average improved 42 acres.

MANY MANUFACTURIES IN CONNECTICUT.

Connecticut is one of the most densely populated states in the Union. The state is so crowded with manufactures as to permit a dense population to find employment outside of agriculture. Hence the land-seeker can go into this state and feel that it will not be absolutely necessary to cultivate the soil in order to get income. Here are abundant opportunities to find employment in great numbers of industries.

Though a small state, a late census shows that there are over 7,000 industrial establishments, the claim being that within the limits of the state there is manufactured everything needed in civilization.

That this is a manufacturing center is shown in the fact that there are over sixty villages and cities in the state having a population of over 2,000 people.

The various industries are favored by the numerous streams and the intelligence and inventiveness of its workmen. It is also fortunate through having, in great abundance, the raw material right here upon the ground for much of that which is to be made into the manufactured product.

THE DIFFERENT WOODS OF CONNECTICUT.

The forests supply pitch and white pine, red cedar, tamarack, aspen, beech, basswood, cherry, seven species of oak, two of ash, four of maple, four of birch, three of elm, hickory, pignut, black walnut, butternut, holly, hackberry, pepperridge, wild plum, sassafras, sycamore, tulip tree, poplar, dogwood, and willow.

THE RAW MATERIAL FOR MANUFACTURING.

The largest amount of feldspar used in the glazing of chinaware, quarried in the United States, comes from Glastenbury and Middletown. Portland, on the Connecticut River, is noted for its brown stone for building purposes. Marble, limestone, flagging stone, tiling, slate, fire-clay, and other stone are unlimited in amount. Iron ore has been mined here over 125 years.

EXPORTS OF CONNECTICUT.

Of course, large quantities of raw material come in from other parts of the world, the result is a great output of rubber goods, hardware, clocks, fire-arms, paper, carriages, cotton goods, silk, and woolen fabrics, machinery, hosiery, furniture, sewing machines, saddlery, pianos, tools, buttons and pins.

In the long list of industries, in which young and old can engage, examination will reveal that there is no better region into which the land-seeker can go, with the expectation of finding employment for every member of the family of suitable age, than Connecticut.

CONDENSED FACTS RELATING TO CONNECTICUT

Altitude. Bear Mountain, at Salisbury, Litchfield Co., 2,354 feet. Talcott Mountain, in the Holyoke Range, 995 feet.

Climate. The climate of the state, while changeable, is very healthful—the mortality being below the average of the other states. The short spring season opens directly into summer about May, and cold weather begins in November. The winters are severe, but dryness of the air is the compensation. Average annual temperature, 48°F. At New Haven, January average, 27; July 72. Extremes: highest, 100; lowest, 14 below. Average annual precipitation, rain and melted snow, 50.3 inches.

Dimensions: Length, north and south, 75 miles. Breadth, east and west, 90 miles.

History. England granted charter to Plymouth company in 1606. The Dutch opened a trading post at Hartford, 1623. First general court at Hartford, 1637. New Haven settled by Puritan colony, 1638. King Charles II in 1662 granted charter giving free government. In 1687 a new governor appointed by the king demanded of the general assembly that the charter be given up. It was brought forth, laid upon the desk, when suddenly the lights were extinguished, and unknown persons capturing the paper hid the document in an oak tree which became celebrated as the "Charter Oak." That charter continued as the Constitution of the province and state until the adoption of the present state constitution in 1818.

Public Institutions, Locations of. State Prison, Wetherfield, Hartford County; Reform School for Boys at Meriden, New Haven County; Industrial School for Girls at Middletown; a School for Imbeciles at Lakeville, Litchfield County; Asylums for the Insane at Hartford and Middletown; State Arsenal, Hartford; State Armory at New London; Soldiers' and Sailors' Home at Natonon, Fairfield County; Normal School, New Britain, Hartford County; State Agricultural School, Mansfield, Tolland County.

PRICES OF VARIOUS FARMS IN CONNECTICUT.

That the reader may know the opportunities for buying real estate in Connecticut we clip from a real estate bulletin the following advertisements. Write to the Secretary of State and he will bring you in connection with land dealers.

CONNECTICUT LANDS FOR SALE

To Give Readers Idea of Value of Lands

128 acres

\$3,000

Located only two miles from the railroad station and smart village, where there is store, school, blacksmith shop, creamery, etc.; land suitably divided into pasture, wood and meadow land; soil of a dark loam, land mostly level, fields smooth and free from rocks; plenty of apples, pears, peaches, plums, grapes, berries, etc.; old-fashioned two-story house of eight rooms painted; three fireplaces; supplied by running water; very pleasantly

located, well shaded, bordering twelve to fourteen rods on a large trout brook; two large barns, henry, ice house, weed shed, milk cooler; three-quarters of a mile to a very beautiful river. A bargain that must be seen to be appreciated. Bridgewater, Conn.

6 acres

\$2,000

This is a good paying country hotel that is growing more popular each year. The house is 2-story and contains twenty rooms. Fine dance hall. Six

Connecticut Lands for Sale

acres of rich land, where all garden truck and vegetables can be raised. Located only 5 miles from the city of Willimantic. Two and a half miles from depot and a few steps to postoffice, stores, churches, etc. In a very pleasant location, shaded by elm and maple trees. There is a good stable 30x40; five horses are kept busy most of the time. Price, only \$2,000; \$1,200 down. Andover, Conn.

103 acres \$1,600

Located two miles from depot, near neighbors, one mile to store and school; mail delivered. Forty acres in fields, forty in pasture and twenty-three in wood; milk sold at the door; two hundred fruit trees; five hundred barrels of apples in season. Nine-room house, painted and blinded; barn 40x60; tie-up for twenty head; cellar under barn; wood house and shop; good shade trees. Buildings insured for \$1,400. Owner has other business and must dispose of this property. He will include horse, wagons, farming tools, hay, two cows, twenty hens and small tools and utensils. Must be seen to be appreciated. Price, only \$1,600. Andover, Conn.

35 acres \$2,500

Where can you find a prettier home, bordering on a beautiful river than this one of thirty-five acres? Nice old-fashioned two-story house of twelve rooms. In good repair, three fireplaces, painted; beautiful shade trees, excellent view, among the best of neighbors, one mile from the depot, on the main road; mail delivered; dark loamy soil; plenty of apples, pears, peaches, quinces, grapes, etc. Running water to both the house and barn from a never-failing spring on the farm; good size barn and henery. An ideal country home and a splendid farm for a little money. Bridgewater, Conn.

150 acres \$1,800

This is the old-style Colonial house, with twelve large rooms that you have been looking for. Has piazza, open fire-places, is painted and blinded, and supplied with good water. Surrounded with maple shade; good view; near neighbors, store, schools and churches, and only three and a half miles to station; barn 36x48, with tie-up for twelve head; cutting thirteen tons of hay; spring-watered pasture for fifteen head; 300 cords of wood; timber and fruit for home use. This farm has a south slope, and while well adapted for general purposes, would make a fine place for chickens or turkeys. One-half cash; balance at 5 per cent interest. Danielson, Conn.

200 acres \$1,400

Four hundred cords of wood, 50,000 feet of pine and oak timber, with a good market near. Fruit for home use. Spring-watered pasture for nine head; cutting ten tons of hay from level fields; good strong black soil. Only one-half mile from village, store and postoffice, with neighbors near, and but four miles to depot; eight-room house, painted and

supplied with the very best of water; clapboarded barn, 40x50; tie-up for thirty head; cellar. Never-failing water in barn. These buildings alone are valued at \$2,000. Large chicken house, wagon house and ice house; good shade; fine view, with best trout brook in town crossing farm. This is in a good neighborhood, and for the price is considered the best trade in this section. It is not often that at this price such buildings can be secured. Bridgewater, Conn.

135 acres \$2,100

Fine old-fashioned one and one-half-story house of six rooms, with gable roof. Less than ten minutes' walk from the prettiest village you ever saw, which has store, school, churches, etc. About three minutes' walk across lots back of the house is a large trout brook, which runs through the place for one-half mile; mail is delivered; butcher and grocer call at the door; one hundred and thirty-five acres of fields, wood and pasture land; plenty of timber and wood; two large barns, tie-up sixteen head of cattle, besides horse barn with three stalls; large tool sheds, chicken house and pig house. This is a very productive farm and an ideal home. It is worth double the price asked. Present owner is nearly one hundred years old and cannot work it, which is the only reason the price is so ridiculously low. Litchfield, Conn.

50 acres \$1,700

Fifty-acre farm, plenty of wood, pasture and grass; twelve-room house, in good repair, situated in a picturesque nook two and one-half miles from one of the prettiest New England villages in the state; store, school, churches, etc. Mail delivered; plenty of maples about the house; apples, crab apples, grapes currants for home use; fine well of water at the door; cuts fifteen tons of hay; barn 32x40, tie-up seven head of cattle. There is also a horse barn, wagon house, chicken house, pig pen, etc. Hen house will accommodate about two hundred fowls. Make a good chicken farm, as there is a fine local market for chickens, either dressed or alive. Ready to move right in and is dirt cheap, because death has removed the former owner and it has come into the hands of those who cannot use it. This is a leader and will soon be sold. Come and see it. Litchfield, Conn.

19 acres \$1,300

One and one-quarter miles out of one of the most beautiful villages in the State of Connecticut, where there are stores, school, creamery, post-office, high school, two large summer hotels, churches, etc. Soil of the best; wood for home use; quite a quantity of fruit; beautiful shade trees; in a good neighborhood; nice old-fashioned one and one-half story house, with a nice well of water at the door, pleasantly located. There is a good-sized barn, henery and hog house. Must be sold at once to settle an estate. \$500 can remain on mortgage. Bridgewater, Conn.

MANY SMALL FARMS ARE OFFERED IN CONNECTICUT.

At Prices Less than it Would Cost to Erect the Buildings. To be directed to agents of these properties, write to the Secretary of State at the Capital of the State.

100 acres \$2400

40 acres in fields, 40 in pasture and 20 in wood. 2 miles from depot; near neighbors; 1/2 mile to school; cuts 30 tons of hay; milk sold at door; pasture for 15 head; 200 cords of wood; 50 apple and pear trees; 100 bbls. of apples in season. Currants, cherries, blackberries, huckleberries, 7-room house, painted; pure well water; barn 30x40; tie-up for 20 head; horse barn, cattle shed, wagon house, wood house, and 100 feet of hen house. Nice maple shade. Magnificent view from house. Borders the water for 1/2 mile. Owner, on account of old age, is anxious to dispose of this property, and as an inducement for a quick sale will include with the place 5 cows, 1 horse, 100 fowls, hay, grain, corn, 5 plows, 3 wagons, 2 sleds, 1 sleigh, chains, forks, 2 cultivators, 2 harrows, weeder, mowing machine, horse rake, grindstone, small tools, 10 cords of wood cut for stoves. It's one of our best bargains, and worth looking at. Price only \$2,400. Andover, Conn.

50 acres \$1500

20 acres in fields, 20 in pasture and 10 in wood. 20 rods from school and neighbors; 3 miles from depot; mail delivered. Only 8 miles from city of Willimantic.

tie. Cuts 20 tons of hay. Sweet hill pasture for 9 head of cattle. 25 apple trees. 2-story house of 9 rooms, with fire-places; barn 30x40; tie-up for 10 head, supplied with running water; wood house and shop and wagon house. Fine maple shade. Good view from the house. This farm is in an extra good location, and borders the water for 1/2 mile. The present owner cannot take care of the place and must sacrifice for \$1,500. It's one of our leaders for the year. Andover, Conn.

1-2 acre \$700

A beautiful summer home. Located in a country village at an altitude of over 1,200 feet. Good house, well painted and blinded, and containing 9 rooms and 2 halls; church, store, postoffice, and school close at hand. 2 stages daily between village and station, thus making it very easy of access. Good barn with 3 stables; plenty of pasture to be had near by for a cow; a fine apple orchard with the place. This is an ideal spot for a summer home as the village is situated on an elevated plateau with fine level drives in all directions. The laurels here are worth a journey to see in the beautiful month of June. Best of all the price is only \$700. Plainville, Conn.

STATE AND THE 3 COUNTIES OF DELAWARE
With Their Boundaries

CITIES AND VILLAGES OF DELAWARE.

Towns	Loca.	Pop.	Towns	Loca.	Pop.
B			L		
Beaver Valley...	1...	287	Laurel	3...	216
Bellevue	1...	250	Lewes	3...	2,158
Bethel	3...	370	Lincoln	3...	347
Blades	3...	500	Little Creek....	2...	235
Bowers	2...	212	M		
Bridgeville	3...	937	Magnolia	2...	210
C			Marshallton	1...	424
Camden	2...	553	Middletown	1...	1,399
Centerville	1...	200	Millford	3...	2,603
Cheswold	2...	223	Millsboro	3...	451
Christiana	1...	400	Milton	3...	1,038
Clayton	2...	764	N		
Concord	3...	300	Newark	1...	1,913
Cypress	3...	500	Newcastle	1...	3,351
D			Newport	1...	722
Delaware City...	1...	1,132	O		
Delmar	3...	530	Ocean View....	3...	302
*Dover (Capit- tal)	2...	3,270	Odessa	1...	585
E			P		
Edgemoor	1...	497	Port Penn....	1...	299
Ellendale	3...	216	R		
F			Rehoboth	3...	327
Farmington	2...	255	Risingun	2...	257
Farnhurst	1...	328	Rockland	1...	392
Faulkland	1...	244	S		
Felton	2...	451	St. George.....	1...	264
Frankford	3...	395	Seaford	3...	2,108
Frederica	2...	659	Selbyville	3...	342
G			Smyma	2...	1,813
*Georgetown	3...	1,609	Stanton	1...	291
Greenwood	3...	362	T		
H			Taylors Bridge..	1...	243
Harrington	2...	1,500	Townsend	1...	494
Henry Clay Factory	1...	851	W		
Hickman	2...	300	Wilmington	1...	87,411
Hockessin	1...	406	Winterthur	1...	206
Hollyoak	1...	219	Woodland	3...	201
K			Woodside	2...	300
Kenton	2...	209	Wyoming	2...	517
			Y		
			Yorklyn	1...	328

DELAWARE COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.
1.....	Newcastle.	723,188	3.....	Sussex..	46,413
2.....	Kent..	32,721	Total		
					202,322

ACTIVITIES OF THE SWEDES AND DUTCH.

In 1631-2 the Dutch planted a small colony near Cape Henlopen, but the Indians drove them out three years later. In 1638 a colony of Swedes and Finlanders bought land and built a fort on Christina Creek, New Castle county, near present city of Wilmington, named the country New Sweden, and a little later put up a fort on the island of Tinicum, a few miles south of Philadelphia. This was considered by the Dutch of New Amsterdam an invasion of their territory and they set up Fort Casimer, near the site of the present New Castle, in New Castle county, only five miles from the Swedish fort. A settlement on the Delaware River, made in 1641, by a colony from New Haven, Connecticut, was broken

DELAWARE
Delaware seems to be a small state, and in comparison with the area of the others it is, but when it is placed by the side of Rhode Island it is seen to be almost twice the size of little Rody. To illustrate, each state is 35 miles wide, but when we come to measure length we find that Delaware is 110 miles long, while Rhode Island is only 50 miles.

ORIGIN OF THIS LITTLE STATE.

How this little state, with three counties, comes to nestle down between Delaware Bay and Maryland is understood when history gives the explanation.

Henry Hudson entered and sailed up the bay in 1609. On the following year, 1610, Lord De la Ware, an early colonial governor of Virginia, made a voyage up the bay. From his exploration the bay was named Delaware Bay and this became the name of the small tract of land on the west side of this body of water.

At that period the Indians, who occupied the northern part of the land, were known as the Pinquas, while those on the south were the Nanticokes.

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Delaware Opportunities in Agriculture and Varied Enterprises

up by them, causing great financial disaster. The Swedes took Fort Casimer in 1654, but the next year the Dutch seized the whole country and sent to England all the colonists who refused allegiance to Holland.

WHEN THE ENGLISH GOT CONTROL.

When New York came under the English government, in 1664, the Delaware settlements were claimed for the Duke of York, and also by Lord Baltimore for Maryland, but William Penn, soon after he settled Pennsylvania, purchased the Duke's right, and effected a compromise with Baltimore so as to add the Delaware settlements to Pennsylvania, and for 20 years they were governed as a part of Pennsylvania, under the name of the "territories" or three counties on the Delaware, each county sending six representatives to the general assembly.

In 1703 Delaware set up for herself, so far as to establish a separate legislature, but the rule of the Pennsylvania governor was conceded on the ground of proprietary rights, until the period of the revolution, when the state became independent.

VERY LITTLE TROUBLE WITH THE INDIANS.

With the exception of some slight contests, first with the Indians in 1632, and subsequently, disagreements among the Swedes, Dutch and English, the settlers on this tract of land, comprising the three counties, have always been singularly free from warfare with the Indians and others.

While the men of Delaware enlisted with the English in the French war, the little state of Delaware gave 3,763 troops to Washington in the war of the revolution, and 13,670 soldiers to aid in putting down the rebellion in 1866.

THE AVERAGE SIZE OF FARMS.

The land seeker, in going into Delaware, will find the average size of the farms to be about 113 acres, and farm land generally valued at about \$50 per acre. Sussex county has the reputation of raising the greatest number of strawberries of any county in the world.

With an average temperature of 33 for January, July 73, with 93 the highest, with the thermometer never showing below zero, with an average rainfall of 33 inches, and a very fertile soil, these counties are giving a large annual output of corn, oats, peaches, apples, berries and small fruits raised for the Philadelphia markets. Grapes, melons, corn and amber wheat with oats, sorghum and dairy products complete the list of Delaware's chief agricultural supplies.

In Kent county great quantities of tomatoes are grown for canning. In this county lie some 180,000

acres of rich alluvial land. For a distance of ten miles from the bay the soil is very fertile and the well-kept estates with their vineyards and orchards present a fine picture of prosperous peace.

GO OUT TO DELAWARE AND LOOK.

It will be well for people who seek county life and wish to engage in fruit raising to investigate the State of Delaware, in which they will find 55,000 acres devoted alone to peach growing.

But it will not be fruit growing alone. The land-seeker will have to occupy his attention after going into this state. The fisheries here employ over 2,000 persons. There are more than 3,000 acres of oyster beds, the products from which give an annual yield of over \$1,000,000.

Clays and kaolins abound and are worked up at Wilmington into terracotta bricks and crockery. In this industry near 1,000 men are continually employed.

MATERIAL FOR MAKING ARTIFICIAL TEETH.

Near Wilmington is quarried the fine spar employed in the manufacture of artificial teeth.

The iron and steel works of Wilmington employ thousands of men, the output yielding many millions of dollars annually.

Other industries at Wilmington are the manufacture of cotton goods, pulps, paper and leather goods. The great Edge Moor Bridge Works are also near Wilmington on the Delaware River. At Dover, fruit canning is an important industry.

There are no mountains in the state, but in the extreme north it is hilly, and from the Christiana River a low wooded ridge extends southward near the west boundary; elsewhere the surface is uniformly level and generally sandy.

CONDENSED FACTS RELATING TO DELAWARE.

Altitude. This state has only a few elevations, some few hills in the northern part of the state in New Castle county, reaching to a height of 282 feet.

Climate. Average temperature, January 33; July 73; highest 93; lowest 1 above; rainfall 32.6. Average temperature throughout the year at Delaware City, New Castle county, is 54.69.

Dimensions. Length of state 110 miles. Breadth 35 miles.

History. Delaware Bay and Delaware River explored by Lord De la Ware in 1610. The bay had been entered the year before by Henry Hudson. First settlement made by Swedes near Cape Henlopen. See general description of Delaware elsewhere in this chapter.

FARMS IN SOUTHERN DELAWARE OFFERED FOR SALE.

To give the reader information as to what small farms are offered for in Delaware, we clip these items from an advertising circular.

25 acres \$1,500

Farm in a high state of cultivation, and a very attractive set of buildings, located only 3 miles from large village and railroad station; 1 mile from stores, school, etc.; land is all in smooth, level fields cutting 2 tons of hay to the acre, with the exception of a large strawberry patch and an orchard of peach and pear trees. Several acres more should be set to strawberries and the balance of the farm devoted to raising vegetables. The house is 2-story, with 8 rooms, built 3 years ago at a cost of \$1,100. The barn is also new; poultry house and carriage house. Price only \$1,500. Bridgeville, Delaware.

140 acres \$2,500

Located only 3 miles from one of the largest fruit shipping centres in the State. There are 90 acres in fields, and the balance in pasture and wood; estimated to be 2,500 cords, and a large amount of pine timber. There are 50 apple trees, and some pears, peaches and plums. 1 mile from stores; ½ mile from school; near neighbors; good 2-story house, 9 rooms, supplied with water by wells; barn 24x28; stable 20x24; also poultry houses, carriage house and smoke house. The present occupant has made a specialty of raising melons and garden truck. The local markets are exceptionally good. Price only \$2,500; ½ down. Bridgeville, Delaware.

180 acres \$2,000

Half of this farm is in fields of light loam soil, and the remainder is in wood and timber. It is estimated that there are 150,000 feet of pine and 150,000 feet of oak; 350 peach trees just coming in bearing; 50 large apple trees. The peach trees should

yield 500 baskets a year the coming year, and the apple trees fully 200. 2-story houses, 6 rooms, 2 piazzas; barn 20x60; water supplied from driven well; large maple trees furnish shade, and the surroundings are very attractive. Owner has other business and must sell. To any man who will go and examine this farm we will prove that he can pay for it in 2 years by growing small fruit and vegetables.

130 acres \$3,000

The tillage land on this farm is cutting 2 tons of hay per acre. There is a nicely watered pasture for 20 cows; 30 acres are in wood, of which there is estimated to be 1,000 cords; fine orchard; 1,000 peach, apple and pear trees, 10 years old; 2-story house, 6 rooms; barns to accommodate stock and store corn, hay, etc., maple shade about buildings; in a good neighborhood; near school; mail delivered; 1½ miles from village and depot. This whole farm should be set out to fruit. Only \$3,000; ½ cash. Bridgeville, Delaware.

86 acres \$4,300

Five acres of this farm are set to thrifty strawberry plants; 2 acres in blackberries; 500 Kieffer pears, four years old, and 250 apple trees; also abundance of peaches. The fruit is already bringing in a good yearly income and within a few years should amount to \$2,000 or \$3,000. Located within 1 mile from village; near neighbors; mail delivered; 2-story house, 8 rooms; supplied with water from driven well; barn 20x35; small house for help; poultry house and smoke house; maple trees shade the lawn and the land borders on stream. Price only \$4,300; one-third cash, balance on mortgage. Bridgeville, Delaware.

Distances from 5 Principal Cities to Other Important Cities

From Baltimore, Md., to Miles.	From Boston, Mass., to Miles.	From Chicago, Ill., to Miles.	From Cincinnati, Ohio, to Miles.	From Denver, Col., to Miles.
Albany, N. Y. 337	Albany, N. Y. 183	Albany, N. Y. 837	Akron, O. 246	Abilene, Kan. 476
Alexandria, Va. 49	Amherst, Mass. 81	Albuquerque, N. M. 1,391	Albany, N. Y. 737	Albany, N. Y. 1,930
Atlanta, Ga. 867	Andover, Mass. 22	Jefferson City, Mo. 489	Alliance, O. 270	Alton, Ill. 1,023
Augusta, Ga. 695	Annapolis, Md. 451	Annapolis, Md. 395	Altoona, Pa. 428	Arapahoe, Col. 186
Augusta, Me. 553	Baltimore, Md. 177	Atchison, Kan. 556	Annapolis, Md. 548	Augusta, Me. 2,302
Bangor, Me. 633	Barnstable, Mass. 73	Atlanta, Ga. 795	Athens, O. 159	Baltimore, Md. 1,965
Bloomington, Ill. 781	Bangor, Me. 244	Aurora, Ill. 38	Baltimore, Md. 560	Bierstadt, Col. 78
Boston, Mass. 395	Braintree, Mass. 11	Austin, Tex. 987	Belleville, O. 116	Boston, Mass. 2,033
Buffalo, N. Y. 421	Burlington, N. Y. 478	Baltimore, Md. 853	Bloomington, Ill. 307	Buffalo, N. Y. 1,655
Burlington, Ia. 1,060	Brighton, Mass. 4	Bangor, Me. 1,263	Bloomington, Ind. 163	Burlington, Iowa 900
Cairo, Ill. 937	Burlington, Ia. 1,225	Boston, Mass. 1,020	Boston, Mass. 961	Burlington, Vt. 2,295
Charleston, S. C. 586	Cairo, Ill. 1,385	Buffalo, N. Y. 532	Buffalo, N. Y. 444	Cairo, Ill. 1,200
Chester, Pa. 861	Charleston, S. C. 1,109	Burlington, Vt. 1,182	Burlington, Ia. 447	Canon City, Col. 161
Cheyenne, Wyo. 1,869	Chatham, Mass. 177	Cairo, Ill. 1,020	Cairo, Ill. 399	Cameron, Col. 48
Chicago, Ill. 853	Chicago, Ill. 1,020	Charleston, S. C. 1,103	Charleston, S. C. 918	Cape May, N. J. 2,017
Cincinnati, O. 500	Cincinnati, O. 991	Cheyenne, Wyo. 1,017	Circleville, O. 104	Castle Rock, Col. 33
Cleveland, O. 482	Cleveland, O. 663	Cincinnati, O. 293	Chillicothe, O. 99	Cheyenne, Kan. 106
Columbus, O. 512	Columbia, S. C. 974	Cleveland, O. 357	Cleveland, O. 258	Chicago, Ill. 1,113
Cumberland, Md. 191	Columbus, O. 871	Columbia, S. C. 837	Columbia, S. C. 675	Cincinnati, O. 1,255
Davenport, Ia. 1,036	Concord, N. H. 75	Columbus, O. 314	Columbus, Ind. 94	Cleveland, O. 1,469
Denver, Colo. 1,965	Denver, Colo. 2,033	Concord, N. H. 1,083	Columbus, O. 120	Colorado Springs, Col. 91
Des Moines, Ia. 1,209	Des Moines, Ia. 1,377	Denver, Col. 1,113	Concord, N. H. 1,018	Concord, N. H. 2,196
Detroit, Mich. 568	Detroit, Mich. 736	Des Moines, Ia. 357	Crestline, O. 183	Detroit, Mich. 1,392
Duluth, Minn. 1,499	Dover, Del. 339	Decatur, Ill. 173	Dayton, O. 66	Eagle Park, Col. 294
Elmira, N. Y. 355	Durham, N. H. 69	Detroit, Mich. 280	Dayton, O. 255	El Paso, Tex. 1,630
Erie, Pa. 1,598	Duluth, Minn. 666	Dubuque, Ia. 188	Des Moines, Ia. 629	Fargo, S. D. 745
Fargo, N. D. 1,598	Erie, Pa. 1,598	Duluth, Minn. 565	Detroit, Mich. 267	Ft. Worth, Tex. 1,023
Frankfort, Ky. 718	Fall River, Mass. 49	Elgin, Ill. 36	Dover, Del. 706	Galva, Ill. 140
Frederick, Md. 6	Fargo, N. D. 1,765	El Paso, Tex. 1,630	Dunkirk, N. Y. 401	Galveston, Tex. 1,150
Green Bay, Wis. 1,095	Fitchburg, Mass. 49	Fargo, S. D. 745	Elgin, Ill. 329	Geneva Lake, Wis. 85
Harper's Ferry, Va. 95	Indianapolis, Ind. 1,059	Ft. Worth, Tex. 1,023	Erie, Pa. 353	Gettysburg, Pa. 71
Harrisburg, Pa. 84	Ind. 1,059	Galva, Ill. 140	Evanston, Ill. 305	Green Bay, Wis. 242
Hartford, Conn. 298	Jackson, Mich. 810	Galveston, Tex. 1,150	Evansville, Ind. 243	Hannibal, Mo. 329
Huntsville, Ala. 760	Jackson, Miss. 1,551	Genoa Lake, Wis. 85	Fargo, N. D. 1,038	Harrisburg, Pa. 716
Indianapolis, Ind. 700	Kinderhook, N. Y. 184	Gettysburg, Pa. 71	Ft. Wayne, Ind. 180	Hartford, Conn. 1,011
Iowa City, Ia. 1,090	La Crosse, Wis. 1,298	Green Bay, Wis. 242	Frankfort, Ky. 118	Helena, Mont. 2,007
Jackson, Mich. 645	Lansing, Mich. 775	Hannibal, Mo. 329	Fremont, O. 175	Hot Springs, Ark. 693
Janesville, Wis. 944	Leadville, Col. 2,305	Harrisburg, Pa. 716	Galion, O. 177	Houston, Tex. 1,099
Kansas City, Mo. 1,342	Lincoln, Neb. 1,572	Hartford, Conn. 1,011	Hamilton, O. 20	Indianapolis, Ind. 193
Keokuk, Ia. 1,103	Louisville, Ky. 1,119	Helena, Mont. 2,007	Harrisburg, Pa. 561	Iowa City, Iowa 237
La Crosse, Wis. 1,133	Lowell, Mass. 26	Hot Springs, Ark. 693	Helena, Ark. 574	Jackson, Miss. 708
Leadville, Colo. 2,138	Marshfield, Mass. 34	Indianapolis, Ind. 115	Indianapolis, Ind. 115	Jacksonville, Fla. 1,248
Leavenworth, Kan. 1,239	Madison, Wis. 1,158	Iowa City, Ia. 530	Iowa City, Ia. 530	Janesville, Wis. 91
Lincoln, Neb. 1,405	Mansfield, Mass. 24	Jeffersonville, Ind. 136	Jackson, Miss. 676	Kansas City, Mo. 489
Los Angeles, Cal. 3,781	Marquette, Mich. 1,476	Ind. 136	Jeffersonville, Ind. 136	La Crosse, Wis. 280
Louisville, Ky. 697	Milwaukee, Wis. 1,009	Kentucky, Ind. 253	Kentucky, Ind. 253	Lansing, Mich. 245
Lynchburg, Va. 217	Minneapolis, Minn. 1,438	Keokuk, Iowa 540	Kentucky, Ind. 142	Leadville, Colo. 2,284
Lyons, Ia. 990	Mobile, Ala. 1,606	Lafayette, Ind. 179	Keokuk, Iowa 540	Leavenworth, Kan. 1,239
Madison, Wis. 990	Montpelier, Vt. 202	Lansing, Mich. 318	Lafayette, Ind. 179	Long Branch, N. J. 777
Mansfield, O. 556	Muscatine, Ia. 1,038	Lecompton, Kan. 800	Lansing, Mich. 318	Louisville, Ky. 137
Milwaukee, Wis. 938	Nebraska City, Neb. 1,516	Little Rock, Ark. 667	Lecompton, Kan. 800	Madison, Wis. 431
Milledgeville, Ga. 769	Nashville, Tenn. 1,251	Logansport, Ind. 177	Little Rock, Ark. 667	Mansfield, O. 484
Montgomery, Ala. 998	New Bedford, Mass. 55	Long Branch, N. J. 777	Logansport, Ind. 177	Marquette, Mich. 399
Montpelier, Vt. 625	Newburyport, Mass. 35	N. J. 777	Long Branch, N. J. 777	Milwaukee, Wis. 85
Nashville, Tenn. 829	New Haven, Conn. 160	N. Y. 777	N. J. 777	Minneapolis, Minn. 420
New Orleans, La. 1,316	New Orleans, La. 1,316	N. Y. 777	N. Y. 777	Mobile, Ala. 845
New York, N. Y. 431	Newport, R. I. 68	N. Y. 777	N. Y. 777	Montreal, Can. 844
Niagara Falls, N. Y. 431	New York, N. Y. 207	N. Y. 777	N. Y. 777	Nashville, Tenn. 482
Orden, Utah. 2,382	Niagara Falls, N. Y. 506	N. Y. 777	N. Y. 777	New Haven, Conn. 915
Omaha, Neb. 1,350	Orden, Utah. 2,517	N. Y. 777	N. Y. 777	New Orleans, La. 1,316
Penn Yan, N. Y. 300	Omaha, Neb. 1,517	N. Y. 777	N. Y. 777	Newport, R. I. 68
Philadelphia, Pa. 96	Pittsfield, Mass. 150	N. Y. 777	N. Y. 777	New York, N. Y. 207
Pittsburgh, Pa. 340	Plymouth, Mass. 48	N. Y. 777	N. Y. 777	Niagara Falls, N. Y. 506
Portland, Ore. 3,906	Portland, Me. 107	N. Y. 777	N. Y. 777	Orden, Utah. 2,517
Portland, Me. 495	Providence, R. I. 473	N. Y. 777	N. Y. 777	Omaha, Neb. 1,517
Quebec, Can. 759	Quincy, Mass. 1,080	N. Y. 777	N. Y. 777	Pittsfield, Mass. 150
Quincy, Ill. 1,350	Raleigh, N. C. 775	N. Y. 777	N. Y. 777	Plymouth, Mass. 48
Racine, Wis. 915	Richmond, Va. 933	N. Y. 777	N. Y. 777	Portland, Me. 107
Richmond, Va. 933	Rochester, N. Y. 429	N. Y. 777	N. Y. 777	Portland, Ore. 4,073
Rochester, N. Y. 354	Saco, Me. 93	N. Y. 777	N. Y. 777	Providence, R. I. 473
Sacramento, Cal. 3,067	St. Louis, Mo. 1,320	N. Y. 777	N. Y. 777	Quincy, Mass. 1,080
St. Paul, Minn. 1,263	St. Paul, Minn. 1,430	N. Y. 777	N. Y. 777	Racine, Wis. 1,080
Salt Lake City, Utah 2,419	Salem, Mass. 15	N. Y. 777	N. Y. 777	Raleigh, N. C. 775
San Francisco, Cal. 3,206	San Francisco, Cal. 3,430	N. Y. 777	N. Y. 777	Richmond, Va. 933
Savannah, Ga. 690	Sarnia, Ont. 819	N. Y. 777	N. Y. 777	Rochester, N. Y. 429
Sidka, Alaska. 4,739	Savannah, Ga. 1,112	N. Y. 777	N. Y. 777	Saco, Me. 93
Springfield, Mass. 322	Springfield, Ill. 1,270	N. Y. 777	N. Y. 777	St. Louis, Mo. 1,320
Tallahassee, Fla. 1,060	Springfield, Mass. 98	N. Y. 777	N. Y. 777	St. Paul, Minn. 1,430
Toledo, O. 610	Taunton, Mass. 35	N. Y. 777	N. Y. 777	Salem, Mass. 15
Topeka, Kan. 1,269	Toledo, O. 775	N. Y. 777	N. Y. 777	San Francisco, Cal. 3,430
Troy, N. Y. 231	Wheeling, W. Va. 774	N. Y. 777	N. Y. 777	Sarnia, Ont. 819
Washington, D. C. 398	Wilmington, Del. 63	N. Y. 777	N. Y. 777	Savannah, Ga. 1,112
Wheeling, W. Va. 398	Winnipeg, Man. 1,698	N. Y. 777	N. Y. 777	Springfield, Ill. 1,270
Wilmington, Del. 63	Worcester, Mass. 44	N. Y. 777	N. Y. 777	Springfield, Mass. 98
Winnipeg, Man. 1,698	Yankton, S. D. 1,456	N. Y. 777	N. Y. 777	Taunton, Mass. 35
Winona, Minn. 1,159	Zanesville, O. 468	N. Y. 777	N. Y. 777	Toledo, O. 775
Yankton, S. D. 1,456		N. Y. 777	N. Y. 777	Wheeling, W. Va. 774
Zanesville, O. 468		N. Y. 777	N. Y. 777	Wilmington, Del. 63
		N. Y. 777	N. Y. 777	Winnipeg, Man. 1,698
		N. Y. 777	N. Y. 777	Worcester, Mass. 44
		N. Y. 777	N. Y. 777	Yankton, S. D. 1,456

Distances from 5 Principal Cities to Other Important Cities

From New Orleans, La., to Miles.	From New York to Miles.	Philadelphia, Pa., to Miles.	From St. Louis, Mo., to Miles.	From Washington, D. C., to Miles.
Albany, N. Y., 1,641	Adrian, Mich., 747	Albany, N. Y., 231	Albany, N. Y., 1,123	Albany, N. Y., 370
Alton, Ill., 658	Albany, N. Y., 432	Alliance, O., 436	Alton (Upper), 23	Amherst, Mass., 619
Appleton, Wis., 1,104	Allegheny, Pa., 143	Alton, Ill., 989	Annapolis, Md., 90	Andover, Mass., 739
Atchison, Kan., 1,055	Alton, Ill., 1,053	Annapolis, Md., 131	Atchison, Kan., 330	Annapolis, Md., 40
Atlanta, Ga., 1,232	Ann Arbor, Mich., 716	Atlanta, Ga., 930	Atlanta, Ga., 536	Alexandria, Va., 7
Augusta, Me., 2,140	Atchison, Kan., 1,360	Augusta, Me., 491	Atlantic City, N. J., 1,067	Atlanta, Ga., 792
Baltimore, Md., 1,316	Atlanta, Ga., 952	Baltimore, Md., 96	Baltimore, Md., 1,067	Aurora, Me., 633
Bangor, Me., 1,979	Augusta, Ga., 837	Bellefontaine, O., 608	Beardstown, Ill., 112	Aurora, Ill., 851
Baton Rouge, La., 129	Aurora, Ill., 928	Bloomington, Ill., 949	Belleville, Ill., 14	Baltimore, Md., 39
Boston, Mass., 1,735	Akron, O., 118	Boston, Mass., 318	Bellaire, O., 349	Baton Rouge, La., 129
Bismarck, D. T., 1,825	Baltimore, Md., 188	Buffalo, N. Y., 510	Bladenburgh, Md., 6	Bellaire, O., 349
Buffalo, N. Y., 1,454	Bellast, Me., 424	Burlington, Ia., 1,030	Boston, Mass., 1,320	Burlington, Vt., 534
Burlington, Ia., 1,192	Bloomington, Ill., 984	Catawissa, Pa., 145	Cairo, Ill., 1,146	Cairo, Ill., 1,091
Burlington, Vt., 1,805	Boston, Mass., 207	Carlisle, Pa., 126	Carlisle, Pa., 126	Cambridge, Mass., 433
Cairo, Ill., 550	Buffalo, N. Y., 423	Charleston, S. C., 786	Canton, Miss., 486	Cape May, N. J., 260
Canton, Miss., 206	Burlington, Ia., 1,106	Cheyenne, Wyo., 1,838	Cape May, N. J., 260	Cambridge, Mass., 433
Cape May, N. J., 1,482	Burlington, Vt., 304	Chicago, Ill., 823	Carondelet, Mo., 719	Cape May, N. J., 260
Carondelet, Mo., 719	Charleston, S. C., 817	Cincinnati, O., 667	Centralia, Ill., 663	Charleston, S. C., 455
Centralia, Ill., 663	Chicago, Ill., 912	Clayton, Del., 65	Champaign, Ill., 787	Cheyenne, Wyo., 1,830
Champaign, Ill., 787	Cincinnati, O., 744	Cleveland, O., 505	Cheyenne, Wyo., 1,932	Chicago, Ill., 813
Cheyenne, Wyo., 1,932	Cleveland, O., 744	Columbia, S. C., 651	Chicago, Ill., 915	Cincinnati, O., 497
Chicago, Ill., 915	Columbia, S. C., 749	Columbus, O., 548	Cincinnati, O., 878	Columbia, S. C., 500
Cincinnati, O., 878	Columbus, O., 624	Concord, N. H., 397	Concord, N. H., 1,799	Columbus, O., 500
Concord, N. H., 1,799	Concord, N. H., 298	Corry, Pa., 410	Davenport, Ia., 1,069	Cumberland, Md., 152
Davenport, Ia., 1,069	Covington, Ky., 745	Crestline, O., 544	Denver, Colo., 1,638	Davenport, Iowa, 996
Denver, Colo., 1,638	Cumberland, Md., 366	Detroit, Ia., 1,006	Des Moines, Ia., 1,221	Defiance, O., 630
Detroit, Mich., 1,289	Davenport, Ia., 1,082	Decatur, Ill., 619	Detroit, Mich., 1,289	Denver, Colo., 1,926
Dover, N. H., 1,799	Dayton, O., 694	Denver, Colo., 1,936	Dover, N. H., 1,799	Dover, Me., 639
Dubuque, Ia., 1,008	Denver, Colo., 1,980	Des Moines, Ia., 1,180	Dubuque, Ia., 1,008	Duluth, Minn., 1,459
Duquoin, Ill., 627	Des Moines, Ia., 1,256	Detroit, Mich., 539	Duquoin, Ill., 627	Fort Wayne, Ind., 981
Evanston, Ill., 927	Detroit, Mich., 628	Dover, Del., 76	Evanston, Ill., 927	Galesburg, Ill., 977
Enterprise, Miss., 146	Dover, N. H., 297	Dover, N. H., 385	Enterprise, Miss., 146	Germantown, Pa., 27
Fargo, N. D., 1,638	Dubuque, Ia., 1,087	Duluth, Minn., 1,469	Fargo, N. D., 1,638	Germantown, Pa., 27
Galveston, Tex., 240	Elmira, N. Y., 274	Elmira, N. Y., 283	Galveston, Tex., 240	Grafton, Va., 96
Green Bay, Wis., 1,111	Elie, Pa., 486	Evansville, Ind., 911	Grenada, Miss., 398	Green Bay, Wis., 1,055
Grenada, Miss., 398	Evansville, Ind., 993	Fargo, N. D., 1,568	Hannibal, Mo., 145	Hartford, Conn., 310
Hannibal, Mo., 145	Ft. Wayne, Ind., 751	Forest, O., 585	Hannibal, Mo., 145	Helena, Ark., 276
Harrisburg, Pa., 1,435	Galena, Ill., 1,070	Fort Wayne, Ind., 675	Harrisburg, Pa., 1,435	Houston, Tex., 361
Hartford, Conn., 1,612	Galveston, Tex., 1,900	Galena, Ill., 995	Hartford, Conn., 1,612	Indianapolis, Ind., 862
Helena, Ark., 276	Gettysburg, Pa., 228	Gettysburg, Pa., 135	Houston, Tex., 361	Jackson, Miss., 367
Houston, Tex., 361	Harrisburg, Pa., 182	Green Bay, Wis., 1,031	Indianapolis, Ind., 862	Jackson, Tenn., 442
Indianapolis, Ind., 862	Hartford, Conn., 110	Hartford, Conn., 198	Jackson, Miss., 367	Jacksonville, Ill., 816
Jackson, Miss., 367	Indianapolis, Ind., 812	Helena, Mont., 2,830	Jackson, Tenn., 442	Joliet, Ill., 878
Jackson, Tenn., 442	Jackson, Miss., 319	Huntsville, Ala., 1,135	Jacksonville, Ill., 816	Kankakee, Ill., 878
Jacksonville, Ill., 816	Kalamazoo, Mich., 722	Jackson, Miss., 1,461	Joliet, Ill., 878	Kankakee, Ill., 878
Joliet, Ill., 878	Knoxville, Tenn., 725	Joliet, Ill., 863	Kankakee, Ill., 878	Kansas City, Mo., 1,277
Kankakee, Ill., 878	Lexington, Ky., 844	Kansas City, Mo., 1,277	Kansas City, Mo., 1,277	Lafayette, Ind., 784
La Crosse, Wis., 1,195	Little Rock, Ark., 1,430	Lafayette, Ind., 784	Lansing, Mich., 728	Lansing, Mich., 728
Lansing, Mich., 1,195	Louisville, Ky., 852	Lansing, Mich., 728	Leavenworth, Kan., 1,303	Lebanon, Pa., 86
Lincoln, Neb., 1,467	Lowell, Mass., 256	Leavenworth, Kan., 1,303	Lebanon, Pa., 86	Louisville, Ky., 776
Louisville, Ky., 754	Lynchburg, Va., 406	Lebanon, Pa., 86	Louisville, Ky., 776	Madison, Ky., 764
Mattoon, Ill., 743	Macon, Ga., 1,055	Madison, Ky., 764	Madison, Ky., 764	Madison, Wis., 1,004
Memphis, Tenn., 376	Madison, Wis., 998	Madison, Wis., 1,004	Madison, Wis., 998	Mattoon, Ill., 861
Menasha, Wis., 1,100	Memphis, Tenn., 159	Mattoon, Ill., 861	Memphis, Tenn., 159	Memphis, Tenn., 153
Menominee, Mich., 1,185	Meriden, Conn., 92	Memphis, Tenn., 153	Meriden, Conn., 92	Montgomery, Ala., 839
Meridian, Miss., 199	Milledgeville, Ga., 900	Montgomery, Ala., 839	Milledgeville, Ga., 900	Montpelier, Vt., 636
Milwaukee, Wis., 998	Milwaukee, Wis., 900	Montpelier, Vt., 636	Milwaukee, Wis., 900	Nashville, Tenn., 1,001
Mobile, Ala., 1,440	Mobile, Ala., 1,332	Nashville, Tenn., 1,001	Mobile, Ala., 1,440	New Albany, Ind., 853
Montpelier, Vt., 2,282	Montpelier, Vt., 344	New Albany, Ind., 853	Montpelier, Vt., 2,282	New Haven, Conn., 76
Nashville, Tenn., 348	Nashville, Tenn., 1,001	New Haven, Conn., 76	Nashville, Tenn., 348	New Orleans, La., 1,501
New Haven, Conn., 76	New Albany, Ind., 853	New Orleans, La., 1,501	New Haven, Conn., 76	Newport, R. I., 162
New York, N. Y., 1,575	New Orleans, La., 1,501	Newport, R. I., 162	New York, N. Y., 1,575	Ogden, Utah., 2,441
Ogden, Utah., 2,499	New York, N. Y., 1,501	Ogden, Utah., 2,441	Ogden, Utah., 2,499	Omaha, Neb., 1,396
Omaha, Neb., 1,396	New York, N. Y., 1,501	Omaha, Neb., 1,396	Omaha, Neb., 1,396	Ogden, Utah., 2,441
Philadelphia, Pa., 1,412	New York, N. Y., 1,501	Ogden, Utah., 2,441	Philadelphia, Pa., 1,412	Ogden, Utah., 2,441
Pittsburgh, Pa., 1,378	New York, N. Y., 1,501	Ogden, Utah., 2,441	Pittsburgh, Pa., 1,378	Ogden, Utah., 2,441
Ponchatoula, La., 48	New York, N. Y., 1,501	Ogden, Utah., 2,441	Ponchatoula, La., 48	Ogden, Utah., 2,441
Portland, Me., 1,842	New York, N. Y., 1,501	Ogden, Utah., 2,441	Portland, Me., 1,842	Ogden, Utah., 2,441
Portland, Ore., 3,264	New York, N. Y., 1,501	Ogden, Utah., 2,441	Portland, Ore., 3,264	Ogden, Utah., 2,441
Providence, R. I., 1,689	New York, N. Y., 1,501	Ogden, Utah., 2,441	Providence, R. I., 1,689	Ogden, Utah., 2,441
Racine, Wis., 977	New York, N. Y., 1,501	Ogden, Utah., 2,441	Racine, Wis., 977	Ogden, Utah., 2,441
Richmond, Va., 1,143	New York, N. Y., 1,501	Ogden, Utah., 2,441	Richmond, Va., 1,143	Ogden, Utah., 2,441
Sacramento, Cal., 2,625	New York, N. Y., 1,501	Ogden, Utah., 2,441	Sacramento, Cal., 2,625	Ogden, Utah., 2,441
St. Louis, Mo., 725	New York, N. Y., 1,501	Ogden, Utah., 2,441	St. Louis, Mo., 725	Ogden, Utah., 2,441
St. Paul, Minn., 1,352	New York, N. Y., 1,501	Ogden, Utah., 2,441	St. Paul, Minn., 1,352	Ogden, Utah., 2,441
Salt Lake City, Utah., 2,481	New York, N. Y., 1,501	Ogden, Utah., 2,441	Salt Lake City, Utah., 2,481	Ogden, Utah., 2,441
San Francisco, Cal., 2,435	New York, N. Y., 1,501	Ogden, Utah., 2,441	San Francisco, Cal., 2,435	Ogden, Utah., 2,441
Springfield, Ill., 820	New York, N. Y., 1,501	Ogden, Utah., 2,441	Springfield, Ill., 820	Ogden, Utah., 2,441
Springfield, Mo., 962	New York, N. Y., 1,501	Ogden, Utah., 2,441	Springfield, Mo., 962	Ogden, Utah., 2,441
Toronto, Can., 1,430	New York, N. Y., 1,501	Ogden, Utah., 2,441	Toronto, Can., 1,430	Ogden, Utah., 2,441
Vicksburg, Miss., 235	New York, N. Y., 1,501	Ogden, Utah., 2,441	Vicksburg, Miss., 235	Ogden, Utah., 2,441
Vinita, I. T., 1,086	New York, N. Y., 1,501	Ogden, Utah., 2,441	Vinita, I. T., 1,086	Ogden, Utah., 2,441
Washington, D. C., 960	New York, N. Y., 1,501	Ogden, Utah., 2,441	Washington, D. C., 960	Ogden, Utah., 2,441
Wilmington, Del., 1,034	New York, N. Y., 1,501	Ogden, Utah., 2,441	Wilmington, Del., 1,034	Ogden, Utah., 2,441
Winnebago, Man., 1,760	New York, N. Y., 1,501	Ogden, Utah., 2,441	Winnebago, Man., 1,760	Ogden, Utah., 2,441
Wyandotte, Kan., 1,011	New York, N. Y., 1,501	Ogden, Utah., 2,441	Wyandotte, Kan., 1,011	Ogden, Utah., 2,441
Yankton, Dak., 1,851	New York, N. Y., 1,501	Ogden, Utah., 2,441	Yankton, Dak., 1,851	Ogden, Utah., 2,441

STATE AND THE 47 COUNTIES OF FLORIDA

With Their Boundaries.

Location and Population of FLORIDA COUNTIES		Loca.	County	Pop.
Loca- tion	COUNTIES	Pop. 1910		
1.....	Escambia..	36,549	23.....	Bradford..14,090
2.....	Santa Rosa..	14,897	24.....	Clay.....6,116
3.....	Walton.....	16,460	25.....	Alachua..34,305
4.....	Holmes.....	11,557	26.....	Putnam..13,096
5.....	Jackson..29,821		27.....	St. John..13,208
6.....	Washington..	16,403	28.....	Levy.....10,361
7.....	Calhoun.....	7,465	29.....	Marion..26,941
8.....	Liberty.....	4,700	30.....	Citrus...6,731
9.....	Gadsden..22,198		31.....	Hernando..4,997
10.....	Leon.....19,427		32.....	Pasco....7,503
11.....	Wakulla...4,802		33.....	Sumter...6,696
12.....	Franklin...5,201		34.....	Lake.....9,509
13.....	Jefferson..17,210		35.....	Orange...19,107
14.....	Madison...16,919		36.....	Volusia..16,510
15.....	Taylor.....7,103		37.....	Hillsboro..78,374
16.....	Lafayette..6,710		38.....	Polk.....24,148
17.....	Suwannee..18,603		39.....	Osceola..5,507
18.....	Hamilton..11,825		40.....	Brevard...4,117
19.....	Columbia..17,689		41.....	Manatee...9,550
20.....	Baker.....4,805		42.....	De Soto..14,200
21.....	Nassau....10,525		43.....	St. Lucie..4,075
22.....	Duval.....75,163		44.....	Lee.....6,294
			45.....	Palm Beach..5,577
			46.....	Monroe...21,563
			47.....	Dade.....11,933
			Total	752,615

FLORIDA CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
Alachua	25.....	610	Armstrong	27.....	239	Blackman	2.....	250	Bushnell	33.....	939
Alafia	37.....	451	Arredonda	25.....	399	Black Point.....	47.....	250	Byrd	27.....	269
Altamonte	16.....	309	Ashton	39.....	289	Blythe	29.....	1,031	C		
Altos	34.....	220	Ashville	13.....	259	Blountstown	7.....	546	Callahan	21.....	390
Alva	44.....	295	Auburndale	38.....	250	Bluffs	1.....	780	Campbell	39.....	309
Anthony	29.....	422	Aucilla	13.....	590	*Bonifay	4.....	932	Campville	35.....	250
*Apalachicola..	12.....	3,065	B			Bowling Green..	42.....	432	Capps	13.....	360
Apopka	35.....	420	Bagdad	2.....	580	Boynton	45.....	280	Carrabelle	12.....	906
*Arcadia	42.....	736	Baldwin	22.....	611	*Bradentown	11.....	1,888	Cedar Keys	28.....	861
Arch Creek	17.....	296	*Bartow	38.....	2,662	*Brantford	17.....	620	Center Hill	33.....	299
Archer	25.....	418	Bassenger	39.....	358	*Bristol	8.....	796	Century	1.....	1,060
Argyle	3.....	250	Bell	25.....	213	*Bronson	28.....	799	Ch'l'te H'r'b'r..	12.....	266
			Belmore	24.....	265	*Brooksville	31.....	979	Chaseville	22.....	246
						Burbank	29.....	250			

Explanation: Index to Towns. First Column. Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Florida Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Chattahoochee	9	580	Greenwood	5	469	*Miami	47	5,471	Rochelle	25	200
Chastee	21	280	Gretna	9	201	Michigan	25	613	Rosewood	28	300
Chipley	6	1,099				Middlebury	24	340			
Christina	38	296	H			Millview	1	495	S		
Chumuckla	2	380	Hague	25	280	Millville	6	1,260	St. Andrew	6	675
Citra	29	394	Hamburg	14	325	*Milton	2	831	St. Augustine	37	5,494
Citronelle	30	545	Hampton	23	265	Molino	1	219	St. Cloud	39	1,800
Clarksville	7	480	Harney	37	286	Montbrook	28	295	St. Joseph	32	200
Clearwater	37	1,171	Hastings	27	399	*Monticello	13	1,829	St. Marks	11	200
Clermont	34	295	Havana	9	432	Morrison	28	296	St. Nicholas	22	4,127
Cocoa	40	613	Hawthorn	25	324	Morse	38	272	St. Petersburg	37	4,127
Cocunut Gr'Ve.	47	887	Hernando	30	592	Moseley	14	369	Sanford	35	3,575
Coleman	19	287	Highland	24	399	Mossbluff	29	225	Sarasota	41	840
Columbia	19	292	High Springs	25	1,468	Mount Dora	34	371	Seabreeze	36	308
Como	26	280	Hilliard	21	280	Mulberry	38	1,418	Sebastian	43	220
Concord	9	1,566	Holger	26	290				Seffner	37	296
Conway	35	301	Hollister	26	200				Seville	36	206
Cottondale	5	250	Holly Hill	36	207	N			Sneads	5	506
Cow Creek	36	479	Homeland	38	300	Naranja	47	560	Sorrento	34	210
*Crawfordville	11	250	Hosford	8	370	New Augustine	27	1,284	So. Jacks'ville	22	1,147
Crescent City	26	677	Hudson	32	210	New Berlin	22	225	Southport	6	200
Crewsville	42	411				Newberry	25	816	Spring Garden	36	250
Croom	31	396	I			New Smyrna	36	1,121	Springhill	10	200
Crystal River	30	663	Ingles	28	360	Newtown	28	309	*Starke	23	1,135
			Interlachen	26	263	Nichols	38	509	Stuart	45	500
D			*Inverness	30	350	Nocatee	42	250	Summerfield	29	225
*Dallas City	32	1,006	Istachatta	31	225	Norma	4	806	*Sumterville	33	290
Dallas	23	289				O			Survey	14	200
Dania	47	283	J			Oakland	35	211	Suwannee	17	209
Day	16	250	*Jacksonville	22	57,099	O'Brien	17	275	T		
Daytona	36	3,082	*Jasper	18	1,730	*Ocala	29	4,370	Tallahassee	10	5,018
Daytona Beach	36	331	Jennings	18	480	Okahumpka	34	280	*Tampa	37	37,782
*DeFuniak Spgs.	3	3,017	Jonesville	25	225	Olustee	20	299	Tarpon Springs	37	2,212
*DeLand	36	2,812				Orange	8	496	Tavernier	46	306
DeLeon Spgs.	36	216	K			Orange	36	490	Telogia	3	392
Dellwood	5	209	*Key West	46	19,945	Orange Park	24	372	Thonotosassa	37	300
Dowling Park	17	290	Kings Ferry	21	249	Orient	37	360	*Titusville	40	868
Drayton Island	26	266	Kingston	36	289	*Orlando	35	3,894	Tompkins	6	286
Duck	37	296	*Kissimmee	39	2,157	Ormond	36	780	Trenton	25	304
Dunedin	37	256	Komoko	25	202	Osteen	36	392	Trilby	32	289
Dunnellon	29	1,227				Oviedo	35	550	Tyler	25	386

**Climatic Conditions East Shore, Florida, in Region of Orlando, New Smyrna and
Other Florida East Shore Towns.**

"This portion of the country is high, the soil and mineral waters are above the average. The nearness of the Gulf Stream gives an equable climate so that a large part of the winter is balmy and the heat of the summer is tempered. Summer is the best time to visit. In summer the sun is hot, but the heat is tempered by the fresh airs from the ocean. In the house or in the shade of a tree it is invariably cool. The general temperature is the following: maximum temperature of 87 degrees and minimum temperature of 70

degrees, with strong, cool breezes varying from east to southeast. There is at all times a freshness and vitality in the air that amply compensates for the direct heat of the sun.

"In the winter the tourist or health-seeker flying from zero weather finds here perpetual spring and summer. He will leave the snow drifts and biting winds of Northern winter to find a land where doors and windows are thrown open, the roses blooming in January, and beautifully colored birds flying

Florida Opportunities in Agriculture and Varied Enterprises

about his lawn, tame as the robins in the Northern home in May. It is the out-of-door life, made possible by such a climate and so prevalent here, that renders existence under novel conditions so charming. You thank God and take courage, get out your fishing tackle, or just loaf around. The tree lover will find here a new and constant pleasure. Maple, hickories, red cedars and oaks will give him a home feeling, while the cabbage palm gives him unmistakable evidence of being in a

winterless climate. The stately cabbage palm, queen of the forests, grows everywhere, and always draws the visitor's attention. The live oaks of this locality are famous. Many of those grand trees are quite equal to the world-known English oaks. Massive, as becomes a tree whose unit is a century, their palpably great age and majestic proportions are enhanced by their priestly drapery of Spanish moss."

FLORIDA

A LAND OF SUNSHINE AND TROPICAL FRUITS. REST AND HEALTH RESORTS

Although this is a region adapted to the growth of tropical and subtropical fruits, much of the state is yet heavily timbered. Though one of the first settlements in North America was made in Florida, the State is yet largely a wilderness.

Only one eighth of the total land area is in farms and only one third of the latter is improved.

The State is adapted to the growing of vegetables for the northern markets, while pine trees throughout the State yield liberally of turpentine and rosin.

A new variety of orange which will endure low temperature has been lately introduced, the result of losses some time ago from freezing.

The winter temperature of Florida is so generally warm as to attract great numbers of people from the North in the cold seasons. The favor with which the State and the climate are regarded being likely to continue in the future.

The coast waters produce the finest fish, including the sheephead, redfish, and mullet, besides green turtle and oysters, and the numerous lakes and rivers of the interior seem with fresh water species.

In the southern part of the State the summer temperature can only be known from the winter by the greater abundance of rainfall. At Key West the difference in temperature is not more than 11 degrees.

CONDENSED FACTS.

Climate.—Jacksonville: Average, January, 55 degrees above; July, 82. Extremes: Highest, 104; lowest, 10 above; rainfall, 54.1 inches. Key West: January, 70; July, 84. Extremes: Highest, 100; lowest, 41 above; rainfall, 38.5. Continuous summer heat of southern and south Florida tempered by constant sea breezes. Uniform winter temperature, and air filled with odor of pine especially beneficial to invalids. Has high reputation as winter health resort.

Dimensions.—Extreme breadth, 400; extreme length, 430 miles. Average width of the peninsula of Florida, 90 miles; length of peninsula, 275 miles.

History.—Mainland discovered by Ponce de Leon, 1513. Explored by De Soto, 1539. Settled by Spaniards at St. Augustine, 1565. Pensacola settled by the French, 1696; given to Great Britain in exchange for Cuba, 1763; retroceded to Spain, 1783; ceded to United States, 1819; territory organized, 1822; admitted as a State, 1845; seceded, 1861; readmitted, 1868.

REST, HEALTH AND PLEASURE RESORTS.

The rapid development of attractive pleasure grounds will be noted by people who go frequently to Florida.

The general idea which has prevailed that the summer time is the only period for the vacation is rapidly giving way to the belief that there should be two rest seasons, that the summer season, which affords opportunity for recreation and recuperation, can very profitably be supplemented by a winter season of vacation, that period to be passed in some warm climate.

Florida being so accessible to the people of the eastern and middle States is being visited more and more every winter. The consequence is the great number of pleasure places which have been established in this State in recent years.

DELIGHTFUL CITIES AND POINTS TO VISIT.

These include Jacksonville, which is the mecca for thousands of winter tourists. This city is 18 miles inland from the Atlantic ocean, has an abundance of good hotels, beautiful shell drives, fine parks, and an all-the-year climate.

St. Augustine, oldest city in the United States, located where came Ponce de Leon in 1512. Here was built a fort in 1565, and the town of St. Augustine came into existence, a city today distinguished for its luxuriously furnished hotels and charming floral gardens.

A short distance south of Jacksonville are the famous Magnolia Springs, a fine pleasure and health resort.

Continuing along the St. Johns river, fifty-five miles south of Jacksonville, the tourist arrives at Palatka, a beautiful city that nestles amid great live oaks, stately palmettos, cypresses, bay trees, and a great wealth of flowering shrubs.

Going one hundred miles south of Jacksonville the traveler reaches De Land, from which finely kept shell roads lead into the dense pine forests and to several attractive places in this vicinity.

Stetson University is located here, affording educational advantages for people who sojourn here for periods of several months.

NOTED FISHING RESORTS.

Onward, two hundred miles south of Jacksonville, we reach Sanford, a prosperous town, celebrated for immense celery beds and its fishing and hunting grounds in that vicinity.

Situated in the heart of the charming lake country is Orlando, a modern ad most attractive city, the population of which, seen in our list of Florida towns, is greatly increased in the winter time. This is a center for lake boating and fishing. The county roads herabouts afford splendid drives for the speeding of motor cars.

The location of Ormond, seen on our map, is on a famous beach thirty miles long celebrated for its opportunity for fast automobilism. The American Automobile Association holds its annual meet and races here.

The fine, smooth surface of New Smyrna beach stretches south for many miles and the bluffs are lined with beautiful summer and winter cottages.

Southeast of Titusville is a body of salt water six miles wide where ideal sport is found in fishing, duck shooting, sailing and rowing.

Tarpon Springs is one of the most picturesque and attractive towns on the West Coast; located one and a half miles from the Gulf of Mexico it is an ideal family and winter resort. Great numbers of annual visitors here own their own houses and pass the winter months in the enjoyment of fishing and boating.

Tampa Bay is a highly popular resort for people from the North, who come here every year. A daily steamer service is maintained between Tampa and St. Petersburg, where are finely arranged golf grounds.

Palm Beach is one of the most notable social resort centers in the world. What nature has not done, money has for this delightful spot. Its strip of high land, its elongated island, its beautiful homes, its charming Lake Worth, its shady groves and avenues of palms, its tropical fruits and foliage, its State golfing grounds, and superb hotels all conspire to make this a Paradise of attraction.

Sixty-eight miles south of Palm Beach is Miami, a rapid growing city, from which point the steamers leave for Nassau.

Miami has the most perfect winter climate, it is claimed, in the United States. The summer heat is tempered by the Atlantic breezes and cold is so rare it is unknown.

From Miami to Knight's Key dock the route is over 100 miles of marvelous railway, reaching from one coral island to another. At the terminus of this railway large, finely furnished steamers carry the traveler to Key West.

Southward from the State extends a chain of small rocky islands. These end in a cluster of rocks and sand banks called the Tortugas, which name comes from the large number of turtles found in the neighboring waters.

The most important of these small rocky islands lying to the southward of Florida, is Key West, an island 6 miles long and 2 broad, with a large well-sheltered harbor. At Key West is an important naval station.

Florida Opportunities in Agriculture and Varied Enterprises

The land seeker in Florida will find a narrow fringe of farm land along the eastern shore of the State, the soil on which is favorable for the growth of fine apples. Citrous fruits and vegetables for the northern markets.

TWO AND THREE CROPS A YEAR.

The long period of sunshine here, summer and winter, and the nearly sixty inches of annual rainfall, permits the raising of two and three crops a year on the same land, while the railroads which parallel these lands, and steamers which run to the North Atlantic ports afford ample facilities for the transportation of all food products to the North at very cheap rates.

Between the railroads and the interior, south of St. Augustine, the west coast is swampy and flat. The farming area is largely in the interior, being devoted to corn and cotton in the northern part, and to citrus fruits and vegetables further south.

The land-seeker wishing to investigate the prospects for fruit and vegetable production in Eastern Florida should go to Jacksonville, there study the local market and get information from fruit dealers as to conditions. Thence go among the fruit and vegetable growers along the St. John's River.

The outlook is bright for the future of Florida. The State will steadily grow in popularity as a winter resort by people who can easily get there from the Atlantic and the Middle States. The local and tourist population will so increase as to give an excellent home market at good prices, the mild climate making it a desirable region in which to live.

The average value of farm lands is less than \$10.00 an acre, about 35 per cent of which land is improved. There are consequently large areas unoccupied where land can be purchased at a low figure.

ONE OF THE HEALTHIEST REGIONS.

Statistics show Florida to be one of the healthiest of the United States, which accounts for so large a number of invalids from the North seeking the genial climate of the State. A fact not generally understood is that the summer climate is as delightful as the winter, the temperature of July and November being about the same.

The productions of Florida are of an essentially tropical character; cotton, tobacco, rice, sugar-cane, arrowroot, hemp, flax, coffee, and coconut flourish throughout all the State. The climate is also favorable to the cultivation of the silkworm and for the cochineal insect.

Since the destructive frosts of a few years ago a new variety of orange has been introduced which is sufficiently hardy to endure any cold weather hereafter liable to occur here.

There are now constantly being successfully grown oranges, lemons, bananas, limes, olives, grapes, and pineapples. All these grow abundantly and are of exquisite flavor.

Indian corn, sweet potatoes, beans, peas, and such products of a more northern climate as Irish potatoes, barley, buckwheat, hops, etc., are also raised.

The cultivation and export of oranges and other fruits has grown to be a considerable source of wealth to the State, while the manufacture of cigars, especially at Key West, is an important industry.

The principal forest trees are red, live and water oaks, mahogany, palmetto, magnolia, dogwood, and in the swamps pines, cedars and cypresses.

DRY SEASONS RELIEVED BY DEWS.

The driest seasons are relieved by heavy dews, and the sun that would bake the earth in other parts and wither vegetation is so tempered by the pervading moisture in the sea breeze as to cover the surface with perennial verdure.

Deer of various kinds abound and smaller game is found in all parts of the country.

WHEN PLANT AND HARVEST.

Dates of planting and marketing of the different vegetable crops, as prepared by an authority on the subject:

Vegetable	Date of Planting	Date of Harvesting
Beans	Jan. 15-Feb. 1	1-March 25-May 1
Beets	Oct. 15-Dec. 1	1-Feb. 1-May 1
Cabbage	Sept. 15-Dec. 1	1-Jan. 1-May 1
Carrots	Oct. 1-Dec. 1	1-Feb. 1-June 1
Cauliflower	Sept. 1-Oct. 1	1-Jan. 1-March 1
Celery	Aug. 15-Oct. 1	1-Jan. 15-April 15
Cucumbers	Jan. 15-Feb. 1	1-April 1-May 1
Egg Plant	Dec. 1-Jan. 1	1-April 15-June 15
Lettuce	Dec. 1-Jan. 1	1-April 15-June 15
Melons	Jan. 15-Feb. 1	1-May 1-July 1
Okra	March 1-July 1	1-May 15-Dec. 1

Vegetable	Date of Planting	Date of Harvesting
Onions	Oct. 1-Dec. 1	1-April 1-May 1
Peas	Oct. 1-Dec. 1	1-Dec. 1-March 1
Peppers	Jan. 1-Feb. 1	1-April 15-June 1
Potatoes (Sweet)	Jan. 1-Feb. 1	1-April 1-May 1
Potatoes	May 15-July 15	1-Oct. 1-Jan. 1
Squash	Jan. 1-Feb. 1	1-March 15-May 1
Tomatoes	Dec. 15-Jan. 15	1-April 15-June 1

Pecan a Money-Maker. The pecan is one of the paying crops. Extra large fine-flavored nuts are grown in Florida and it will be many years before the market can be given a supply. The history of the industry in Florida shows returns from a pecan grove can be counted on at about the same age as the orange and the profits are as a rule rather greater.

Pineapples. Pineapples yield from seven to ten crops without replanting. The first and principal cost is for the land. The income from the second, third, fourth, fifth and sixth crops is profit. One acre of pineapples containing 10,000 plants yielded 300 crates, averaging 30 to the crate, or 9,000 apples. They netted over transportation and commission \$2.00 per crate, or \$600.00 per acre. From this same acre 52,000 planting slips were secured, which sold at \$6.00 per 1,000, adding to the profit of this same acre \$192.00, or a total of \$792.00.

Persimmons. The Japanese persimmon is a coming fruit. Comes into bearing quickly and makes an enormous yield of fruit, and like the pecan sheds its leaves and rests in winter when all the garden crops are being grown and may be planted on lands used for trucking.

Strawberries. Florida lands are equal and in respect to climate and soil superior for the growing of the strawberry to any State in the Union. One person last year, by using his family labor in picking, packing, etc., netted over one thousand dollars (\$1,000) an acre. This result was obtained without irrigation. One year with another, irrigation is a great advantage.

CLIMATE.

No climate in the United States makes labor so light to the tiller of the soil as that of Florida. There are no violent extremes of temperature, such as are characteristic of the Northern States, and, indeed, of some sections of the South. The climate is genial and equable throughout the entire year.

Many residents of the North are under the impression that the summers are very hot in Florida because the State is located so far south. Nothing could be more erroneous. It is an undeniable fact that the temperature here never rises to so high a point as in the Northern States. This is simply because Florida is a narrow peninsula, having the ocean on one side and the gulf on the other, with cold and constant breezes blowing clear across the State.

There are many cases on record where growers of these crops have made as high as \$1,000 to \$2,000 an acre, and it would be easy to cite many instances of \$200 an acre for cabbage, \$225 or even more for cauliflower, \$250 for tomatoes, as high as \$750 for lettuce, \$800 for egg plant, \$800 an acre for strawberries and so on. The following are the average returns for certain crops for the year 1908-9:

Product	Per Acre	Per Acre
Rice	30 bushels	\$ 45.00
Oats	40 bushels	40.00
Sweet Potatoes	90 bushels	47.20
Velvet Beans	20 bushels	37.00
Millet	2 tons	40.00
Native Hay	1½ tons	30.00
Field Pea Hay	2 tons	36.00
Field Peas	15 bushels	22.50
Irish Potatoes	127 bushels	137.00
Cantaloupes	80 crates	320.00
Watermelons		125.00
Grape Fruit	240 boxes	480.00
Beets	200 crates	400.00
Cantaloupes	120 crates	150.00
Peppers	100 crates	200.00
Squash	100 crates	100.00
Strawberries	2,000 quarts	280.00
Pears	136 barrels	430.00
Celery	500 crates	600.00

LITTLE FARMS WELL TILLED.

While to the farmer of the West and the Middle West the idea of a farm of ten, twenty or forty acres appears ridiculous, yet here in Florida a farm as large as forty acres is rare and the results obtained from ten and twenty-acre farms are so marvelous that the newcomers to Florida have to be shown.

STATE AND THE 146 COUNTIES OF GEORGIA

With Their Boundaries

Location and Population
of
GEORGIA COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Dade..	4,139
2.....	Walker..	18,692
3.....	Catoosa..	7,184
4.....	Whitfield..	15,934
5.....	Murray..	9,763
6.....	Fannin..	12,574
7.....	Gilmer..	9,237
8.....	Union..	6,918
9.....	Lumpkin..	5,444
10.....	Towns..	3,932
11.....	White..	5,110
12.....	Rabun..	5,562
13....	Habersham..	10,134
14.....	Stephens..	9,928
15.....	Chattooga..	13,608
16.....	Floyd..	36,736
17.....	Gordon..	15,861
18.....	Pickens..	9,041
19.....	Dawson..	4,686
20.....	Hall..	25,730
21.....	Banks..	11,244
22.....	Franklin..	17,894
23.....	Hart..	16,216
24.....	Bartow..	25,388
25.....	Cherokee..	16,661
26.....	Milton..	7,239
27.....	Forsyth..	11,940
28.....	Polk..	20,203
29.....	Paulding..	14,124
30.....	Cobb..	28,397
31.....	Fulton..	177,733
32.....	De Kalb..	27,881
33.....	Gwinnett..	28,824
34.....	Jackson..	30,169
35.....	Walton..	25,393
36.....	Madison..	16,851
37.....	Elbert..	24,125
38.....	Oconee..	11,104
39.....	Clarke..	23,273
40....	Oglethorpe..	18,680
41.....	Wilkes..	23,441
42.....	Lincoln..	8,714
43.....	Haralson..	13,514
44.....	Carroll..	30,875
45.....	Douglas..	8,953
46.....	Campbell..	10,874
47.....	Clayton..	10,453
48.....	Henry..	19,927
49.....	Rockdale..	8,916
50.....	Newton..	18,449
51.....	Morgan..	19,717
52.....	Greene..	18,512
53.....	Taliaferro..	8,766
54.....	Warren..	11,860
55.....	McDuffie..	10,325
56.....	Columbia..	12,338
57.....	Heard..	11,189
58.....	Coweta..	28,800
59.....	Fayette..	10,966
60.....	Spalding..	19,741
61.....	Butts..	13,624
62.....	Jasper..	16,552

COUNTIES OF GEORGIA—Continued.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
63.....	Putnam..	13,876	81.....	Bibb..	36,646	99.....	Bulloch..	26,464
64.....	Hancock..	19,189	82.....	Twiggs..	10,736	100.....	Bryan..	6,702
65.....	Glascok..	4,669	83....	Wilkinson..	10,078	101....	Effingham..	9,971
66.....	Jefferson..	21,379	84.....	Johnson..	12,897	102....	Chatham..	79,690
67....	Richmond..	58,886	85.....	Emanuel..	25,140	103....	Stewart..	13,437
68.....	Burke..	27,268	86.....	Jenkins..	11,520	104.....	Webster..	6,151
69.....	Troup..	26,228	87.....	Screven..	20,202	105.....	Sumter..	29,092
70....	Meriwether..	25,180	88.....	Muscogee..	36,227	106.....	Dooley..	20,554
71.....	Pike..	19,495	89. Chattahoochee..	5,586	107.....	Wilcox..	13,486	
72.....	Upson..	12,757	90.....	Marion..	9,147	108.....	Dodge..	20,127
73.....	Monroe..	20,450	91.....	Schley..	5,213	109.....	Telfair..	13,288
74.....	Jones..	13,103	92.....	Macon..	15,016	110.....	Quitman..	4,594
75....	Baldwin..	18,354	93.....	Houston..	23,609	111.....	Clay..	8,896
76... Washington..	28,174	94.....	Pulaski..	22,835	112... Randolph..	18,841		
77.....	Harris..	17,886	95.....	Laurens..	35,501	113.....	Terrell..	22,003
78.....	Talbot..	11,696	96.. Montgomery..	19,638	114.....	Lee..	11,679	
79.....	Taylor..	10,839	97.....	Toombs..	11,206	115.....	Crisp..	16,423
80.....	Crawford..	8,310	98.....	Tattnall..	18,569	116.....	Worth..	19,147

Counties of Georgia—Continued

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
117.....	Turner..	10,075	125.....	Liberty..	12,924	133.....	Colquitt..	19,789	141.....	Brooks..	23,832
118.....	Tift..	11,487	126.....	McIntosh..	6,442	134.....	Berrien..	22,772	142.....	Lowndes..	24,136
119.....	Irwin..	19,461	127.....	Early..	18,122	135.....	Ware..	22,957	143.....	Echols..	3,309
120.....	Ben Hill..	11,863	128.....	Calhoun..	11,384	136.....	Pierce..	10,749	144.....	Clinch..	8,424
121.....	Coffee..	21,953	129.....	Dougherty..	16,035	137.....	Glynn..	15,720	145.....	Charlton..	4,722
122.....	Jeff Davis..	6,050	130.....	Baker..	7,973	138.....	Decatur..	29,045	146.....	Camden..	7,690
123.....	Appling..	12,318	131.....	Miller..	7,986	139.....	Grady..	18,457			
124.....	Wayne..	13,069	132.....	Mitchell..	22,114	140.....	Thomas..	29,071		Total	2,609,121

Georgia Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
*Abbeville	107...	1,201	Brinson	138...	707	*Cumming	27...	305	*Fort Gaines	111...	1,320
Acree	129...	200	Brownwood	113...	463	*Cusseta	89...	341	Fort Screven	102...	500
Acworth	30...	1,043	Brooklet	99...	361	*Cuthbert	112...	3,213	Fort Valley	93...	2,697
Adairsville	24...	751	Brooks	59...	200	D			*Franklin	57...	340
Adel	134...	1,902	Broxton	121...	1,040	*Dahlonega	9...	829	Freehomes	25...	200
Adrian	85...	816	*Brunswick	137...	10,182	Daisy	98...	200	Fruitland	143...	200
Alley	96...	306	*Buchanan	43...	462	*Dallas	29...	1,239	Fry	6...	326
Ainslee	94...	200	Buckhead	51...	381	*Danielsville	4...	272	Funston	133...	236
Alamo	96...	249	*Buena Vista	93...	1,605	Danburg	41...	272			
Alapaha	134...	532	Buford	93...	1,688	Danville	36...	323	G		
*Albany	129...	8,190	Bullochville	70...	204	*Darien	126...	1,391	*Gainesville	20...	5,925
Alexanderville	143...	200	Burtsboro	79...	250	Davisboro	76...	598	Garfield	20...	319
Allapaha	134...	429	*Butler	79...	705	*Dawson	113...	3,827	Gay	70...	210
Alma	123...	458	Byronville	106...	300	*Decatur	32...	2,463	Geneva	78...	210
*Alpharetta	26...	356	Byron	93...	300	Demorest	13...	760	*Georgetown	110...	213
*Americus	105...	8,063	C			*Denton	122...	300	Gibson	65...	367
Amsterdam	138...	250	*Cairo	139...	1,505	Desoto	105...	228	Gillsville	20...	216
Apalachee	51...	481	*Calhoun	17...	1,632	Devereaux	64...	250	Girard	68...	229
*Appling	56...	200	Camak	54...	241	Dexter	95...	550	Glenmore	135...	200
Arabi	115...	433	*Camilla	132...	1,827	Diffie	138...	400	Glenwood	96...	640
Aragon	28...	1,200	Campania	56...	300	Dixie	141...	242	Glenville	51...	327
Argyle	144...	280	Canon	22...	728	Dodge	2...	700	Glenwood	96...	640
Arlington	144...	1,308	*Canton	25...	2,062	Doerun	133...	630	Gordfrey	51...	337
*Ashburn	117...	2,214	Carlton	36...	325	Donelsonville	132...	749	Gordon	83...	702
Atco	24...	1,000	*Carnesville	22...	322	Dorchester	125...	200	Grantville	58...	1,132
*Athens	39...	14,913	*Carrollton	44...	3,297	*Douglas	121...	3,550	Graymont	85...	417
Atkinson	124...	200	*Cartersville	24...	4,067	*Douglasville	45...	1,462	Grayson	33...	278
*Atlanta	31...	15,839	Cassville	24...	500	*Dublin	95...	5,795	*Greensboro	52...	2,120
Attapulgus	138...	360	Cave Spring	16...	805	Duluth	33...	469	*Greenville	70...	909
Auburn	33...	217	Cecil	134...	354	Du Pont	144...	342	*Griffin	60...	7,478
*Augusta	67...	41,040	*Cedartown	28...	3,551	E			Groveland	100...	350
Austell	30...	755	Center	34...	208	East Ellijay	7...	291	Grovetown	56...	558
Autreyville	133...	200	Chatsworth	5...	314	*Eastman	108...	2,355	Guyton	101...	545
Avera	66...	228	Chattahoochee	31...	1,000	East Point	31...	3,682	H		
B			Chauncey	108...	350	E. Thomaston	72...	385	Habersham	13...	200
Babb	48...	600	Chester	108...	278	*Eatonton	63...	2,036	Haddock	74...	312
Bacback	131...	402	Chickamauga	2...	312	Edgewood	32...	2,500	Hagan	98...	784
Baconton	132...	291	ChIPLEY	77...	742	Edison	128...	84	Hahira	142...	650
Baden	141...	300	*Clarksessville	13...	528	Egan	130...	200	*Hamilton	77...	403
*Bainbridge	138...	4,217	Clarkston	32...	349	Egypt	101...	400	Hammett	80...	250
Baldwin	13...	280	Claxton	98...	1,008	*Elberton	37...	6,483	Hampton	48...	1,093
Ball Ground	25...	448	Clayton	12...	541	Ellabell	100...	250	Hapeville	31...	864
Baldon	134...	300	*Cleveland	14...	805	*Ellaville	91...	672	Harlem	56...	236
Bainockburn	134...	350	Clifton	100...	1,000	*Ellijay	7...	659	Harrison	76...	383
Barnesville	71...	3,063	Clifton	32...	2,500	Elsie	135...	300	Harrisonville	67...	1,882
Barnett	54...	381	Climax	138...	328	Empire	108...	250	*Hartwell	23...	2,007
Barney	141...	300	Clinton	74...	850	Enigma	134...	338	Harvest	13...	200
Bartow	66...	384	Clyo	101...	200	Epworth	6...	278	*Hawkinsville	94...	3,420
Barwick	141...	381	Cobbtown	98...	254	Essie	12...	200	*Hazelhurst	122...	1,181
Battlehill	31...	223	Cochran	94...	1,638	Eton	24...	200	Helena	109...	890
*Baxley	123...	831	Cohutta	4...	283	Euharlee	24...	200	Hephziba	67...	656
Beach	135...	358	Colbert	36...	255	Evelyn	133...	200	Herod	113...	214
Belfast	100...	300	Coleman	112...	354	Ewing	144...	200	*Hiawassee	10...	200
Bellville	98...	400	Cole City	1...	700	Experiment	60...	500	Hickox	124...	231
Bethlehem	35...	209	Collegepark	31...	2,173	*Faceville	138...	325	Higginson	96...	207
Bibb City	88...	463	Collins	98...	327	*Fairburn	46...	1,395	High Shoals	38...	550
Bishop	138...	200	*Colquitt	131...	600	Fair Mount	17...	326	Hillsboro	62...	209
*Blackshear	136...	1,235	*Columbus	88...	20,551	Fargo	144...	300	Hiram	29...	254
*Blairsville	8...	208	Comer	36...	868	Farmington	38...	200	Hiwassee	10...	226
*Blakely	127...	1,838	Commerce	34...	238	*Fayetteville	59...	709	Hogansville	69...	1,230
*Blue Ridge	6...	898	Concord	71...	450	Ficklin	41...	211	Hollysprings	25...	251
Bluffton	111...	325	*Conyers	49...	1,919	Fife	46...	200	*Homer	21...	228
Bogart	38...	257	Coolidge	140...	303	Finleyson	94...	232	*Homerville	144...	437
Boston	140...	1,130	*Cordele	115...	5,883	*Fitzgerald	120...	5,795	Hoschton	34...	429
Bostwick	51...	333	Cornelia	13...	1,114	Flovilla	61...	495	Huching	40...	200
Bowdon	44...	541	Council	144...	250	Flowerly	20...	373	Hutchings	40...	200
Bowersville	23...	398	*Covington	50...	2,697	*Folkston	45...	355			
Bowman	37...	738	Crandall	5...	220	*Forsyth	73...	2,208	I		
Bremen	43...	890	Crawford	40...	870				Iron City	138...	459
Brewton	95...	214	Crawfordville	53...	668				Irwinville	63...	249
Bridgeboro	116...	350	Creighton	25...	300				Irwinville	119...	300
			Culloden	73...	365						
			Culverton	64...	283				J		
									*Jackson	61...	1,862
									Jacksonville	109...	450

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Georgia Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Jakin	127	622	Milan	109	287	Plains	105	400	Summit	85	566
*Jasper	18	332	*Milledgeville	75	4,385	Pooler	102	337	Sumner	116	336
*Jefferson	34	1,207	*Millen	86	2,030	Porterdale	50	1,000	Sunny Side	60	200
Jeffersonville	82	740	Millerville	94	400	Potterville	79	300	Surrency	123	259
Jenkinsburg	61	237	Millhaven	87	1,000	Poulan	116	652	Swanace	33	250
*Jessup	124	415	Milltown	134	1,247	*Powder Spgs.	30	315	*Swainsboro	85	1,513
*Jonesboro	47	970	Miner	71	400	*Preston	104	259	Sylvania	17	206
Junction City	18	225	Minlestead	49	900	Pretoria	129	369	*Sylvester	116	1,447
K			Mineralbluff	6	338	Pulaski	99	207	T		
Kennesaw	30	573	Mitchell	65	212	Q			Talbotton	78	1,081
Kestler	127	413	Modoc	85	200	Rays Mill	134	300	Tallapoosa	43	2,117
Kildare	101	200	Molena	71	398	Rebecca	117	252	Tarrytown	96	236
Kingston	24	522	*Monroe	35	3,029	Rebel	94	200	Temple	44	711
Kingwood	133	267	Monte	85	300	Register	99	300	Tennille	76	1,622
Kirkwood	32	1,226	Montezuma	92	1,630	*Reidsville	98	454	Thebes	125	300
Kite	84	241	*Monticello	62	1,598	Remerton	142	200	Thelma	144	200
*Knoxville	80	211	*Moreland	58	312	Rentz	95	275	*Thomaston	72	1,645
L			*Morgan	128	302	Reynolds	79	521	*Thomasville	140	6,727
Lacey	126	200	Morrow	47	255	Rhine	108	321	*Thomson	55	2,151
La Fayette	2	1,590	Morton	74	250	Richland	103	250	Thunderbolt	102	592
*Lagrange	69	5,587	Morven	141	383	Richwood	106	600	Tifton	118	2,381
Lake Park	142	285	*Moultrie	133	3,349	Ridgeville	126	300	Tignall	41	320
Lambert	125	200	Mountain			Ringold	3	398	Tilton	4	242
Lavonia	32	1,712	Scene	10	250	Rising Fawn	1	225	*Toccoa	33	3,120
*Lawrenceville	86	1,518	Mount Airy	13	256	Ritch	124	201	Toombsboro	83	404
Lawtonville	38	200	*Mount Vernon	66	605	Roberta	80	227	*Trenton	1	302
Leary	128	430	Mounville	69	226	Rochelle	107	860	Trion	15	1,721
*Leesburg	114	705	N			Rock Mart.	28	1,034	Tunnel Hill	4	295
Lela	138	531	Nacoochee	11	200	Rocky Ford	97	385	Turin	58	263
Leliaton	121	300	*Nashville	131	990	Rogers	86	300	Tybee	102	786
Lenox	134	206	Naylor	142	538	*Rome	16	12,099	Ty Ty	118	276
Leslie	105	393	Nellville	106	503	Rossville	2	1,059	U		
Lettford	100	250	Nelson	18	550	Roswell	30	1,158	Unadilla	106	1,003
*Lexington	40	545	Newborn	59	475	Roy	7	300	Union City	46	534
Lilly	106	221	Newell	145	200	Royston	22	1,422	Union Point	52	1,363
Limerick	125	200	New Holland	20	2,000	Rutledge	51	696	Upton	121	200
*Lincolnton	42	375	*Newnan	58	5,548	S			Uvalda	96	200
Lindale	101	2,063	*Newton	130	360	Saint Clair	68	200	V		
Linton	61	202	Nicholls	121	720	Saint George	145	272	*Valdosta	142	7,656
Linwood	24	533	Niely	109	200	Saint Marys	146	691	Vidalia	97	1,776
Lithia Springs	45	227	Nile	141	200	Saint Simons			*Vienna	106	1,564
Lithonia	32	1,428	Ninety-Eight			Saint Mills	137	225	Villa Rica	44	855
Locust Grove	48	716	Mill Post	121	300	Sale City	132	402	Vinings	30	250
Loganville	35	600	Nona	63	350	*Sandersville	76	2,641	W		
Longeac	70	247	Norcross	33	998	Sargent	58	200	Waco	43	336
Longpond	96	250	Norman Park	135	648	Sasser	113	441	Wadley	66	872
*Louisville	66	1,039	Norwood	54	340	Satilla Bluff	146	300	Waleska	25	243
Ludowici	125	541	Nye	53	300	*Savannah	102	65,064	*Warrenton	54	1,368
Lula	20	300	O			Scott	84	212	Warwick	116	266
Lumber City	109	1,195	Oakfield	116	276	Scottdale	32	400	*Washington	41	3,065
*Lumpkin	103	1,190	Oakhurst	30	233	Screven	124	276	Wassaw	102	543
Luthersville	70	319	Ochlochnee	140	350	Senola	58	1,111	*Watkinsville	38	483
Lyerly	15	322	*Ocilla	119	2,017	Shady Dale	62	344	Waverly Hall	77	300
*Lyons	97	927	Odum	124	258	Sharon	132	746	*Waycross	135	14,485
Lytle	2	200	Offerman	136	483	Shelman	112	785	*Waynesboro	68	2,724
M			*Oglethorpe	92	924	Shiloh	77	250	Waynesville	124	300
McCaysville	6	1,253	Oliver	87	242	Siloam	52	300	Waymanville	72	315
*McDonough	48	882	Olympia	142	200	Slate	23	500	West Point	69	1,906
McIntosh	125	262	Omaha	103	209	Smarrs	73	300	Whigham	139	627
*McRae	109	1,160	Omega	118	274	Smithonia	40	266	White Hall	39	230
Macrae	30	300	Orland	96	457	Smithville	114	574	White Plains	52	407
*Macon	81	40,665	Oserfield	119	300	Smyrna	30	599	Whitesburg	44	315
*Madison	51	2,412	Owens	146	200	Snow	106	300	Willacoochee	121	690
Malone	115	300	Oxford	50	655	Social Circle	35	1,590	Winder	34	2,443
Manassas	98	200	Ozell	141	200	Soperton	96	469	Winokur	145	204
Manchester	70	922	P			Sparks	134	842	Winterville	39	465
Manor	135	200	Palmetto	46	922	*Springfield	101	504	Woodbury	70	917
Mansfield	50	589	Parrott	113	360	*Spring Place	5	242	Woodstock	25	442
Mapleton	132	290	Patterson	136	264	Starrsville	50	400	Wray	119	400
Marblehill	18	400	Pavo	140	572	*Statesboro	99	2,529	Wrens	66	616
*Marietta	30	5,949	Pearson	121	558	Statham	34	621	*Wrightsville	84	1,389
Marion	7	300	Pelham	132	880	Stevens Pottery	75	200	Y		
Marshallville	92	1,082	Pembroke	100	467	Stilesboro	24	200	Yatesville	72	366
Martin	14	377	Pendergrass	34	239	Stillmore	85	645	Young Harris	10	283
Maxeys	40	334	Penfield	52	475	Stockbridge	48	200	Z		
Maysville	21	805	Pepperton	61	454	Stocketon	144	200	Zaldee	96	200
McMinnville	71	233	Perkins	86	225	Stone Mountain	32	1,062	*Zebulon	71	602
Meigs	140	697	*Perry	93	649	*Summerville	15	657	Zirkle	136	300
Melrism	15	300	Piedco	121	250	Summerville	67	4,361			
Mento	140	314	Pinebloom	121	451						
Metcalfe	140	314	Pinehurst	106	330						
Metter	99	408	Pineview	107	708						
Midville	68	603	Pitts	107	279						

A FEW INDUSTRIAL FACTS ABOUT GEORGIA.

Rice.—Rice is an important product which can be easily produced in Georgia of very superior quality. The average yield is about 12 barrels per acre and in favorable seasons a second crop of 8 to 10 barrels may be obtained. This product sells for about \$3.50 a barrel.

Transportation.—The facilities for transporting any product of the state to the outside world include over 7,000 miles of steam railway and 2,500 miles of navigable rivers.

Asbestos.—Nearly the entire domestic supply of asbestos, used in fireproofing, electrical insulation, steam pipe and boiler covering, paints and building material, is mined in the Georgia mountains.

Mica. The Georgia mica belt is a continuation of, and promises to be equally as rich as the famous belt of North Carolina which produces today the best mica found in the world.

General Description of the State—Opportunities for New Settlers

GEORGIA

A Land of Subtropical Fruits, Cotton and Rice.

In climate, forestry and lumber, agriculture and horticulture, Georgia has much which will interest the land seeker. Nearly all the productions of temperate and subtropical regions are cultivated here successfully.

Cotton is the great staple and Georgia is one of the foremost of the cotton-producing States. Other staple crops are **corn and rice**. The State ranks third in rice-producing States and third in cotton.

Of sweet potatoes the average annual yield is 5,000,000 bushels.

Diversified farming is becoming more and more general, and market gardening a leading and profitable pursuit. The extent of fruit and vegetable growing for the northern markets may be judged from the fact that there are at present in this State over 120,000 acres devoted entirely to the growing of watermelons.

A lesson being learned is that when a climate and soil is found which is adapted to the production of a certain staple fruit or vegetable, for which there is growing and continuous demand the more cultivators who engage in raising that article in the district where grown the better for each producer.

Strawberries, peaches, oranges, cantaloupes, grapes, sugar beets and other production of the soil occupy the special attention of great numbers of agriculturists and horticulturists, who find it to advantage to enter into combination with each other in the cultivation of the special product. This co-operation of many engaged in the same line of agricultural production results in a competition which secures excellence, and causes a diffusion of information on the subject of cultivation, harvesting, shipping and marketing which is helpful to all farmers and fruit growers who thus combine together.

From a careful reading of these different descriptions of States relating to soil and climate, vegetables and fruits adapted to particular localities the land seeker, especially fond of any special kind of farm or horticultural work, can very closely judge as to which State and to what region he had better go to satisfy his inclination.

If lumber business is desired it may be remembered that this State is headquarter for "Georgia Pine," while the great forests are besides abundantly supplied with fine hardwoods, comprising oak, hickory and other woods in such large variety as to annually supply over 200,000,000 feet. In fact the extensive pine forests of this State are one of the chief sources of natural wealth, the byproducts of pine—turpentine and turpentine—yielding an annual revenue some years of \$4,000,000. The total annual lumber product in various years amounts to \$18,000,000.

In horticultural production Georgia has the advantage of a climate which, in the interior of the State, permits the ripening of garden products one month earlier than in the northern fields.

The soil of the northwestern part of the State is a rich calcareous deposit; in the north a gray sand and red clay; in the central cotton belt a yellow loam with stiff clay subsoil; in the pine barrens and southwest a light sand; in the lowlands it is of a sandy, gravelly character.

HEALTHY REGIONS.

The climate is very healthful, particularly the mountain and pine barren regions, where lung and catarrhal diseases are almost unknown. In the northern portion of the State the snows are light; the winters and summers free from extremes. In central Georgia the winters are mild, the summer days excessively hot, but the nights cool. The coast and southwest Georgia have agreeable winters with little frost, but the summers are long and enervating and this section is subject to fevers and cholera. The average annual temperature is about 65; average rainfall 46 to 50 inches. The extreme limits of frost periods are from October 20 to April 20.

The land seekers in Georgia will find a general awakening here in manufacturing. Water power is abundant, widely distributed and continuous as the rivers and streams never freeze. Having these advantages, and having no need to import the cotton, wool, iron and wood used, Georgia claims the ability to manufacture more cheaply than any other State. The manufactures include cotton goods, flour and grist mill products, foundry and machine shop products, tar, turpentine, naval stores, and agricultural imple-

ments. By the last census the capital employed in manufacturing was shown to be \$135,211,561; the employees numbered 992,749, and the value of manufactured products, annually was \$151,040,455.

If interested in cotton manufacture the land seeker should go to Augusta, where the claim is made that in that city more unbleached cotton is made than in any city in the United States, large quantities of these goods being exported to Africa and China.

Atlanta has numerous industrial enterprises. Rome and Macon are great trade centers and cotton markets. Tallapoosa has glass works and furnaces. West Point cotton mills, and Valdosta naval stores. Large quantities of superior marble for ornamental and building purposes are quarried at Tate and other places and exported to all parts of the Union.

While many negroes are in the agricultural districts the center of colored population has moved west and out of the State. In 1880 the center of negro population was in Walker County, Georgia. In 1890 it had moved southwest 22½ miles, but was yet in the same county. In 1900 it had moved across the state line and into DeKalb County, in Alabama, a southwestern movement of 11 miles. The total westward movement of the center from 1880 to 1900 was 27 miles and its southern movement 14 miles, showing that the trend of negro population is South and West, although the number of negroes in the Northern states has increased.

CONDENSED FACTS RELATING TO GEORGIA.

Altitude.—Mt. Enota, in the Blue Ridge Mountains, which rises to an elevation of 4,798 feet. The Blue Ridge enters the State in Towns County, in the north eastern part of the State.

Climate.—Annual average, January: Atlanta, 43 above; July, 78; extreme, 100 above, 8 below; rainfall, 52.0 inches. Savannah, January, 51; July 82; extreme, 105 and 8 above; rainfall, 51.9.

Dimensions.—Area of state: Extreme length 315 miles; breadth 250 miles.

Public Institutions.—Location of: Asylum for insane and penitentiary, Milledgeville; School for deaf and dumb, Cave Spring, Floyd County; Asylum for blind, Macon; Reform school, Augusta; State University, Athens; School for feeble-minded, Milledgeville; State Historical Society, Savannah; State Agricultural School, Dahlonega; Eye and ear infirmary, Atlanta; State normal training school, Atlanta; State fisheries, Atlanta; Orphan asylums, Decatur and Augusta.

Voter.—Must be citizen who has paid all his taxes since 1877, been a resident of the State one year, of the county six months. Excluded if convicted of bribery, felony or larceny, unless pardoned; idiots and insane.

NEW GREAT INDUSTRY OF GEORGIA.

Cottonseed Oil.—It is only within the last few years that the cottonseed has been discovered to be almost as valuable as the cotton itself. For general cooking purposes cottonseed oil has no superior. A purely vegetable fat, it possesses peculiar dietetic and hygienic properties. As a general food for cattle, horses, sheep and hogs, cottonseed meal and cottonseed hulls are unequaled. They are both a builder and fatterer and stock fed upon them are invariably strong and healthy. The product from the 140 cotton mills of Georgia annually is worth over \$14,000,000 and the export brings to the state \$4,500,000. Seventeen million dollars are now invested there in the manufacture of cottonseed meal.

GEORGIA "PAPER SHELL" PECAN NUTS.

Another Georgia industry of great promise is the cultivation of the pecan, the most valuable of all the commercial nuts.

King of all the nut-bearing trees, the pecan attains to greatest degree of perfection in the cotton belt, and Professor John Craig of Cornell University, one of the foremost authorities on horticultural subjects in the United States, first decided upon Georgia as the ideal locality for the production of this delicious nut on a commercial scale.

The Georgia nut is termed the "paper shell" pecan, on account of the ease with which it is broken by the pressure of the thumb and forefinger. They attain immense size.

STATE AND THE 27 COUNTIES OF IDAHO

With Their Boundaries

Location and Population

of

IDAHO COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Bonner	13,588
2.....	Kootenai	23,747
3.....	Shoshone	13,963
4.....	Latah	18,818
5.....	Clearwater	
6.....	Nez Perce	21,860
7.....	Lewis	
8.....	Idaho	12,384
9.....	Adams	
10.....	Lemhi	4,786
11.....	Washington	11,101
12.....	Boise	5,250
13.....	Custer	3,001
14.....	Fremont	21,603
15.....	Canyon	25,323
16.....	Ada	29,088
17.....	Elmore	4,785
18.....	Blaine	8,387
19.....	Bingham	23,306
20.....	Bonneville	25,323
21.....	Owyhee	4,041
22.....	Twin Falls	13,543
23.....	Lincoln	12,676
24.....	Cassia	7,197
25.....	Oneida	15,170
26.....	Bannock	19,242
27.....	Bear Lake	7,729
Total.....		325,594

IDAHO.

Towns	Loca.	Pop.
A		
*Albion	24.....	392
Almo	24.....	401
American Falls.....	25.....	953
Ammon	20.....	214
Archer	14.....	251
Arco	18.....	322
Ashton	14.....	502
Athol	2.....	281
Atlanta	17.....	302
B		
Bancroft	26.....	203
Basalt	19.....	201
Basin	24.....	302
Bellevue	18.....	702
*Blackfoot	19.....	2,202
Bloomington	27.....	702
*Boise (capital).....	16.....	17,358
Bonnars Ferry	1.....	1,071
Bryan	19.....	301
Buhl	22.....	639
Burke	3.....	501
Burley	24.....	501

C		
Cabinet	1.....	251
*Caldwell	15.....	3,543
Cambridge	11.....	349
Carey	18.....	701
Carmen	13.....	201
*Challis	13.....	338
Chesterfield	26.....	325
Clawson	14.....	252
Clifton	25.....	502
*Coeur d'Alene	2.....	7,291
Cottonwood	8.....	555
*Council	9.....	312
Culdesac	6.....	436
Custer	13.....	201
D		
De Lamar	21.....	701
Dempsey	26.....	246
Desmet	2.....	501
Downey	26.....	301
Driggs	14.....	252
Dubois	14.....	502

IDAHO CITIES AND VILLAGES WITH 1910 POPULATIONS

Towns	Loca.	Pop.
E		
Elba	24.....	301
Elk City	8.....	201
Emmett	15.....	2,351
F		
Fairview	25.....	401
Farnum	14.....	201
Featherville	17.....	102
Filer	22.....	214
Franklin	25.....	534
G		
Garner	25.....	502
Gem	3.....	375
Genesee	4.....	742
Gentile Valley	26.....	201
Georgetown	27.....	412
Gibbonsville	10.....	502
Glenns Ferry	17.....	802
Gooding	23.....	1,444
*Grangeville	8.....	1,534
Granite	1.....	252

Towns	Loca.	Pop.
Grant	14.....	201
Gray	20.....	201
H		
Haden	14.....	503
Hagerman	23.....	308
Hahn	10.....	201
*Hailey	18.....	1,231
Harrison	2.....	932
Heyburn	23.....	403
Hope	1.....	215
Horse Shoe Bend	12.....	202
I		
*Idaho City	12.....	262
*Idaho Falls	20.....	4,827
Ilo	7.....	209
Independence	14.....	302
Inkom	26.....	203
Iona	20.....	353
Irwin	20.....	252

Towns	Loca.	Pop.
Jerome	23.....	972
Juliaetta	4.....	414
K		
Kamiah	7.....	324
Kellogg	3.....	1,273
Kendrick	4.....	543
Ketchum	18.....	201
Kooskia	8.....	301
Kootenai	1.....	252
L		
Laclede	1.....	402
Lago	26.....	301
Lane	2.....	201
*Lewiston	6.....	6,043
Lewisville	14.....	346
Lincoln	20.....	401
Lookout	6.....	203
Lorenzo	14.....	252
Lost River	18.....	301
Lyman	14.....	403

Idaho Cities and Villages with 1910 Populations—Continued

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
M			Niter	26	402	Rexburg	14	1,893	Squirrel	14	201
McCammon	26	321	Novene	27	462	Reynolds	21	201	Star	16	301
Mackay	13	638	O			Rigby	14	555	Stites	8	301
*Malad City	25	1,303	Oakley	24	911	Robin	26	251	Sugar	14	391
Marion	24	551	Oreana	21	302	Rocky Bar	17	201	T		
Marysville	14	298	*Orofino	5	389	Rossfork	19	1,402	Teton	14	701
Meadows	9	251	Ovid	27	351	Rudy	14	203	Thornton	14	252
Menan	14	298	Oxford	26	502	Rupert	23	297	Troy	4	548
Meridian	16	619	P			S			*Twin Falls	22	5,258
Middleton	15	450	*Paris	27	1,038	*Saint Anthony	14	1,228	V		
Midvale	11	201	Parker	14	432	Saint Charles	27	602	Vanwyck	12	279
Milner	22	201	Parma	15	338	Saint Maries	2	869	Victor	14	301
Minkcreek	25	201	Payette	15	1,948	*Salmon	10	1,434	Vollmer	7	332
Monroe	19	351	Peck	6	236	Salubria	11	302	W		
Montpelier	27	1,924	*Pocatello	26	9,112	Samaria	25	366	*Wallace	3	3,001
*Moscow	4	3,670	Post Falls	2	658	*Sand Point	1	2,993	Wardner	3	1,369
*Moun'tn Home	17	1,411	Potlatch	4	2,110	Shelley	19	537	*Weiser	11	2,603
Mullan	3	1,667	Preston	25	1,500	*Shoshone	23	1,155	Wendell	23	482
N			Priest River	1	248	Silver City	21	403	Weston	25	398
Nampa	15	4,205	Princeton	4	201	Soda Springs	26	501	Whitney	25	202
Naples	1	251	R			Soldier	18	266	Winchester	7	403
New Plymouth	15	271	Rathdrum	2	725	South Boise	16	885			
*Nez Perce	7	599	Reno	14	202	Spirit Lake	2	907			

Opportunities in Agriculture and Varied Enterprises

Idaho is a part of the Rocky Mountain range, with its area so broken by vast mountains, the tops of which are so covered with perpetual snow, as to greatly limit that portion of the State which is susceptible to a high degree of agricultural usefulness.

A study of geology reveals the fact that these lofty mountains were once volcanos, and over the plains in the valleys, covering hundreds of square miles, the lava ran down from the mountain craters and made the foundation upon which, in the lapse of thousands of years, a fertile soil has been created where can be grown most abundant crops of wheat, various grains and fruits in generous variety.

Aided by irrigation and the intense sunshine, which prevails in the valleys, the soil is among the most productive in the world, vegetables and fruits of the finest flavor coming to perfection here two weeks earlier than in other parts of the country in similar latitude.

GOOD MARKET TOWNS

The numerous mining camps which abound among the mountains make an excellent and steady market for all the agricultural productions which can be raised here.

If there is an excess the superior quality and flavor of the fruits make active demand for Idaho productions in Eastern markets.

The supposition is the land seeker and owner of this book is searching for highly productive land at low prices in healthy climate, accessible to market.

We therefore dwell particularly on the agricultural features of a region about which we write.

While a study of the topography of Idaho shows it to be in the Rocky Mountain regions, yet investigation shows that it lies mostly to the West of the Rockies, vast stretches of country being lava plains, an arid region only requiring irrigation to make the soil exceedingly productive.

The irrigation problem has occupied the attention of the people of the State for years, has resulted in improving 38 per cent of the agricultural area, and has added \$12,000,000 of annual agricultural wealth to the State.

The home seeker who contemplates settlement in any State naturally enquires concerning the future of that State. As the agricultural wealth of Idaho largely hangs on irrigation, it is important to see what the government and private enterprise are intending to do in the reclaiming of desert land.

See elsewhere Government Irrigation in this book. Gold was discovered in the Clearwater River Valley, Orofino Creek, in Nezperce county in 1860. In 1862 placers were discovered in Idaho Basin, which have yielded in 150 square miles more than \$50,000,000.

In 1900 Idaho ranked fourth in the silver producing states. In the Coeur d'Alene district, in Nezperce county, is produced one fourth of the entire lead product of the United States, and is the chief supply for the smelters of Colorado, Montana and Washington. There are valuable copper deposits in the Seven Devils' district in Washington and Idaho counties. Cinnabar has been discovered carrying a high per cent in quicksilver.

The agricultural resources are great in all parts of the State.

In climate of Idaho, between plains, valleys and mountains are found great contrasts. The tall mountains of the northern part so arrest the passing clouds as to absorb the most of the moisture they contain, the remaining moisture falls largely in the form of snow. Hence the perpetual snow on the mountain tops and the deep snows in the valleys of the northern part of the State.

The result of this great precipitation in the mountains and upper levels is lack of rainfall and moisture in the lower plains and valleys. The melting snow of summer give an unfailing supply of water to all the mountain streams, the most of which run at so high a level as to permit their being turned into canals from which an abundance of water may be obtained to irrigate all the low lands.

The long cloudless days, warm temperature and never failing water supply make ideal agricultural conditions in Idaho, which combined with rapidly opening market towns, in the mining regions, the immense yellow pine timber supply, the dry and remarkably healthful atmosphere, the great number of rapid running streams, furnishing power as required—all these advantages must result in the rapid upbuilding of the State.

The land seeker from the East soon after entering the State can get very full information as to advantages and opportunities in this region for new settlers at Idaho Falls, in Bingham county, where there is an agricultural experiment station. There are thousands of acres here unsettled and open to filing under the desert and homestead acts.

The price of land, under ditch, ranges from \$10 to \$20 per acre, unimproved \$5 to \$10 per acre.

The depth of snow in the winter is one of the principal reasons why stock raising cannot be a success in the extreme northern part of the State.

The timber resources of Idaho are immense. The great timber belts are estimated to comprise 35,000 square miles.

Altitude: Average elevation, 4,700 feet. Lowest elevation, 647 feet at Lewiston, at junction of Clearwater River with Snake River in Nezperce county. Highest elevation, 12,078 feet. Hyndman Peak in Blaine county.

Climate varies with the altitude; air dry and highly rarified. Winter extremely cold and heavy snowfalls in mountain districts; winters moderate on the plains; temperature mild and snowfall light in the valleys. Average annual precipitation over entire State 17.52 inches. In extreme northern part of the State 46.88 inches, in southern tier of counties, 8.03 inches.

Average annual temperature at Boise, Ada county, 50.9 degrees above, the extremes being 28 below the coldest, and 107 the warmest. Climate very healthy, perhaps no State in the Union showing so low a death rate.

Dimensions: Extreme length of State 490 miles; extreme width, 305 miles; area, 84,800 square miles.

History: Following down the Clearwater River the Lewis and Clark Expedition passed through the region, now in Nezperce county, in 1806. Father De Smet, a Jesuit missionary, established a mission near Coeur d'Alene lake in Kootenai county in 1842. Prospectors began coming into the State during the gold excitement of 1852. The territory of Idaho established in 1863.

STATE AND THE 102 COUNTIES OF ILLINOIS
With Their Boundaries

Location and Popu-
lation.
of
ILLINOIS COUNTIES

Lo-
ca-
tion COUNTIES Pop.
 1910

1.	Jo Daviess.	22,657
2.	Stephenson.	36,821
3.	Winnebago.	63,153
4.	Boone.	15,181
5.	McHenry.	32,509
6.	Lake.	55,058
7.	Carroll.	18,035
8.	Whiteside.	31,507
9.	Ogle.	27,864
10.	Lee.	27,750
11.	DeKalb.	33,457
12.	Kane.	91,862
13.	DuPage.	33,432
14.	Cook.	2,405,233
15.	Rock Island.	70,404
16.	Henry.	41,736
17.	Bureau.	48,975
18.	La Salle.	90,132
19.	Kendall.	10,777
20.	Grundy.	24,162
21.	Will.	84,374
22.	Mercer.	19,732
23.	Henderson.	9,724
24.	Warren.	23,313
25.	Knox.	46,159
26.	Stark.	10,098
27.	Peoria.	100,255
28.	Putnam.	7,761
29.	Marshall.	16,679
30.	Woodford.	20,506
31.	Livingston.	40,465
32.	Kankakee.	40,752
33.	Iroquois.	35,453
34.	Hancock.	30,638
35.	McDonough.	26,887
36.	Fulton.	49,549
37.	Tazewell.	34,027
38.	McLean.	68,008
39.	Ford.	17,096
40.	Adams.	64,588
41.	Schuyler.	14,852
42.	Brown.	10,397
43.	Cass.	17,372
44.	Menard.	12,796
45.	Logan.	30,216
46.	Dewitt.	18,906
47.	Platt.	16,736
48.	Champaign.	51,859
49.	Vermillion.	77,996
50.	Pike.	28,622
51.	Scott.	10,067
52.	Morgan.	34,120
53.	Sangamon.	91,024
54.	Christian.	34,594
55.	Macon.	54,186
56.	Moultrie.	14,630
57.	Douglas.	19,591
58.	Edgar.	27,336
59.	Calhoun.	8,610
60.	Greene.	22,363
61.	Jersey.	13,954
62.	Macoupin.	50,685
63.	Montgomery.	35,311
64.	Shelby.	31,693
65.	Coles.	34,517
66.	Cumberland.	14,281
67.	Clark.	23,517
68.	Madison.	89,847
69.	Bond.	17,075
70.	Fayette.	28,075
71.	Effingham.	20,035
72.	Jasper.	18,157
73.	Crawford.	26,281
74.	St. Clair.	119,870
75.	Clinton.	22,832
76.	Marion.	35,094
77.	Clay.	18,661
78.	Richland.	15,970
79.	Lawrence.	22,661
80.	Monroe.	13,508
81.	Washington.	18,759
82.	Jefferson.	29,111
83.	Wayne.	25,697
84.	Edwards.	10,049
85.	Wabash.	14,913
86.	Randolph.	29,120

Stars on Map Indicate Route of Proposed Ship Canal Across Illinois

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
88.....	Perry	22,088	94.....	Saline	30,204	100....	Alexander	22,741
89.....	Franklin	25,943	95.....	Gallatin	14,628	101.....	Pulaski	15,650
90.....	Hamilton	18,227	96.....	Union	21,856	102.....	Massac	14,200
91.....	White	23,052	97.....	Johnson	14,331			
92.....	Jackson	35,143	98.....	Pope	11,215			
93.....	Williamson	45,098	99.....	Hardin	7,015	Total		5,638,591

Illinois Cities and Villages with 1910 Populations

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
A							
Abingdon	25,246	Benson	30,362	Carpentersville	12,128	Dallas City	31,1,288
Adair	35,309	*Benton	89,2,675	Carriers Mill	94,1,558	Dalton City	57,403
Adams	40,250	Berlin	54,251	*Carrollton	61,2,323	Dan	17,949
Addicks	82,269	Bernadotte	35,1,202	Cartersville	93,2,971	Dana	18,251
Adrian	13,579	Berwyn	14,5,841	*Carthage	34,679	Danforth	33,410
Adison	89,208	Bethany	69,447	Cary Station	5,202	Danvers	38,593
Albin	8,618	Bethany	57,859	Casey	68,2,157	*Danville	50,27,871
*Albion	85,1,381	Bible Grove	78,201	Caseyville	75,613	Darnstadt	75,203
Alden	5,209	Big Grove	23,402	Castleton	26,202	Darwin	68,207
*Aledo	22,244	Big Rock	12,251	Catlin	50,952	Davis	9,352
Alexander	53,260	Billet	80,202	Cedar Point	99,306	Davis Junction	2,254
Alexis	24,829	Birds	80,382	Cedarville	18,545	Dawson	54,630
Algonquin	5,642	Birkner	75,401	Central City	2,311	Dayton	18,301
Alhambra	69,433	Bismarck	18,289	Central City	20,287	Deatur	56,31,140
Allendale	86,560	Blackstone	51,202	Centralia	77,9,681	Deer Creek	37,332
Allenville	57,245	Blandville	35,987	Cerro Gordo	48,876	Deerfield	6,476
Allerton	50,361	Bloomington	13,462	Chadwick	7,208	De Kalb	11,4,102
Alma	77,380	*Bloomington	38,25,769	Chambersburg	51,208	De Land	48,503
Alpha	16,358	Blue Island	14,8,043	Champaign	49,12,421	Delavan	37,1,175
Altamont	72,1,332	Bluemound	56,901	Chana	9,317	De Long	25,350
Alton	69,17,528	Bluffs	52,766	Chanderville	43,884	Denver	31,202
Altona	25,531	Bois	82,335	Channahon	21,208	Depue	92,644
Alto Pass	30,819	Bolton	2,485	*Chapin	53,552	Des Moines	14,2,348
Alvin	10,1,749	Bondville	49,253	*Charleston	66,5,884	Dewitt	47,220
Amboy	38,250	Bone Gap	85,167	Chatham	54,666	Dewmaine	93,913
Anchor	15,299	Bonfield	56,275	Chatsworth	31,1,112	Diamond	20,255
Andalusia	16,222	Boody	58,203	Chebanse	33,502	Dietrich	72,494
Anna	96,2,809	Bourbonnais	32,611	Chemung	5,502	Dixon	10,7,216
Annapolis	74,209	Bowen	34,606	Chenoa	17,1,048	Dolton	96,702
Annapaw	16,398	Braceville	20,971	Cherry	3,433	Dongola	61,405
Antioch	6,682	Bradford	26,772	Cherry Valley	87,2,747	Donnellson	33,346
Apple River	1,581	Bradley	32,1,942	*Chester	63,364	Donovan	66,404
Arcola	58,2,100	Bradwood	21,1,951	Chesterfield	46,301	Doran	94,1,184
Arcville	56,518	Breeds	36,202	Chestnut	14,2,185,283	Dorrisville	94,302
Argenta	17,370	Breeze	36,2,128	Chicago	14,14,525	Douglas Park	62,253
Arlington	17,370	Brereton	36,603	Chillicothe	27,1,851	Downers Grove	13,2,601
Arlington Heights	41,1,943	Bridgeport	63,595	Chrisman	37,1,193	Downs	38,301
Armington	37,327	Brighton	27,576	Christopher	89,1,825	Dubois	82,351
Armstrong	50,308	Brimfield	19,394	Cicero	48,379	Dundas	75,224
Arrowsmith	38,366	Bristol	49,481	Cisco	84,373	Dunfee	12,3,002
Arthur	58,1,080	Broadlands	46,246	Cissna Park	33,651	Dunfermline	36,501
Ashkum	33,416	Brocton	59,558	Clare	39,201	Dupo	75,433
Ashland	43,1,066	Brookfield	14,2,186	Clarence	32,231	Duquoin	88,5,454
Ashley	82,511	Brooklyn	41,1,493	Clarke City	55,204	Durand	3,527
Ashmore	66,779	Brookport	102,398	Clarksdale	78,837	Dwight	31,2,156
Ashton	10,1,918	Brookville	90,473	Clay City	40,942		
Assumption	36,1,357	Brownston	41,551	Clayton	93,325	E	
Astoria	45,1,340	Browns	85,419	Clifford	32,631	Earlville	18,1,059
Athens	61,290	Brownstown	71,415	*Clinton	12,515	East Alton	69,584
Atkinsville	16,805	Brussels	60,283	Clintonville	14,1,003	East Brooklyn	20,446
Atlanta	46,1,367	Bryant	36,237	Clyde	20,2,667	East Carondelet	75,212
Atwood	48,659	Buckingham	32,272	Coal City	40,262	East Dubuque	1,1,353
Auburn	54,1,814	Buckley	33,495	Coatsburg	96,988	East Dundee	12,353
Augusta	34,1,146	Buda	17,887	Cobden	64,980	East Galesburg	3,301
Aurora	12,29,807	Buffalo	53,475	Coffee	35,1,445	East Lynn	50,361
Ava	92,780	Bunker Hill	63,1,046	Colchester	35,1,445	East Moline	15,2,665
Averyville	27,2,668	Bureau	12,534	Coleta	8,302	Easton	44,407
Aviston	6,397	Burlington	12,287	Colfax	38,965	East Paris	37,1,494
Avon	36,865	Burnham	14,328	Collinsville	69,7478	East St. Louis	75,58,557
		Burnside	34,301	Collinsville	16,217	East Venona	18,367
B		Burnt Prairie	91,351	Colona	81,2,076	E. Wood River	69,401
Baden Baden	70,201	Bush	93,565	Columbia	34,202	Eaton	74,351
Baileysville	2,401	Bushnell	35,2,619	Como	8,202	Edgar	59,202
Baldwin	87,358	Bushton	66,253	Compton	10,387	Edgewood	72,419
Banner	36,208	Butler	64,233	Congress Park	14,301	Edinburg	55,543
Barclay	54,252	Byron	9,932	Cooksville	38,332	Edison	27,211
Barrington	14,1,444			Cooperstown	42,202	Edwards	69,5,014
Barry	51,1,647	C		Cordova	15,324	*Edwardsville	62,3,898
Bartels	76,344	Cabery	39,321	Cornell	31,536	*Effingham	20,677
Bartlett	14,408	Cable	22,362	Cortland	11,207	Eileen	12,613
Bartonsville	27,1,322	Cahokia	75,304	Coulterville	87,949	Elco	100,201
Batavia	66,4,436	*Cairo	100,14,548	Cowden	65,711	El Dorado	94,3,365
Batchtown	60,401	Caledonia	4,291	Craig	88,250	Eldred	61,241
Bath	44,385	Calhoun	78,323	Crainville	93,446	Elgin	12,25,975
Baylis	51,385	Camargo	16,1,272	Creal Springs	93,936	Elizabeth	99,633
Beardstown	43,6,107	*Cambridge	24,231	Crescent City	33,323	*Elizabethtown	46,418
Beason	46,303	Cameau Hill	92,444	Creston	9,323	Elkhart	46,201
Beaverville	33,491	Camp Point	40,1,148	Crete	38,840	Elkton	92,732
Beckemeyer	76,764	Campus	31,241	Crossley	38,250	Elkhart	39,371
Beecher	21,543	Canton	36,10,453	Crossville	91,573	Ellis Grove	87,252
Beecher City	72,353	Cantrall	54,562	Crotty Lake	5,1,242	Ellisville	36,218
Belgium	50,433	Capron	4,562	Crystal Lake	36,2,019	Ellsworth	38,213
Bell	46,312	Carbon Cliff	15,367	Cuba	31,579	Elmhurst	13,2,361
Belle River	83,21,122	Carbondale	92,5,411	Cullum	88,324	Elmwood	27,1,391
*Bellevue	14,943	Carbondale	20,820	Cutler	97,311	El Paso	62,1,470
Belleflower	38,397	Cardiff	31,1,031	Cypress	97,311	Elsham	34,257
Bellflower	86,551	*Carlinville	63,3,616			Elvaston	34,251
Bellmont	4,7,253	Carlock	38,402	D		Elwood	21,411
*Belvidere	48,1,531	*Carlyle	76,1,982	Dahlgren	90,654	Emery	16,211
Bement	69,205	*Carman	23,261	Dakota	2,227	Enfield	91,927
Bend	63,1,982	*Carmi	91,2,833				
Bensenville	13,443						

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Illinois Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Equality	95	1,181	Goodnow	21	201	Itasca	13	333	Lombard	13	583
Erie	8	803	Good Hope	35	361	Iuka	77	361	Lombard Mills	36	555
Esmond	11	252	Goreville	97	551	Ivesdale	49	429	Long Point	31	239
Essex	32	342	Grafton	62	1,116				Longview	49	257
*Eureka	30	1,525	Grand Chain	101	451		J		Loraine	40	417
Evanson	14	24,978	Grand Detour	9	302	*Jacksonville	53	15,386	Lostant	18	458
Evansville	87	562	Grand Ridge	18	403	Janesville	67	301	*Louisville	78	671
Evergreen Pk.	14	424	Grand Tower			Jeffersonville	84	237	Lovejoy	75	1,501
Ewing	89	317	Junction	92	873	*Jerseyville	62	4,113	Lovington	57	1,015
Exeter	52	201	Grandview	59	259	Jesse	59	363	Lyons	48	395
			Granite City	69	9,903	Johnson	5	501	Lyndon	8	301
			Grant Park	32	692	Johnsonville	84	225	Lyons	14	1,483
Fairbury	F	31	Grantsburg	97	302	Johnson City	93	3,248			
Fairdale	11	201	Granville	28	1,391	*Joliet	21	34,671		M	
*Fairfield	84	2,479	Grape Creek	50	610	*Jonesboro	96	1,169	McClure	100	301
Fairland	58	251	Graymont	31	1,201	Joppa	102	733	McConnell	2	225
Fairmount	50	847	Grayslake	6	603	Joy	22	516	McHenry	5	1,031
Fairview	36	482	Grayson	94	201	Junction	95	301	McLean	38	707
Fairview Land			Greenfield	61	1,441		K		*McLeansboro	90	1,796
ing	98	201	Greenup	67	1,224	Kampsville	60	506	Macedonia	90	285
Fair Weather	40	201	Green Valley	37	401	Kangley	18	381	Mackinaw	37	725
Fancher	65	215	Greenview	45	921	*Kankakee	32	13,986	*McComb	35	5,775
Farina	71	774	*Greenville	70	3,178	Kanbers Ridge	99	301	Macon	56	683
Farmer City	47	1,603	Gridley	38	752	Karnak	101	251	Madison	69	5,046
Farmersville	64	533	Griggsville	51	1,262	Kasbeer	17	201	Maeyes	81	284
Farmington	36	2,421	Grossdale	14	2,301	Karnak	101	251	Magnolia	28	368
Fayetteville	75	228	Gross Point	13	1,063	Kasbeer	17	201	Mahomet	49	561
Fernis	34	229	Grossland	37	1,208	Keenesburg	86	401	Makanda	92	401
Fiatt	36	251	Hallidayboro	92	252	Keelsburg	22	1,511	Malden	17	255
Fidelity	62	211	Hamburg	60	335	Kempston	39	269	Malden	11	451
Fieldon	62	227	Hamilton	34	1,627	Kenilworth	14	881	Manchester	52	481
Fillmore	64	499	Hamletsburg	98	215	Kenney	47	571	Manhattan	21	443
Findlay	65	827	Hammond	48	492	Kewanee	16	9,307	Manito	44	696
Fisher	49	851	Hampshire	12	697	Keyesport	76	671	Manlius	17	218
Flithian	50	386	Hampton	15	348	Kilbourne	44	424	Mansfield	48	681
Flanagan	31	591	Hanna City	27	453	Kinderhook	51	371	Manitowish	32	1,229
Flat Rock	74	841	*Hardin	60	654	Kingston	11	295	Maple Park	12	389
Flora	28	270	*Harrisburg	94	5,309	Kingston Mines	27	492	Maquon	25	472
Floraville	75	304	Harristown	56	203	Kinmundy	77	997	Marengo	5	1,936
Foosland	49	301	Hartsburg	46	351	Kinsman	20	219	Marion	69	685
Fordville	93	385	Harvard	5	3,008	Kirkland	11	685	*Marion	93	7,193
Fordyce	92	392	Harvel	64	396	Kirksville	57	251	Marissa	75	2,014
Forest City	44	306	Harvey	14	727	Kirkwood	24	925	Mark	28	1,125
Forest Park	14	6,594	*Havana	1	2,000	Knoxville	25	1,818	Maroa	56	1,161
Forrest	31	967	Hazel Crest	14	401	Kolze	14	501	Marquette	17	494
Forreston	9	871	Hazel Dell	67	201		L		Marselles	18	3,201
Forsyth	56	201	Hebron	5	644	La Clede	71	2,201	*Marshall	68	2,569
Fort Sheridan	6	601	*Hennepin	28	451	*Lacon	29	1,495	Martinsville	68	1,501
Fountain Green	34	252	Hennings	50	364	Ladd	17	1,911	Martinton	33	312
Fox Lake	6	401	Henry	29	1,687	La Fayette	26	287	Marysville	50	742
*Frankfort	21	275	Herrick	65	618	La Grange	14	5,282	Maryville	69	7,239
Franklin	53	696	Herron	93	6,861	Lagrange Park	14	1,131	Mascoutah	75	2,181
Franklin Grove	10	572	Herschler	32	461	La Harp	34	1,348	Mason	72	345
Franklin Park	14	683	*Hickory	63	308	Lake Bluff	6	750	Mason City	44	1,842
Frederick	41	301	Hickory	33	461	Lake Bluff	6	750	Matteson	11	461
Freeburg	75	1,397	Hoy	33	461	Lake City	57	201	Mattson	66	11,456
*Freeport	15	201	Heyworth	38	681	Lake Forest	6	3,349	Mauney	9	1,001
French Village	75	301	Highland	69	2,675	Lake Villa	6	342	Maywood	14	8,033
Friendsgrove	86	301	Highland Park	6	4,209	Lake Zurich	6	304	Mazon	20	471
Fullersburg	13	500	Highwood	6	1,219	Lambert	14	221	Mechanicsburg	54	417
Fulton	8	2,174	Hillery	50	351	Lamotte	17	555	Media	23	226
	G		*Hillsboro	64	3,424	Lanacore	17	555	Medora	63	444
Galatia	94	745	Hillsdale	15	250	Lanark	7	1,175	Melrose Park	14	4,801
Gale	100	202	Hillside	14	328	Lancaster	86	201	Melvin	39	509
*Galena	1	4,835	Hillview	61	309	Lane	47	202	Mendon	40	611
Galesburg	35	22,089	Hinckley	14	309	Lansing	14	1,061	Mendota	18	3,800
Galva	16	249	Hindsboro	58	498	Lansing	14	1,061	Mercersburg	53	301
Garden Prairie	4	201	Hinsdale	13	2,451	La Rose	29	415	Metamora	50	694
Gardner	20	946	Hodgkins	14	481	La Salle	18	11,537	Metcalfe	59	449
Garrett	58	291	Hollowayville	17	251	Latham	46	438	*Metropolis	102	4,655
Gary	14	201	Homer	49	1,086	*Lawrenceville	80	3,235	Middlegrove	36	201
Gaskins City	94	685	Homewood	14	713	Leaf River	9	469	Middletown	46	751
Gays	57	322	Hoopeston	50	4,698	Lebanon	75	1,907	Midland City	47	227
Geff	84	286	Hopedale	37	585	Ledford	94	599	Milan	15	701
Geneseo	16	3,199	Horickton	82	451	Lee	10	303	Millford	33	1,316
Genoa	11	257	Hubbard Woods	38	375	Lee Center	10	245	Millgrove	96	2,227
Georgetown	50	2,807	Hudson	38	375	Le Land	10	245	Millidgeville	17	631
Germanatown	76	711	Huey	76	205	Lemont	14	2,283	Millsburg	22	417
German Valley	2	231	Hull	51	541	Lena	2	1,168	Millington	19	223
Gibson City	39	2,086	Humboldt	66	355	Lenz	75	200	Mill Shoals	91	701
Gifford	49	501	Hume	59	572	Lenzburg	75	463	Millstadt	75	1,411
Gilberts	12	268	Humrick	50	201	Leonore	18	203	Millmine	48	211
Gillespie	63	2,241	Huntley	5	773	Lerna	66	391	Milton	51	331
Glen	33	1,305	Hurst	95	345	Le Roy	38	1,702	Mineral	17	349
Glen	33	1,305	Huntsville	74	722	Lewistown	36	2,312	Minier	61	377
Glen	33	1,305				Lewistown	36	2,312	Minooka	30	2,070
Girard	63	1,891		I		Liberty	40	499	Minooka	20	361
Gladstone	23	385	Illopolis	54	849	Libertyville	6	1,724	Mitchellville	94	201
Glasgow	52	315	Ina	83	484	Lima	40	797	Modesto	63	298
Glenarm	54	201	Indianola	50	365	Limerick	17	450	Mokena	21	355
Glen Carbon	69	1,221	Industry	35	581	*Lincoln	46	10,891	Moline	15	24,193
Glencoe	14	1,829	Ingraham	78	201	Lindenwood	9	301	Momence	32	2,201
Glen Ellyn	13	1,763	Iowa Junction	27	1,201	Litchfield	64	5,971	Monroe	21	411
Glenview	14	652	Ipava	36	652	Littleton	41	501	*Monmouth	24	9,128
Glenwood	58	1,451	Irving	33	628	Littleton	41	501	Monmouth Center	24	2,551
*Golconda	98	1,088	Irving	33	628	Livingston	24	1,002	Montgomery	12	371
Golden	40	579	Irvington	82	233	Loami	54	531	*Monticello	48	1,981
Goldengate	84	311	Irwin	32	202	Lockport	21	2,555	Montrose	72	349
Golf	14	501	Isabel	59	225	Loda	33	603	Morgan Park	14	3,661

Illinois Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Moro	69	201	Ohlman	64	200	Rardin	66	250	Shetlerville ..	99	200
*Morris	20	4,563	Okawville	82	579	Raritan	23	931	Shiloh Valley ..	75	395
*Morrison	8	2,412	Old Marissa	75	349	Ravinla	6	500	Shipman	63	392
Morrisonville ..	55	1,126	Olmdsted	101	283	Ray	41	200	Shobonier	72	306
Morton	37	1,009	*Olney	79	5,011	Raymond	64	881	Shumway	39	381
Morton Grove ..	14	836	Omaha	95	586	Red Bud	87	1,240	Sidell	50	741
Morton Park	14	1,001	Onarga	33	1,273	Reddick	32	238	Sidney	49	481
*Mound City	101	2,837	Onelda	25	589	Redmon	59	288	Sigel	65	308
Mounds	101	1,686	*Oquawka	23	370	Reeves	93	658	Silvis	15	1,163
Mount Auburn ..	55	463	Orangeville	2	370	Renault	81	241	Sims	84	399
*Mount Carmel ..	86	6,931	*Oregon	9	2,180	Reno	70	200	Smithboro	70	309
*Mount Carroll ..	7	1,759	Orion	16	655	Reynolds	15	367	Smithfield	36	389
Mount Erie	84	299	Orland	14	369	Richmond	5	554	Smithshire	24	389
Mount Forest	14	478	Oswego	19	600	Richview	82	366	Smithton	75	380
Mt. Greenwood ..	14	276	*Ottawa	18	9,535	Ridge Farm	50	967	Somonausk	11	591
Mount Morris	9	1,132	Owaneco	55	365	Ridgefield	5	360	Sorento	70	1,018
Mount Olive	63	3,501	P			Ridge Prairie ..	75	360	South Beloit ..	3	600
Mount Pulaski ..	46	1,511	Palatine	14	1,144	Ridgeway	5	300	South Chicago ..		
*Mount Sterling ..	42	1,986	Palestine	74	1,399	Rio	25	300	Heights	14	552
Mount Vernon ..	83	8,007	Palmer	53	404	Ripley	42	234	South Elgin	12	580
Mount Zion	56	331	Palmyra	65	873	Riverdale	14	917	South Heights ..	15	250
Moweaqua	65	1,513	Palos Park	55	6,055	River Forest ..	14	2,456	South Holland ..	14	1,065
Mozier	60	301	Pana	55	6,055	River Grove	14	418	S. Wilmington ..	29	2,043
Mulberry Grove ..	70	716	Panama	64	908	Riverside	14	1,702	Spartan	20	461
Mulkeytown	89	251	*Paris	59	7,664	Riverton	54	1,911	Spartanburg ..	87	3,081
Muncie	50	253	Parker	97	250	Riverview	14	312	Spaulding	93	398
Mundock	58	350	Parkersburg ..	79	238	Roanoke	30	1,311	Spillertown ..	54	249
*Murphysboro ..	92	7,485	Park Ridge	14	2,009	Roberts	39	466	Springerton ..	91	418
Murayville	53	451	Parrish	89	250	*Robinson	74	3,863	Springfield ..		
N			Patoka	77	676	Rochelle	9	2,732	(capitol)	54	51,678
Nameoki	69	200	Patterson	61	200	Rochester	54	414	Springforest ..	14	334
Naperville	13	3,449	Pawnee	54	1,399	Rock	98	288	Spring Garden ..	83	227
Naples	52	457	Pawpaw	10	709	Rockbridge	61	275	Spring Grove ..	5	203
*Nashville	82	2,135	*Paxton	39	2,912	Rockdale	21	1,101	Spring Valley ..	17	7,035
National City ..	76	253	Paysan	40	467	Rockefeller	6	358	Standard	28	525
National Stock ..			Pearl	51	842	Rock Falls	8	2,657	Standard	63	5,048
Yards	75	1,200	Pearl City	2	485	*Rockford	3	45,401	Stanton	87	708
Nauvoo	34	1,020	Pecatonica	3	1,022	Rock Island	15	24,335	Steeleville	50	300
Nebo	51	520	*Pekin	37	9,897	Rockport	51	204	Steeleton	21	2,161
Neoga	67	1,074	Penfield	49	300	Rockton	81	841	Steger	8	7,467
Neponset	17	542	*Peoria	27	66,956	Rollins	6	200	Steward	10	353
New Athens	75	1,131	Peoria Heights ..	27	582	Rome	27	233	Stewardson	65	720
New Baden	76	1,372	Peotone	21	1,207	Roodhouse	61	2,171	Stillman Valley ..	9	400
New Bedford	17	250	Percy	87	1,033	Roscoe	3	500	Stillwell	34	550
New Berlin	54	690	Perry	51	649	Rose Hill	73	229	Stockton	94	1,006
New Boston	22	718	Peru	18	7,984	Roselle	13	400	Stonefort	55	1,118
New Burnside ..	97	369	Pesotum	49	376	Rosemond	55	300	Stonington	74	488
New Canton	51	473	*Pettersburg ..	45	2,589	Roseville	24	882	Strasburg	65	526
New Douglas	69	499	Philadelphia ..	43	550	Rosiclare	99	609	Strawn	31	277
New Grand			Philo	49	562	Rossford	50	1,422	Streator	18	14,253
Chain	101	490	Phoenix	14	679	Royaltown	89	357	Stronghurst ..	23	762
New Haven	95	514	*Pinckneyville ..	88	2,732	Rozetta	24	200	Sublette	10	287
New Holland	46	387	Piper City	39	663	*Rushville	41	2,442	*Sullivan	57	2,621
New Lenox	21	200	Pistakee	16	500	Russellville	80	257	Summerfield ..	75	337
Newman	58	1,261	Pittsburg	93	227	Rutland	18	754	Summit	16	200
New Memphis	76	243	*Pittsfield	51	2,206	S			Summum	36	200
New Milford	3	200	Pittwood	33	300	Sadorus	49	336	Sumner	80	1,413
New Minden	82	245	Plainfield	21	251	Sailor Springs ..	78	388	Swansea	75	889
New Philadelphia ..	35	300	Plainville	10	251	Saint Anne	32	1,065	*Sycamore	11	3,962
New Salem	51	260	Plano	19	1,627	Saint Charles ..	12	4,046	T		
*Newton	73	2,018	Pleasant Hill ..	51	576	Saint David	36	915	Table Grove	36	544
New Windsor	22	473	Pleasant Mound ..	70	200	Saint Elmo	71	1,227	Taft	28	400
Niantic	56	685	Pleasant Plains ..	54	625	Saint Francis ..	80	1,391	Tallula	45	742
Niles	14	569	Plumfield	89	200	Saint Jacob	69	534	Tamaroa	88	910
Niles Center	14	568	Plum River	1	200	Saint John	88	378	Tamm	100	410
Nilwood	63	401	Plymouth	34	829	Saint Joseph	49	681	Tampico	8	849
Noble	79	618	Pocahontas	70	749	Saint Libory	75	328	Taylor Springs ..	64	380
Nokomis	64	1,872	Polo	9	1,828	Saint Peter	71	313	*Taylorville ..	55	5,446
Nora	38	251	*Pontiac	31	6,090	Salem	77	2,669	Techny	14	325
Normal	38	4,024	Pontoosuc	34	285	Sandoval	77	563	Tennessee	35	274
Norris	36	560	Poplar Grove ..	15	642	Sandusky	100	1,500	Tessville	72	592
Norris City	91	1,055	Port Byron	74	200	Sandwich	11	2,577	Teutopolis	90	200
North Aurora	12	352	Porterville	89	3,194	San Jose	31	357	Thawville	33	318
North Chicago ..	6	3,306	Portland	18	3,500	Saunemin	7	3,691	Thayer	54	1,012
N. Chillicothe ..	27	911	Potomac	50	800	Sawyersville ..	63	415	Thebes	100	717
North Crystal ..			Pottstown	27	300	Saybrook	38	805	Thomas	17	200
Lake	5	689	Prairie City	35	719	Scales Mound ..	1	388	Thomasboro	49	321
N. Henderson	22	200	Rocher	87	511	Schram City	64	516	Thompsonville ..	89	573
North Utica	18	976	Preemption	22	250	Scottland	59	400	Thomson	7	487
Nunda	5	750	*Princeton	17	4,311	Scottville	63	301	Thornton	14	1,030
O			Princeville	27	785	Sears	15	236	Tice	18	497
Oakford	45	317	Prophetstown ..	8	1,083	Seaton	22	326	Ticona	18	774
Oakglen	14	200	Pulaski	101	592	Seatonville	30	1,370	Tilden	87	774
Oakland	66	1,159	Putnam	28	240	Secor	16	358	Tilton	50	710
Oaklawn	14	287	Q			Seneca	18	1,100	Timewell	42	219
Oak Park	14	19,444	*Quincy	40	36,589	Sesser	89	1,292	Tinley Park	14	304
Oakwood	50	423	R			Seymour	49	220	Tioga	34	300
Oblong	74	1,482	Radom	82	305	Shabbona	11	594	Tiskilwa	17	857
Oceola	65	293	Raleigh	94	238	Shannon	7	633	*Toledo	67	900
Odell	31	1,435	Ramsey	71	769	*Shawneetown ..	95	1,863	Tolono	49	760
Odin	77	1,400	Ransom	50	858	Sheffield	17	1,009	Toluca	29	403
O'Fallon	75	2,018	Rantoul	49	1,384	*Shelbyville	65	3,590	Tonika	21	510
Ogden	49	428	Rapatee	25	200	Sheldon	33	1,433	Torino	26	1,208
Oglesby	18	3,500				Sheridan	18	506	*Toulon	26	1,208
Ohio	17	527				Shermerville ..	14	440	Towanda	38	404
						Sherrard	22	906	Tower Hill	65	1,040

A Great State Rich in Manufacturing and Agriculture

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Tremont	37	782	Viola	22	760	West Brooklyn..	10	266	Wilmington ..	61	204
Trenton	76	1,694	Virde	63	4,001	West Chicago..	13	2,378	Wilmington ..	21	1,450
Trilla	66	260	*Virginia	43	1,501	West Dundee..	12	1,382	*Winchester ..	52	1,639
Troy	69	1,447	W			Western Spgs..	14	905	Windsor	65	987
Troy Grove..	18	289	Waggoner	64	273	Westfield	68	927	Windsor	22	660
*Tuscola	58	2,453	Waldron	32	261	West Frank- fort	89	2,111	Winnebago ..	3	415
U			Walnut	17	763	West Grossdale..	14	300	Winnetka	14	3,158
Ullin	101	670	Wann	69	525	West Ham- mond	14	4,948	Winslow	2	426
Union	68	450	Wapella	47	498	West Liberty..	73	214	Winthrop	6	439
Union	5	432	Warren	1	1,331	Weston	38	262	Witt	61	2,170
Union Hill..	32	250	Warrensburg..	56	504	West Point ..	31	292	Woburn	70	352
Unionville ..	102	300	Warsaw	31	2,251	West Salem..	85	725	Woodhull	16	692
Upper Alton ..	49	2,918	Washington ..	37	1,531	West Springf'd..	54	905	Woodland	33	295
*Urbana	49	8,245	Washburn	30	777	West Union ..	68	451	Woodlawn	83	315
Utica	18	1,500	Washington ..	31	352	Westville	50	2,607	Woodson	53	257
V			Wataga	25	444	West York	74	300	*Woodstock ..	5	4,341
Valley	51	800	*Waterloo	81	2,091	Wetaug	101	218	Worden	69	1,082
*Vandalia	71	2,974	Waterman	11	398	Wethersfield ..	11	1,593	Worth	14	203
Varna	29	403	Watertown	15	325	*Wheaton	13	3,423	Wrights	61	202
Venice	69	3,718	*Watseka	33	2,476	Wheeler	73	255	Wyandotte ..	17	872
Vergennes ..	92	342	Watson	72	332	Wheeling	14	261	Wyoming	26	1,506
Vermilion ..	59	238	Wauconda	6	368	Whiteash	93	353	X		
Vermilion ..	50	200	*Waukegan	6	16,069	White City	63	421	Xenia ..	78	634
Grove	36	1,118	Waverly	53	1,538	White Hall	61	2,850	Y		
Vermont	77	333	Wayne	13	620	White Heath..	48	201	Yates City ..	25	586
Vernon	77	333	Wayne City ..	84	800	Williamsfield ..	25	482	*Yorkville ..	19	431
Verona	29	300	Waynesville ..	47	546	Williamson	69	648	Z		
Versailles ..	42	557	Wedron	18	293	Williamsburg ..	54	602	Zeigler	89	503
Victoria	25	334	Weldon	47	521	Willisville	38	1,082	Zion City	6	4,789
*Vienna	97	1,124	Wellington ..	33	300	Willow Hill ..	73	444			
Villa Grove..	58	1,828	Wenona	29	1,442	Wilmette	14	4,943			
Villa Ridge..	101	500	West Batavia..	12	5,000						

ILLINOIS

OPPORTUNITIES IN AGRICULTURAL AND VARIED ENTERPRISES

The Immense Natural Resources of the State

In a study of comparisons between the different states, the land-seeker, for profitable investment, discovers he need not go beyond the boundaries of Illinois.

HUNDREDS OF YEARS

Although much of the state is undulating, excepting Louisiana and Delaware, this is the most level of any state in the Union. Not only is it level but a large share of its area is covered by prairie, where, for hundreds of years, vegetation has sprung into existence, ripened, fallen back, decayed and returned to enrich the earth, making a soil of dark rich vegetable mold, in many places on the river bottoms, twenty-five feet in thickness, a soil on which various crops can be grown successfully for many years without losing its strength.

CENTER OF FARMS

That the central location and fertility of this soil is fully understood is shown in the fact that so much agricultural development centers in this state. To illustrate: By a late United States Census the center of farms was near Fairfield, Wayne county, Ill. The center of value of farm property was ten miles north of Jacksonville, Morgan county, and the center of corn production was thirty miles directly south of Jacksonville.

By government agricultural report of 1906, the value of corn, which exceeded every other state, was \$124,931,051. The next largest was Iowa, \$119,448,000. The third largest was Texas, \$77,902,391.

AVERAGE CORN CROP

The average crop of corn in the United States is twenty-seven bushels to the acre, the average in the corn belt of Illinois is forty-five bushels to the acre. Dr. C. S. Hopkins, head of the department of agronomy at the University of Illinois, asserts that it is possible to increase this average not only to seventy-two, but to eighty bushels an acre. Many scientific farmers raise eighty bushels to the acre and even 110 bushels by increasing the nourishment in the soil which the corn plant requires for its development.

IMMENSE COAL AREA

Next to Pennsylvania, Illinois is the largest producer of coal. Her coal area covers 45,000 square miles. The Illinois coal output in 1906 was 37,183,374 tons.

COMFORTABLE WEATHER

Owing to absence of mountains, the state is exposed to winds which in winter blow chiefly from

the north and northwest, making the climate severe. During the rest of the year, the winds come from the south and southwest. The summers are exceedingly hot, south of Springfield, Sangamon county, but the prevailing breeze in warm weather cools the atmosphere to the point of comfort.

At Cairo, the extreme southern part of the state, the average temperature is 58½ degrees.

FIELD FOR FRUITS

The mild climate and abundant rainfall in the southern part of the state, combined with accessibility to several excellent markets, have caused this region to be selected by horticulturists as a natural field for the growing of strawberries, peaches, melons and other fruit which ripen considerably earlier than in northern regions of the state.

MANUFACTURING CENTER

Excepting New York and Pennsylvania, Illinois, young as is the state, excels all other states in manufacturing. There is a natural reason for this: First, the wonderfully fertile soil produces food most cheaply here. Second, the vast area here of coal-beds supply cheap fuel for the production of power. Third, the many streams furnish means for the development of electric power while the 4,000 miles of navigable rivers outside of Lake Michigan permit of cheap transportation to the markets of the country.

SHIP CANAL

Added to this there is coming probably deep water navigation from Lake Michigan to the Gulf of Mexico, and all parts of the world by way of the Chicago drainage canal, the Illinois and Mississippi Rivers and the Panama Canal.

FUTURE LAND VALUES.

Compared with other parts of the United States, the value of farm lands in Illinois, ranging in price from \$30 to \$150 per acre, may seem high, but the land-seeker will take several things into account.

NATURAL OPPORTUNITIES

Among them are ease of cultivating the soil, relief from expense of fertilizing, accessibility to markets by water navigation, and thousands of miles of railroad at present in Illinois, which bring nearly every farm in the state within ten miles of a railway line.

Illinois Opportunities in Agriculture and Varied Enterprises

INTENSIVE FARMING

The density of population here was, by late census, 100 persons to the square mile. There were 418 inhabitants to the square mile in Massachusetts and 508 in Rhode Island. Certainly the advantages offered for the acquisition of a living are as great here as in any eastern state, and it is plainly evident that this state will be as thickly settled. When that time comes, there will be three times more people here than now. Then large farms will be cut into small tracts, intensive farming will be general, as the forty-acre tract will yield as much profit as does the one hundred and sixty-acre farm today.

With increased density of population, there will be increased demand for land, and corresponding advance in price.

KEEP UP THE PRICE OF LAND

If at times there is more foodstuff than is tempo-

rarily required, there exists the certainty that the land will always give a support and can be depended upon to furnish a living. The article manufactured is liable to depreciation in various ways. It may be superseded by something better; it may get out of style; may be worn out; may be stolen or consumed by fire.

Not so with land. Unless destroyed by some convulsion of Nature, it is steadily right there, just so much and no less, ready to produce and steadily yield wealth in the future.

SAFE TO BUY LAND

Thus, in any locality, or state, where soil is fertile, the climate favorable, the educational facilities and markets accessible, all of which abundantly favor Illinois, it is entirely safe and wise to invest at the going prices in suburban and farm land.

ANNUAL WEALTH OF ILLINOIS

Soil Products, 1906	Value.
Corn, *36c	\$124,981,051
Oats, *34c	33,406,685
Hay, per ton, \$12.50.....	32,315,925
Wheat, *72c	26,589,771
Potatoes, *62c	9,059,369
Rye, *56c	612,364
Barley, *42c	318,755
Tobacco	61,705
Buckwheat	53,965

Live Stock, Jan. 1, 1907. Value.

Horses, †\$93	\$171,990,000
Common cattle	49,238,170
Milch cows, †\$35.....	40,652,500
Swine, †\$7.62	37,377,522
Mules, †\$112	16,668,630
Sheep, †\$5.20	4,041,293

Manufactures, 1906.	Value.
Including custom work and repairs.	\$1,410,342,129
Capital employed	975,844,799
Wages paid	208,405,468

Minerals, 1905.	Value.
Coal, †\$1.06	\$40,577,592
Pig iron (estimated).....	37,040,000
Clay products	12,361,786
Zinc	5,499,508
Stone	3,541,005
Illuminating gas	1,912,868
Portland cement.....	1,741,150
Sand and gravel.....	547,167
Gas coke	487,772
Lime	421,589
Floursparr	220,206
Glass sand	146,605
Clay	120,410

Minerals, 1905.	Value.
Petroleum	116,561
Natural cement	116,549
Coal tar.....	49,714
Mineral waters	47,995
Coke	27,681
Ammonium sulphate	22,556
Natural gas	7,223
Other products, including slag, cement and sand lime brick	59,230
Total, minerals	\$105,065,567

*Farm price per bushel in Illinois.
†Farm price per head in Illinois.
‡Price of coal per ton at the mines.

PRICES AND VALUES.

The reader should understand that prices of agricultural and mineral products vary with different years. The prices of 1906-7 are the average. Causes may make prices more or less in later years.

POULTRY, EGGS AND BUTTER

In the foregoing detail of the various sources of wealth in Illinois we have made no mention of the millions of dollars of revenue that annually come from poultry, eggs, butter, cream and milk. No figures are here given of the vast yield of garden vegetables, apples, melons and small fruits. No statistics have been given here of the thousands of conservatories that send their cut flowers hundreds of miles in all directions.

MUCH MORE TO BE SAID

In short, our omissions of the products of this fertile state easily run up into the many millions.

Agriculture: 42,000 square miles adapted to growth of grains; ranks high in production of oats, winter wheat in South and Southwest part of the state; central portion of the state for corn and sugar beets. Land-seekers get full information as to soils of the state at the State University, Urbana, Ill.

Area: Length, 385 miles; breadth, 218 miles.

Altitude: Highest elevation in Jo Daviess county, 1,150 feet; average of the state, 350 feet above sea level. Length of Mississippi River on west side, 700 miles. Coast line of Lake Michigan, on east side of Illinois, 60 miles.

CONDENSED FACTS RELATING TO ILLINOIS.

History 1680. First white settlement made by Sieur de La Salle, who built a small fort at the foot of Lake Peoria.

1809. Illinois Territory organized, comprising land now included in Illinois, Wisconsin, and part of Michigan.

1811. First schoolhouse in the state built at Shiloh, St. Clair County.

1818. State admitted to the Union. First general assembly met at Kaskaskia.* Seat of government removed to Vandalia.

1820. Census showed 55,162 inhabitants in the state.

1825. State law passed establishing common public schools.

1826. Stage route established between Springfield and Chicago. First steamboat on the Illinois River.

1832. Black hawk war and cholera epidemic.

1837. Pro-slavery sentiment at Alton resulted in mob riot and death of Elijah P. Lovejoy.

1844. Mormon riots and death of Joseph Smith.

1851. Illinois Central Railroad incorporated under laws of the state.

1858. Famous debate by Lincoln and Douglas.

Waterways. The Illinois River, length 350 miles, rises in Grundy County and empties into the Mississippi River at Grafton, Jersey County, 20 miles above Alton, and 40 miles above St. Louis.

DRAINAGE CANAL.

The main channel of the Chicago drainage canal is 28.05 miles long and 22 feet deep. Southward from its terminus, near Joliet, it is designed that the ship canal, connecting the Great Lakes and the Mississippi River, shall much of its length, follow the route of the Illinois River. (See route of this proposed canal on our map of Illinois.)

*Kaskaskia is a small village in southwestern part of Randolph County. See County 87.

STATE AND THE 92 COUNTIES OF INDIANA

With Their Boundaries

Location and Population
of

INDIANA COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Lake.	82,861
2.....	Porter.	20,540
3.....	La Porte.	45,797
4.....	St. Joseph.	84,312
5.....	Starke.	10,567
6.....	Marshall.	24,175
7.....	Elkhart.	49,008
8.....	La Grange.	15,148
9.....	Steuben.	14,274
10.....	Newton.	10,504
11.....	Jasper.	13,044
12.....	Pulaski.	13,312
13.....	Fulton.	16,879
14.....	Kosciusko.	27,936
15.....	Noble.	24,009
16.....	De Kalb.	25,054
17.....	Whitley.	16,892
18.....	Allen.	32,385
19.....	Benton.	12,688
20.....	White.	17,602
21.....	Carroll.	17,970
22.....	Cass.	36,368
23.....	Miami.	29,350
24.....	Wabash.	26,926
25.....	Huntington.	28,982
26.....	Wells.	22,418
27.....	Adams.	21,840
28.....	Warren.	10,899
29.....	Tiptecanoe.	40,063
30.....	Clinton.	26,674
31.....	Howard.	33,177
32.....	Tipton.	17,459
33.....	Grant.	51,426
34.....	Blackford.	15,820
35.....	Jay.	24,961
36.....	Fountain.	20,439
37.....	Montgomery.	29,296
38.....	Boone.	24,673
39.....	Hamilton.	27,026
40.....	Madison.	35,224
41.....	Delaware.	51,414
42.....	Randolph.	29,013
43.....	Vermilion.	18,865
44.....	Parke.	22,214
45.....	Putnam.	20,520
46.....	Hendricks.	20,840
47.....	Marion.	263,661
48.....	Hancock.	19,030
49.....	Henry.	29,958
50.....	Wayne.	43,757
51.....	Vigo.	87,930
52.....	Clay.	32,535
53.....	Owen.	14,053
54.....	Morgan.	21,182
55.....	Johnson.	20,394
56.....	Shelby.	26,802
57.....	Rush.	19,349
58.....	Fayette.	14,415
59.....	Union.	6,260
60.....	Sullivan.	32,439
61.....	Greene.	36,873
62.....	Monroe.	23,426
63.....	Brown.	7,975
64.....	Bartholomew.	24,813
65.....	Decatur.	17,893
66.....	Franklin.	15,385
67.....	Knox.	39,183
68.....	Davess.	27,747
69.....	Martin.	12,050
70.....	Lawrence.	30,625
71.....	Jackson.	24,727
72.....	Jennings.	14,203
73.....	Ripley.	19,452
74.....	Dearborn.	21,396
75.....	Ohio.	4,329
76.....	Gibson.	30,137
77.....	Pike.	19,684
78.....	Dubois.	19,843
79.....	Orange.	17,192
80.....	Washington.	17,445
81.....	Scott.	8,323
82.....	Jefferson.	20,483
83.....	Switzerland.	9,914
84.....	Posey.	21,670
85.....	Vanderburg.	77,438

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
86.....	Warrick.	21,911	89.....	Crawford.	12,057	92.....	Clark.	30,260
87.....	Spencer.	20,676	90.....	Harrison.	20,232			
88.....	Perry.	18,078	91.....	Floyd.	30,293	Total		2,700,876

INDIANA TOWNS WITH 1910 POPULATIONS

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A								
Acton	47.....	400	Altona	16.....	349	Arcola	18.....	375
Adams	65.....	400	Ambia	19.....	359	Argos	6.....	1,088
Advance	38.....	416	Amboy	23.....	521	Arlington	57.....	400
Akron	13.....	806	Amo	46.....	508	Arthur	77.....	409
Alamo	37.....	209	Amsterdam	90.....	280	Ashboro	52.....	206
Alaska	53.....	200	*Anderson	40.....	22,476	Ashersville	52.....	400
Albany	41.....	1,289	Andersonville	66.....	325	Ashley	9.....	639
*Albion	15.....	1,213	Andrews	25.....	957	Atherton	51.....	300
Alert	65.....	250	*Angola	9.....	2,613	Atlanta	39.....	876
Alexandria	40.....	5,006	Annapolis	44.....	240	Attica	36.....	3,335
Alfordsville	68.....	296	Altoga	78.....	250	Atwood	14.....	350
			Arcadia	39.....	990	*Auburn	16.....	3,919

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Indiana with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.			
Auburn Jct.	16	269	Chrisney	87	524	Eugene	43	450	Hemlock	31	306			
Augusta	77	250	Churubusco	17	870	*Evansville	85	69,647	Henryville	92	408			
Aurora	74	4,410	Cicero	39	990	Ewing	71	2,500	Herbst	33	250			
Austin	81	410	Clarksburg	65	450	F								
Avilla	15	579	Clarksbill	29	463	Fairfield	66	250	Hessville	1	480			
Avoca	70	560	Clarksville	39	2,743	Fairland	56	513	Hibbard	6	290			
Ayrshire	77	308	Clarksville	52	1,213	Fairmont	33	2,506	Highland	1	506			
B			Clay City	14	408	Fair Oaks	11	350	Hillsburg	30	306			
Bainbridge	45	449	Claysburg	92	380	Fairview Park	43	630	Hillsboro	36	528			
Batesville	73	2,151	Clayton	46	497	Farmersburg	60	1,115	Hillsdale	43	290			
Battle Ground	29	443	Clear Creek	25	220	Farmersburg	42	907	Hoagland	18	396			
Bean Blossom	63	227	Clearsprings	71	210	Farmington	78	827	Hobart	1	1,753			
*Bedford	70	8,716	Clermont	47	205	Fishersburg	40	290	Hobbsville	61	298			
Beach Grove	47	568	Clifford	64	210	Flat Rock	56	460	Hobbs	32	290			
Bellefonte	46	308	Clinton	43	6,229	Flora	21	1,386	Holland	78	380			
Bellmore	44	390	Cloverdale	45	624	Florence	83	250	Holton	73	275			
Benton	7	208	Coal Bluff	51	680	Florida	40	280	Hope	64	1,223			
Berne	27	1,316	Coal City	53	380	Floyds Knobs	91	227	Hortonville	39	290			
Bethaven	33	2,289	Coalcreek	36	250	Folsomville	86	410	Howe	8	820			
Bicknell	67	2,794	Coatesville	46	472	Fontanet	51	521	Howell	85	2,080			
Bippus	25	350	Cochran	74	950	Forest	30	380	Hovesville	52	360			
Birdseye	78	439	Coesse	17	250	Fort Branch	76	1,182	Hudson	9	390			
*Bloomfield	61	2,069	Colburn	29	302	Fort Gibson	29	1,174	Huntersburg	18	490			
Bloomington	44	528	Colfax	30	801	*Fort Wayne	18	63,933	Huntingburg	78	2,464			
*Bloomington	62	8,838	Collett	35	200	Fountain City	50	448	*Huntington	25	10,272			
Blountsville	49	260	Coloma	44	260	*Fowler	19	1,491	Hymera	60	1,515			
Blue Ridge	56	227	*Columbia City	17	3,448	Fowlerton	33	293	I					
*Bluffton	26	4,987	*Columbus	64	8,813	Francisville	12	729	Idaville	20	500			
Boggs	56	209	*Connorsville	58	7,738	Francisco	76	407	Independence	Station		28	500	
*Boonville	86	3,934	Converse	23	1,161	*Frankfort	30	8,634	Indiana Harbor	1	7,000			
Borden	92	425	Cortland	71	260	*Franklin	55	4,502	Indianapolis	(capital)		47	233,650	
Boswell	19	814	Corunna	16	318	Frankton	40	936	Indian Springs	69	250			
Bourbon	6	1,163	Cory	52	380	Fredericksburg	37	369	Ingalls	40	322			
Bowling Green	52	336	*Corydon	90	1,703	Fredericksburg	80	271	Inwood	6	300			
Bradford	90	260	*Covington	36	2,069	Freedom	53	306	Ireland	78	275			
*Brazil	52	9,340	Cowan	41	200	Freeland Park	19	280	J					
Bremen	6	2,008	Coxville	44	408	Freelandville	67	560	Jackson Hill	60	360			
Brian	35	469	Craigville	26	209	Freetown	71	306	Jamestown	38	690			
Bridgeport	47	406	*Crawfordsville	37	9,371	Fremont	9	694	Jasonville	61	3,295			
Bridgeton	44	250	Crisman	2	292	French Lick	79	1,803	*Jasper	78	2,196			
Brimfield	15	360	Cromwell	15	520	G						Jefferson	30	306
Brimhurst	21	400	Crothersville	71	1,038	Galveston	22	658	Jeffersonville	92	10,412			
Brighton	21	400	*Crown Point	1	2,526	Garrett	10	4,149	Jerome	31	209			
Bristol	7	535	Culver	6	810	Gary	1	16,802	Jolietville	39	350			
*Broad Ripple	47	770	Cumuck	68	396	Gas City	33	3,224	Jonesboro	33	1,573			
Bronson	42	309	Cumberland	47	360	Gaston	41	638	Jonesville	64	213			
Brook	10	1,067	Cynthia	84	610	Geneva	27	1,140	K					
Brookfield	56	308	D			Gentryville	87	383	Kempton	32	666			
Brooklyn	54	572	Dale	87	583	Georgetown	91	331	Kendallville	15	4,981			
Brookston	20	907	Daleville	41	624	Germantown	50	305	Kennard	49	449			
*Brookville	66	2,169	Dana	43	748	Glenwood	57	226	*Kentland	10	1,209			
*Brownsville	46	876	*Danville	42	1,640	Goldsmith	32	225	Kewanna	13	728			
*Brownstown	71	1,492	Darlington	29	780	Goodland	10	1,105	Keystone	26	242			
Bruceville	59	306	Dayton	29	690	*Goshen	7	8,514	Kimmel	15	390			
Bruce Lake	13	350	Decatur	27	4,471	Gosport	53	776	Kingman	36	535			
Bruceville	67	460	Decker	67	806	Grand View	87	735	Kingsbury	3	250			
Buck Creek	29	250	Delaware	73	220	Grantsburg	89	200	Kirklin	30	699			
Buddha	70	309	Delong	13	306	Grasscreek	13	260	Knightstown	49	2,008			
Bunker Hill	23	668	*Delphi	21	2,161	Grassell	1	280	Knightsville	52	1,081			
Burket	14	408	Demotte	11	250	*Greencastle	45	3,790	*Knox	5	1,644			
Burlington	21	890	Denver	23	990	Greendale	74	697	*Kokomo	31	17,010			
Burnettsville	20	489	Deputy	82	360	*Greenfield	48	4,448	Kouts	2	590			
Burney	65	205	Diamond	44	1,070	Greentown	31	1,166	Kramer	28	260			
Burns City	69	290	Dicksville	86	250	Greenville	91	227	Kurtz	71	360			
Butler	16	1,818	Dillsboro	74	280	Greensboro	49	250	L					
Butlerville	72	309	Dover	74	280	*Greensburg	65	5,420	Lacrosse	3	480			
C			Doverhill	69	389	Greens Fork	50	377	Lacy	69	296			
Cadiz	49	209	Dublin	50	704	Griffin	84	275	Ladoga	37	1,148			
Cadiz	49	209	Dugger	60	1,226	Griffith	1	523	La Fayette	29	20,081			
Cadiz City	50	2,237	Dundee	34	220	Gulford	71	250	La Fontaine	24	683			
Camden	21	557	Dundee	40	220	Guthrie	70	260	*Lagrange	8	1,772			
Cammack	41	220	Dunkirk	35	3,031	Gwynneville	56	290	Lagro	24	463			
Campbellsburg	80	666	Dyer	1	560	H						Lake Bruce	13	350
Canaan	82	226	E			Hagerstown	50	936	Laketon	24	528			
Cannelburg	68	306	Eagletown	39	309	Hail	54	209	Lakeville	4	227			
*Cannelton	88	2,130	Earl Park	19	609	Hamilton	9	880	Lancaster	25	209			
Canton	80	290	East Chicago	1	19,098	Hamlet	5	579	Landess	33	200			
Carbon	52	493	E. Connorsville	58	706	Hammond	1	20,925	Lanesville	90	290			
Cardonia	52	580	East Gary	1	484	Hanna	3	408	Laoto	15	350			
Carlisle	69	850	E. Germantown	50	302	Hanover	82	356	Lapaz	6	390			
Carmel	39	426	Eaton	41	1,428	Hardinsburg	80	254	Lapel	40	1,045			
Carrollton	48	409	Eckerty	89	204	Harlan	18	990	*Laporte	3	10,523			
Cartersburg	46	360	Economy	50	350	Harmony	52	1,020	Larwill	17	490			
Carthage	57	873	Edgerton	18	306	Harrodsburg	62	460	Land	17	250			
Catawba	44	280	Edinburg	55	2,040	Hartford City	34	6,187	Laurel	66	503			
Cayuga	43	911	Edwardsport	67	670	Hartwell Jct.	77	309	Lawrence	47	496			
Cedar Grove	66	389	Ehrmanndale	51	200	Hatfield	87	209	*Lawrenceburg	74	3,930			
Cedar Lake	1	402	Elberfeld	86	438	Haubstadt	76	560	Leavenworth	89	690			
Cementville	92	520	Elizabeth	90	238	Hayden	72	396	*Lebanon	38	5,474			
Center	31	360	Elizabethtown	64	350	Haysville	78	260	Lesters Ford	13	208			
Centerpoint	52	414	Elkhart	7	19,282	Hazleton	2	821	Lena	44	340			
Centerport	53	360	Ellettsville	62	788	Hebron	17	290	Leo	18	300			
Centerville	50	1,019	Elmora	68	908	Heltonville	70	690	Leopold	86	1,250			
Chalmers	20	513	Elwood	40	11,028	I						Lester	61	250
Charlestown	92	834	Eminence	54	238	Hemlock	31	306	Lewis	51	225			
Charlottesville	48	450	*English	89	649	Henryville	92	408	Lewisville	49	446			
Chesterfield	40	285	Etna Green	14	450	Herbst	33	250	J					
Chesterton	2	1,409	F			Hessville	1	480	Jackson Hill	60	360			
Chili	23	250	Fairfield	66	250	Hibbard	6	290	Jamestown	38	690			
China	82	250	Fairland	56	513	Highland	1	506	Jasonville	61	3,295			

Cities and Villages of Indiana with 1910 Populations

Towns

Loca.

Pop.

Lexington

81

325

*Liberty

59

1,138

Liberty Center

26

400

Liberty Mills

24

309

Ligonier

15

2,173

Lincoln

22

220

Linden

37

556

Linton

61

5,926

Littles

77

350

Liton

46

224

Lockspring

73

250

*Logansport

63

19,350

London

56

226

Loogootee

69

2,151

Loosantown

42

692

Lowell

1

1,335

Lucerne

22

230

Lynn

42

917

Lynnville

86

297

Lyons

61

993

Lyontown

60

390

M

McCordsville

48

382

Mackie

77

406

Macksville

51

3,083

Macy

33

290

*Madison

54

6,934

Mahalsville

51

256

Maize

72

303

Manchester

74

312

Manilla

57

403

Manfield

44

306

Manson

39

260

Marco

61

390

Marion

89

686

*Marietta

56

275

*Marion

32

19,353

Markle

40

250

Markleville

44

331

Marshall

28

390

*Martinsville

54

4,529

Martz

52

409

Matthews

33

688

McLeansport

90

279

Maxwell

48

460

Meays

57

390

Medary

44

1,260

Medaryville

12

10

Medora

71

809

Mellott

36

372

Memphis

92

299

Mentone

14

728

Menom

60

521

McMillville

1

296

Metamora

66

369

Metz

9

360

Mexico

23

200

Miami

23

300

Michigan City

3

10,927

Michigantown

30

395

Middlebury

7

690

Middletons

31

200

Middletown

49

1,174

Midland

61

560

Miler

33

390

Milan

73

554

Milford

14

814

Miller

1

638

Millersburg

7

128

Millersville

47

280

Millgrove

34

250

Millhouse

65

211

Milltown

89

586

Millville

49

208

Millroy

57

709

Milton

50

601

Mishawaka

4

11,886

Mitchell

70

3,438

Modoc

20

284

Monon

27

334

Monroe

27

334

Monroe City

67

630

Monroeville

18

910

Monrovia

54

460

Montery

12

260

Montezuma

44

1,537

Montgomery

68

511

*Monticello

30

2,168

Montmorenci

34

325

Montpelier

34

2,788

Mooreland

49

455

Moore Hill

74

124

Mooreville

51

1,608

Moral

56

208

Moran

30

290

Morgantown

54

667

Morocco

10

927

Morris

73

350

Towns

Loca.

Pop.

Morristown

56

622

Mount Ayr

10

231

Mount Summit

49

360

*Mount Vernon

84

5,563

Mount Zion

36

392

Mulberry

80

850

*Muncie

41

21,005

Munster

1

543

N

Napoleon

73

460

Napanee

7

2,260

*Nashville

63

354

National Mil-

tary Home

33

2,289

Needham

55

290

*New Albany

91

20,629

New Alsace

74

269

New Augusta

47

326

Newberry

61

455

Newbern

64

250

Newberry

61

590

Newburg

86

1,097

New Carlisle

612

*Newcastle

49

9,440

New Corydon

35

200

New Harmony

84

1,229

New Haven

18

1,038

New Marion

73

208

New Market

37

334

New Palestine

48

450

New Paris

7

409

New Pekin

80

246

New Point

65

341

*Newport

43

732

New Providence

92

350

New Richmond

37

464

New Ross

37

296

New Salem

57

290

Newtown

36

350

New

Washington

92

268

New Waverly

22

360

Nineveh

55

390

*Noblesville

55

5,073

Normal

33

1,222

Northgrove

23

400

North Judson

5

1,143

North Liberty

4

681

North Madison

82

960

N. Manchester

24

2,428

North Salem

46

560

North Vernon

72

2,915

North Webster

14

460

Notre Dame

47

400

O

Oakland City

76

2,370

Oaklandon

47

353

Oaktown

67

608

Oakville

41

209

Ober

5

260

Odon

68

1,064

Ogden

49

227

Ohio Falls

32

237

Oldenburg

66

956

Ontario

8

260

Onward

22

200

Oolitic

70

1,079

Ora

5

250

Orange

58

260

Orestes

40

420

Orland

9

506

Orleans

79

1,367

Oscoda

73

1,169

Osgood

73

1,169

Ossian

26

661

Otis

3

250

Otisco

92

218

Otterbein

19

672

Otwell

77

360

Owensburg

61

450

Owensville

76

1,237

Oxford

19

1,010

P

Packerton

14

309

Palmyra

90

252

*Paoli

79

1,278

Paragon

54

409

Paris Crossing

72

487

Parker

42

890

Patoka

11

369

Patricsburg

76

657

Patriot

73

460

Pendleton

40

293

Pennville

35

890

Perkinsville

40

380

Perrysville

43

650

Towns

Loca.

Pop.

Perth

52

562

*Peru

23

10,910

*Petersburg

77

2,170

Philadelphia

48

209

Pickard

30

306

Piercetown

14

817

Pineville

73

206

Pine Village

28

352

Pittsburg

46

460

Pittsburg

21

420

Plainfield

46

1,303

Plainville

68

569

Pleasant Lake

9

606

Pleasant Mills

27

250

Pleasantville

77

390

Pleasantville

60

225

*Point Isabel

6

3,838

Poneto

26

308

Porter

33

290

Port Fulten

92

1,060

*Portland

35

5,130

Poseyville

84

780

Prairieton

51

369

*Princeton

76

6,448

Putnamville

45

204

Q

Quincy

53

360

R

Raub

19

250

Ray

9

360

Raysville

49

353

Redkey

35

1,711

Reedville

48

490

Reedsburg

45

290

Reedsburg

11

882

*Rensselaer

20

377

Reynolds

87

380

*Richmond

50

22,324

Ridge View

23

410

Ridgeville

42

1,302

Ridgdon

33

203

Riley

51

530

*Rising Sun

75

1,513

Rivers Park

4

1,505

Roadside

45

863

Roann

24

417

Roanoke

25

699

Roby

1

315

*Rochester

13

3,361

Rockfield

21

390

Rockford

71

260

*Rockport

87

2,736

*Rockville

41

1,943

Rolling Prairie

3

402

Rome City

29

200

Romney

29

200

Rosedale

44

1,166

Roselawn

10

300

Rossville

30

677

Royal Center

22

909

Royerton

41

390

*Rushville

57

4,925

Russellville

45

413

Russiaville

31

298

S

Saint Joe

16

391

Saint John

1

260

Saint Leon

74

261

Saint Marys

51

209

Saint Meinrad

87

538

Saint Mermer

65

388

Saint Paul

65

1,225

Saint Peters

65

1,225

Salem

60

2,283

Salem Center

9

200

Saline City

52

350

Sanborn

67

445

Sanford

51

250

Sandusky

65

290

San Pierre

5

460

Saratoga

42

410

Schererville

1

250

Schnellville

78

220

Scipio

30

250

Seircleville

30

250

Scotland

61

290

*Scottsburg

81

1,669

Seclalia

30

460

Seelyville

51

1,188

Sellersburg

92

618

Selma

41

350

Selma

86

306

Servia

24

369

Seymour

Towns

Loca.

Pop.

Sharpsville

32

709

Shelburn

60

2,055

*Shelbyville

50

1,500

Sheridan

39

1,768

Shideler

41

209

Shipshewana

8

560

Shirley

48

1,519

Shirley City

18

375

Shoals

69

1,015

Sidney

14

406

Silver Grove

91

783

Silver Lake

14

493

Sims

33

250

Smithville

62

404

Solsberry

61

206

Somerset

24

306

*South Bend

4

53,684

South Milford

8

375

South Peru

20

866

Southport

47

352

South Whitley

17

1,176

Stancville

42

360

*Spencer

53

2,150

Spencerville

53

2,150

Spiceland

19

622

Springville

70

390

Star City

12

450

Staunton

52

746

Stendal

77

250

Stewartsville

84

390

Stillwell

46

490

Stillwell

3

309

Stockwell

29

506

Stonebluff

36

343

Straghn

39

443

Stroh

8

560

*Sullivan

60

4,115

Sulphur Springs

49

209

Summitville

40

1,387

Sumner

73

353

Swayze

33

836

Swainsboro

33

733

Switz City

61

662

Sycamore

31

309

Sylvania

44

229

Syracuse

14

1,379

T

Tangier

44

390

Taswell

89

260

Taylorsville

64

590

Teegarden

6

208

Tefft

11

206

Tell City

18

3,369

Templeton

30

308

Tennysen

80

374

*Tertra Haute

51

58,157

Thayer

10

200

Thorntown

38

1,508

Tippecanoe

6

480

*Tipton

32

4,075

Toleston

1

1,069

Topeka

8

502

Trafalgar

55

490

Troy

42

360

Troy

38

519

Tunnelton

70

235

Turner

52

390

Twelve Mile

22

260

Tyner

6

260

U

Uhee

25

260

Union

77

206

Union City

42

3,329

Union Mills

3

560

Upland

81

1,080

Upton

84

250

Urbana

24

308

Utica

92

400

V

Vallonia

71

550

*Valparaiso

2

6,987

Vandenburg

33

1,189

Veedersburg

36

1,757

Velpen

77

250

*Vernon

72

453

*Versailles

73

486

*Vevay

83

1,256

Vienna

81

206

*Vincennes

67

14,895

W

*Wabash

24

8,687

Wadesville

84

1,062

Wakarusa

7

859

Waldron

56

460

Walckerton

4

1,003

Cities and Villages of Indiana with 1910 Populations

<i>Towns</i>	<i>Loca.</i>	<i>Pop.</i>	<i>Towns</i>	<i>Loca.</i>	<i>Pop.</i>	<i>Towns</i>	<i>Loca.</i>	<i>Pop.</i>	<i>Towns</i>	<i>Loca.</i>	<i>Pop.</i>
Wanatah	3	860	West College			Wheatland	67	409	Wolcottville	8	62
Warren	25	1,189	Corner	59	432	Wheeler	2	350	Wollake	15	450
Warsaw	43	200	Westfield	39	700	Wheland	55	343	Woodburn	18	862
*Warrington	14	4,430	West Fork	89	209	Whites town	38	806	Woodruff	8	833
*Washington	68	7,851	West Harrison 71.	281		Whiting	4	6,37	Worthington	61	1,732
Waterloo	16	1,167	West Lafayette 29.	3,867		Wilkinson	48	569			
Waterman	44	206	West Lebanon 28.	612		Williams	70	350		Y	
Watson	92	250	West			Williamsburg	50	306			
Watson	52	309	Middleton	31	200	*Williamsport	28	1,243	Yeddo	36	209
Waveland	37	676	West Newton 47.	360		*Winamac	12	1,607	Yoder	18	260
Wawaka	15	409	Westpoint	29	309	*Winchester	42	4,266	Yorktown	41	1,100
Waynecong	23	210	Westport	65	675	Windfall	32	899	Young America 22.	560	
Waynetown	37	734	West Terra			Wingate	37	446			
Webster	50	300	Haute	51	3,083	Winona Lake 14.	1,066			Z	
Wellsboro	3	200	Westville	3	503	Winslow	77	932	Zanesville	26	306
West Baden	79	746	Wheatfield	11	357	Wolcott	20	873	Zionsville	38	846

INDIANA

CENTER OF POPULATION IN THE UNITED STATES AS FOLLOWS: 1890, NEAR COLUMBUS, IND.;
1900, SPARTANBURG, IND.; 1910, BLOOMINGTON, IND.

See Locations on Our Map

One of the very favorably located states in the United States is Indiana. In topography it is gently undulating over fully two-thirds of the state. The variation in elevation from Randolph county to Posey county, the extreme south-west part of the state, being only 900 feet in a distance of about 200 miles.

Indiana is essentially a prairie state, with a highly fertile soil produced, as in other prairie states, from the decay of vegetation upon its level surface for many generations.

GREAT DEPTH OF RICH SOIL

This strength of fertility is many feet in depth, the soil growing certain crops many years in succession without the necessity for the use of any fertilizing material.

THE RIVER VALLEYS.

The principal river valleys of the state are exceedingly fertile. The Wabash valley covers 12,000 square miles, the White River valley comprises 9,000 square miles, while the Maumee valley, in the northeastern part of the state, includes an area of 2,000 square miles.

The State is abundantly watered with rivers and small streams. The Ohio borders the south of the State for a distance, with its windings, of over 140 miles. The Wabash rises in Ohio, flows through the State for a distance of more than 500 miles and empties into the Ohio. It has been navigated for a distance of 300 miles from its mouth. The Kan-kankee, one of the constituents of the Illinois, flows a distance of 100 miles through the northwestern portion of the State.

The limestone region in the southern part of the State contains many caves; the Wyandotte Cave in Crawford County being almost as remarkable as the Mammoth Cave in Kentucky.

Bituminous Coal, in three varieties, is found in the State in great abundance. The coal area covers over 6,000 square miles in the southwestern part of the State, extending from Warren County, on the north, to the Ohio River, on the south, a distance of 150 miles. The total depth of the measures is from 600 to 800 feet, the seams ranging from one to eleven feet in thickness.

The celebrated "Indiana block" coal, used for making pig iron, is found in the southern portion of the coal area. It is taken out of the mines in blocks weighing a ton or more. In Davies County there is a seam of superior cannel coal.

The area occupied by building stone quarries is estimated to cover 200 square miles, adjoining the coal fields. The stone in the beautiful Indiana capitol building and other important edifices are from the quarries of this state. Among other minerals is lithographic stone, and sand suitable for the manufacture of plate glass.

Salt springs exist in the eastern border of the coal formation. **Petroleum** is an important product of the State and **natural gas** is used here in heating, lighting and manufacturing, besides being very considerably **exported into Illinois** through pipes laid for that purpose.

The absence of mountain ranges permit free access with iron wire post and the compass, with the consequent that the weather is often severe in the winter, yet destructive winds and very deep snows are rare. The average winter temperature is 31 degrees and in spring 51 degrees; summer, 76 degrees; autumn, 55 degrees. For the year, 52 degrees. The amount of rainfall is 43.32.

The purchase of land at present prices, by the land-seeker, must result in large profit, from the fact that, compared with other States, Indiana can support a population **four times** as great as there are at present within her boundaries.

THE CAPITAL OF THE STATE.

Indianapolis is located on a nearly level site 722 feet above tide water, in a region of unsurpassed agricultural and mineral resources, on the edge of the natural gas belt, discovered in 1885, and but a few hours from extensive forests, great areas of coal fields, and rich veins of iron ore. Centrally located as this city is, in one of the great central states, it is natural that it should be a great railroad center, which is demonstrated by the incoming and outgoing of over 200 trains a day from the colossal Union Depot in the city.

Nine parks adorn the city, nine iron bridges cross the river and many miles of electric roads are in and about the town. The city has over 130 churches, over 40 school buildings and over 60 paved streets.

There are many reasons why Indiana is a rich State and destined to maintain a dense population. Among these is the fact that its central location makes it a natural highway with easy output for all its agricultural and manufactured products. Its highly fertile soil produces in abundance wheat, corn, rye, oats, barley, buckwheat, peas, beans, potatoes, grass, clover seed, fruit, flaxseed, flax, hemp, hay, tobacco, wool, hops, beef, bacon, pork, lard, butter, cheese, milk, maple sugar, maple molasses, sorghum molasses, honey, wax, wine, cider and vinegar.

It is an ideal region for corn, but any agriculturist who will pursue diversity of farming, of which the state is capable, is sure of a crop of some kind every year.

Indiana is fortunate in the possession of a large amount of natural resources. Besides rich soil, unlimited quantities of coal, building stone, oil and gas, about **one-third of the State** is covered with forests, chiefly hardwood, including white, black, and burr oak, hickory, sugar and red maple, ash, beech, sycamore, elm, tulip, black walnut, tamarack, sumac, redbud, dogwood, persimmon and wild plum.

NUMEROUS OPPORTUNITIES.

In the great variety of opportunities in agriculture, horticulture, manufacture, commerce and merchandising, the land seeker who chooses Indiana as an abiding place may be considered fortunate.

CONDENSED IMPORTANT FACTS.

Altitude. Highest point is at Carlos, in Randolph County, 1,023 feet above sea level.

Climate. Temperature at Indianapolis extremes. Highest, 106 degrees; lowest, 25 degrees below. General temperature mentioned elsewhere.

Dimensions. Extreme length, 265 miles; extreme width, 160 miles; area, 36,350 square miles.

History—The first immigrants from Canada settled at Vincennes in 1702. Corydon and other places. Indiana was a territory in 1800. Vincennes being the capital. The defeat of Tecumseh, Indian chief of the Shawnee, by General Harrison at Tippecanoe in Indian battle in 1811, originated the saying, when Harrison and Tyler were candidates for the presidency and vice-presidency: "Tippecanoe and Tyler, too." Corydon is a small town of 304 people, in Marshall County.

STATE AND THE 99 COUNTIES OF IOWA

With Their Boundaries

LOCATION AND POPULATION OF IOWA COUNTIES

Location and Population
of
IOWA COUNTIES

Loca- tion	COUNTIES	Pop. 1910
1.....	Lyon.....	14,624
2.....	Oscola.....	8,956
3.....	Dickinson.....	8,137
4.....	Emmet.....	9,816
5.....	Kossuth.....	21,971
6.....	Winnebago.....	11,914
7.....	Worth.....	9,950
8.....	Mitchell.....	13,435
9.....	Howard.....	12,920
10.....	Winnesheik.....	21,729
11.....	Allamakee.....	17,328
12.....	Sioux.....	25,248
13.....	O'Brien.....	17,262
14.....	Clay.....	12,766
15.....	Palo Alto.....	13,845
16.....	Hancock.....	12,731
17.....	Cerro Gordo.....	25,011

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
18.....	Floyd.....	17,119	46.....	Greene.....	16,023	74.....	Keokuk.....	21,160
19.....	Chickasaw.....	15,375	47.....	Boone.....	27,626	75.....	Washington.....	19,925
20.....	Fayette.....	27,919	48.....	Story.....	24,083	76.....	Muscatine.....	25,505
21.....	Clayton.....	25,576	49.....	Marshall.....	30,279	77.....	Scott.....	60,000
22.....	Plymouth.....	23,129	50.....	Tama.....	22,156	78.....	Mills.....	15,811
23.....	Cherokee.....	16,741	51.....	Benton.....	23,156	79.....	Montgomery.....	16,604
24.....	Bueno Vista.....	15,981	52.....	Linn.....	60,720	80.....	Adams.....	10,998
25.....	Pocahontas.....	14,808	53.....	Jones.....	19,050	81.....	Union.....	16,616
26.....	Humboldt.....	12,182	54.....	Jackson.....	21,258	82.....	Clarke.....	10,736
27.....	Wright.....	17,951	55.....	Harrison.....	23,162	83.....	Lucas.....	13,462
28.....	Franklin.....	14,780	56.....	Shelby.....	16,552	84.....	Monroe.....	25,429
29.....	Butler.....	17,119	57.....	Audubon.....	12,671	85.....	Wapello.....	37,743
30.....	Bremer.....	15,843	58.....	Guthrie.....	17,374	86.....	Jefferson.....	15,956
31.....	Woodbury.....	67,616	59.....	Dallas.....	23,628	87.....	Henry.....	18,640
32.....	Ida.....	11,296	60.....	Polk.....	110,438	88.....	Louisa.....	12,855
33.....	Sac.....	16,555	61.....	Jasper.....	27,034	89.....	Des Moines.....	36,145
34.....	Calhoun.....	17,090	62.....	Poweshiek.....	19,589	90.....	Fremont.....	15,623
35.....	Webster.....	34,629	63.....	Iowa.....	18,409	91.....	Page.....	24,002
36.....	Hamilton.....	19,242	64.....	Johnson.....	25,914	92.....	Taylor.....	13,845
37.....	Hardin.....	20,921	65.....	Cedar.....	17,765	93.....	Ringgold.....	12,904
38.....	Grundy.....	13,574	66.....	Clinton.....	45,394	94.....	Decatur.....	16,347
39.....	Blackhawk.....	44,861	67.....	Pottawattomie.....	55,832	95.....	Wayne.....	16,181
40.....	Buchanan.....	19,748	68.....	Cass.....	19,057	96.....	Appanoose.....	28,701
41.....	Delaware.....	17,888	69.....	Adair.....	14,420	97.....	Davis.....	13,315
42.....	Dubuque.....	57,450	70.....	Madison.....	15,621	98.....	Van Buren.....	15,020
43.....	Monona.....	16,633	71.....	Warren.....	18,194	99.....	Lee.....	36,702
44.....	Crawford.....	20,041	72.....	Marion.....	22,995			
45.....	Carroll.....	20,117	73.....	Mahaska.....	29,860			
							Total.....	2,224,771

Iowa Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
	A		Adair.....	69.....	906	Agency.....	85.....	322	Albert City.....	24.....	261
Abingdon.....	86.....	209	*Adel.....	59.....	1,289	Ainsworth.....	75.....	408	*Albia.....	84.....	4,969
Ackley.....	37.....	1,244	Afton.....	81.....	1,014	Akron.....	22.....	1,130	Albion.....	49.....	457

Iowa Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Alburnett	52	250	Calmar	10	849	*Dennison	41	3,133	Fremont	73	501
Alden	37	699	Calumet	13	532	Denmark	39	480	French Creek	11	616
Alexander	28	262	Camanche	68	629	Denver	33	224	Fruitland	76	789
*Algona	5	2,908	Cambridge	48	696	Derby	33	224	G		
Allerton	95	862	Cantril	98	445	Des Moines	33	86,368	Galesburg	61	280
*Allison	29	495	Carbon	80	246	De Soto	37	356	Galt	27	250
Alta	24	959	Carlisle	71	592	Dewitt	66	1,631	Galva	32	357
Alta Vista	19	356	*Carroll	45	3,546	Dexter	59	767	Garden Grove	94	611
Alton	12	1,046	Carson	67	640	Diagonal	93	509	Garnaville	21	342
Altoona	60	438	Cascade	42	1,263	Dickens Lake	11	255	*Garner	16	1,028
Alvard	1	283	Cassey	58	629	Dike	38	229	Garrison	57	438
Amana	63	621	Castalia	10	230	Dixon	77	408	Garwin	50	425
*Ames	4	1,223	Castana	43	364	Donnellson	99	337	George	51	606
*Anamosa	58	2,983	Cedar	73	1,164	Doon	1	581	Georgetown	84	606
Andrew	54	307	Cedar Falls	39	5,012	Douds Leando	98	1,060	Germania	5	43
Angus	47	248	Cedar Rapids	52	32,811	Douglas	20	300	Gilbert Station	48	250
Anio	68	1,248	Center Point	96	802	Dow City	44	462	Gilbertsville	39	280
Ankeny	60	445	*Centerville	92	6,936	Dows	27	892	Gilman	49	430
Anthony	31	635	Central City	52	558	Drakesville	97	249	Gilmore City	25	689
Aplington	29	440	*Chapin	28	250	*Dubuque	42	38,494	Givin	73	400
Arcadia	45	398	*Chariton	83	3,794	Dumont	29	550	Gladbrook	50	869
Archer	13	351	*Charles City	18	5,892	Duncombe	35	418	Glidden	45	850
Arlington	20	678	Charleston	99	935	Dundee	41	200	Goldfield	27	618
Armstrong	4	586	Charlotte	66	356	Dunkerton	39	276	Goddell	16	240
Arnold	26	251	Charter Oak	44	734	Dunlap	55	1,155	Gowrie	35	829
Arnold's Park	3	273	Chelsea	50	507	Dunreath	72	250	Gracettinger	15	556
Arthur	32	215	*Cherokee	23	4,884	Durant	65	720	Grand Jct.	46	1,012
Ashton	2	518	Chester	9	266	Dyersville	42	1,511	Grandmound	66	428
Aspinwall	44	200	Chester Center	62	300	Dysart	50	906	Grand River	94	333
Atalissa	76	220	Church	46	667				Grandview	88	374
Atkins	68	209	Cincinnati	96	1,355				Granger	59	225
*Atlantic	68	4,560	Clare	35	299				Grant	79	250
Auburn	31	929	Clarence	65	662	Eagle Center	39	693	Granville	12	406
*Audubon	57	1,928	*Clarinda	97	3,832	Eagle Grove	27	3,387	Gravely	92	475
Aurelia	23	625	*Clarion	27	2,065	Earlham	70	749	Greely	41	383
Aurora	40	287	Clarkdale	96	200	Earling	56	323	*Greene	21	1,379
Avery	84	560	Clarksville	29	957	Early	41	552	Grimes	60	733
Avoca	67	1,520	Clay	75	639	Earlyville	33	500	Grinnell	62	5,036
Ayrshire	15	337	Clearfield	92	625	East Peru	70	371	*Grundy Ctr	38	1,354
			Clear Lake	17	2,014	Eddyville	85	1,085	Guthrie Ctr	58	1,337
			Clemons	49	213	Eden	20	214	Guttenberg	21	1,873
			Clermont	20	510	Edenville	49	448			
			*Clinton	66	25,577	Edgewood	21	535			
			Coalfield	84	406	Elberon	88	336			

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Iowa Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
J											
Jamaica	58	579	Malvern	78	1,154	Okoboji	3	504	Rutland	26	212
Jamestown	77	298	*Manchester	41	2,758	Olin	53	659	Ryan	41	511
Janesville	30	269	Manilla	41	875	Ollie	74	289	S		
*Jefferson	46	2,477	Manly	7	346	*Onaway	43	2,026	Sabula	54	918
Jerome	96	575	Manning	45	1,434	*Oran	53	214	*Sac City	33	2,201
Jesup	40	697	Manson	34	1,236	*Orange City	12	1,374	Saint Ansgar	8	547
Jewell	36	941	Mapleton	13	1,100	Orient	69	373	Saint Charles	70	399
Joice	7	289	*Maqueta	54	3,570	Ossage	8	245	Salem	87	501
Jolley	34	250	Marathon	24	532	*Osceola	82	3,416	Salix	31	390
K											
Kalo	35	350	Marble Rock	18	480	*Oskaloosa	73	9,456	Sanborn	13	1,174
Kalona	75	466	Marcus	23	896	Ossian	10	749	Sandsping	41	200
Kamrar	36	262	Marango	63	1,786	Otho	35	904	Sargents Bluff	31	416
Kanawha	16	398	*Marion	52	4,400	Otley	72	309	Schaller	33	646
Kellerton	93	503	Marne	68	266	Oto	31	208	Schleswig	44	455
Kelley	48	231	Marshalltown	49	13,374	Ottumwa	54	689	Scotch Grove	53	705
Kellogg	7	609	Martinsburg	74	285	Oxford	64	614	Searsboro	62	226
Kensett	7	860	Marysville	72	319	Oxford Jct.	53	822	Seigel	30	200
Kenwood Park	52	376	*Mason City	17	11,230	P			Selma	98	200
*Keokuk	99	14,008	Masonville	41	282	Pacific Jct.	78	501	Sergeant Bluff	31	525
*Keosauqua	98	1,009	Massena	68	490	Packwood	86	261	Sewal	95	208
Kiota	74	988	Maurice	12	290	Palo	52	208	Seymour	95	2,290
Kiowa	74	321	Maxwell	48	754	Panama	56	232	Shambaugh	91	245
Keystone	51	412	Maynard	20	382	Panora	58	1,080	Shannon City	81	292
Kimballton	57	271	McChesville	65	817	Parkersburg	29	938	Shenandoah	91	4,976
Kingsley	32	977	Medapolis	89	858	Parnell	63	369	*Sibley	2	1,330
Kirkville	44	207	McBourne	49	423	Paton	46	358	*Sidney	90	1,019
Kiron	14	306	Menlo	58	382	Paulina	13	706	*Sigourney	74	2,032
Klemme	16	306	Meriden	23	246	Pella	72	3,021	Silver City	78	438
Knierim	34	220	Merrill	22	526	Perry	59	4,630	Silverlake	7	608
*Knoxville	72	3,190	Meyer	8	387	Persia	55	358	Sioux Center	12	1,068
Kossuth	89	250	Miles	51	334	Peterson	14	480	*Sioux City	31	47,824
L											
Ladona	71	517	Milford	3	575	Pierson	31	416	Sioux Rapids	24	868
Ladysdale	97	250	Millersburg	63	258	Pilot Mound	47	347	Slater	48	473
Ladora	63	260	Milo	71	519	Pisalia	55	212	Sloan	31	547
Lake City	34	2,043	Milton	98	913	Plainfield	50	312	Smithland	31	331
Lake Mills	6	1,214	Minburn	29	388	Plainview	30	288	Solon	61	450
Lake View	33	514	Minden	67	423	Pleasant Grove	77	208	South Amana	63	248
Lamoni	94	1,541	Mingoa	61	246	Pleasant Hill	94	200	Southern English	74	338
Lamont	40	571	Missouri Vally	55	3,187	Pleasant Valley	77	767	*Spencer	14	3,005
Lamotte	54	288	Mitchell	8	231	Pleasantville	72	691	Spillville	3	1,162
Lancaster	74	262	Modale	55	387	Plymouth	17	358	*Spirit Lake	3	217
Lanesboro	45	268	Moingona	47	250	*Pocahontas	25	987	Springbrook	51	217
Lansing	11	1,542	Monmouth	55	420	Polk	60	310	Springdale	31	208
Laporte City	39	1,233	Monona	54	221	Pomeroy	34	815	Springville	52	588
Larchwood	1	434	Monroe	61	800	Portjoy	28	200	Stacyville	8	407
Latimer	28	378	*Montezuma	62	1,172	Postville	56	347	Stanhope	36	281
Laurens	25	817	Monticello	53	2,043	Prairie City	61	952	Stanley	40	280
Lawler	19	601	Montour	50	383	Prescott	80	426	Stanton	79	633
Le Claire	77	690	Montpelier	76	576	Preston	54	612	Stanwood	65	511
Le Grand	5	232	Montrose	99	708	*Pringhar	13	733	State Center	49	898
Lehigh	35	928	Moorehead	43	366	Princeton	77	375	Steamboat Rock	37	308
Leighton	35	200	Moran	59	682	Promise City	95	274	Sterling	54	300
*Le Mars	22	4,157	Morning Sun	88	897	Pulaski	97	382	Stockport	98	265
Lenox	92	1,274	Moscow	76	275	Q			Stone City	53	606
*Leon	94	1,991	Moulton	76	275	Quarry	49	224	*Storm Lake	21	2,428
Lester	1	244	Mount Auburn	51	1,233	Quasqueton	40	394	Story City	48	1,387
Lotts	88	433	Mount Pleasant	93	1,646	Quimby	23	208	Stratford	36	554
Lewis	68	603	Mount Sterling	98	232	R			Strawberry Pt.	21	1,052
Liberty	82	825	Mount Vernon	52	1,532	Radcliffe	37	660	Struble	22	327
Libertyville	86	1,017	Moville	31	552	Randall	36	209	Sully	58	1,826
Lime Spring	9	498	Murray	82	796	Randolph	90	304	Summitville	99	280
Linden	35	315	*Muscatine	76	16,178	Rathbun	96	382	Sumner	30	1,404
Lineville	95	600	Mystic	96	2,663	Readlyn	30	227	Sutherland	13	664
Linnburg	35	309	N			Reasnor	61	259	Swaledale	17	235
Linn Grove	24	590	Nashua	19	1,102	Redding	93	269	Swan	72	292
Lisbon	52	846	Neola	67	926	Redfield	59	659	Swea City	5	402
Liscomb	49	351	*Neovada	48	2,138	*Red Oak	79	4,830	Sweetland	76	1,134
Little Rock	1	471	New Albion	41	588	Reinbeck	38	1,205	T		
Little Sioux	55	390	Newhall	51	225	Remsen	22	1,076	Tabor	90	909
Lockman	26	578	*New Hampton	19	2,275	Renwick	26	372	Tama	50	2,290
*Logan	55	1,453	New Hartford	29	482	Rhodes	49	500	Templeton	45	278
Lohrville	64	674	New London	87	1,441	Riceville	8	844	Terril	3	253
Lone Tree	64	782	New Market	92	673	Richland	74	613	Thompson	6	566
Long Grove	77	225	New Paltz	37	246	Richmond	42	209	Thor	26	271
Lorimer	81	645	New Sharon	73	1,122	Ridgeway	10	354	Thornburg	74	233
Lost Nation	66	523	*Newtown	61	4,616	Ringsted	46	407	Thurman	90	336
Loxville	84	552	New Virginia	71	396	Ripley	75	652	Tipton	93	380
Lowden	65	584	Nichols	76	369	Riverside	90	583	*Titonka	65	2,018
Low Moor	66	253	Nidayville	18	866	Rochester	65	689	*Toledo	50	1,625
Lucas	83	666	Nodaway	80	323	Rockford	18	916	Tracy	72	208
Luverne	5	501	Nora Springs	18	985	*Rock Rapids	1	2,005	Traer	50	1,373
Lynnville	61	376	North English	63	848	Rock Valley	12	1,198	Trenton	87	1,124
Lyons	66	5,799	No. McGregor	21	588	Rockwell	17	709	Tripoli	30	755
Lytton	33	269	*Northwood	7	1,264	*Rockwell City	34	1,528	Truro	70	310
M											
McCallsburg	48	309	Norwalk	71	315	Roland	25	644	U		
McGregor	21	1,259	Norway	51	479	Rolfe	25	954	Underwood	67	271
McIntire	4	187	Numa	96	659	Rose Hill	73	269	Union	37	540
Macedonia	67	337	O			Rose	27	256			
Madrid	47	1,191	Oakland	67	1,105	Rowley	40	200			
Magnolia	55	225	Oakville	88	389	Royal	14	300			
Malcolm	62	377	Ocheyedan	2	595	Rudd	18	296			
Mallard	15	331	Odebolt	33	1,283	Runnells	60	428			
			Odessa	20	6,028	Russell	83	612			
			Oelwein	20	6,028	Ruthven	15	655			
			Ogden	17	1,298						

Iowa Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Unionville	96	306	Walcott	77	416	West Bend	15	679	Wilton Jct.	76	1,157
University Pk.	73	500	Walker	52	517	West Branch	65	643	Winfield	87	934
Urbana	51	323	Wall Lake	33	561	W. Burlington	89	1,206	*Winthrop	70	2,818
Ute	43	490	Walnut	67	950	West Chester	75	232	Winthrop	40	529
V			*Wapello	88	1,326	West College	52	200	Wiolta	68	239
Vail	44	631	*Washington	95	1,380	Westgate	20	232	Woodburn	55	1,538
Valley Jct.	60	2,513	Washta	23	410	West Grove	87	857	Woodburn	82	420
Van Horn	51	441	*Waterloo	39	26,693	West Liberty	76	1,666	Woodland	94	886
Van Meter	59	386	Waubeek	52	222	West Point	99	570	Woodward	59	712
Van Wert	94	461	Waucoma	20	433	Westside	44	367	Woolstock	27	261
Vernon	98	275	*Wauke	59	340	*West Union	20	1,652	Worthington	42	314
Victor	63	610	*Waukon	11	2,075	What Cheer	74	1,720	Wyoming	53	721
Villisca	69	2,039	*Waverly	30	3,205	Wheatland	66	539	Y		
Vincent	35	215	Wayland	87	550	White City	73	506	Yale	58	273
*Vinton	51	3,336	*Webster City	36	5,208	White Sulphur	77	250	Yorktown	91	228
Viola	52	225	Weldon	91	308	Whiting	43	576	Z		
Volgo	21	416	Wellman	75	721	Whitmore	5	518	Zearing	48	461
W			Wellsburg	38	288	Whitten	27	219			
Wadena	20	253	Wescott	99	157	Williams	36	457			
			West	63	225	Williamsburg	63	1,060			

IOWA

A State Which Transports an Agricultural Exhibit All Over the State Along With Professors to Teach Scientific Farming.

As an agricultural state Iowa stands at the very head. This is almost purely a prairie state; the richness of its soil permitting the growth of most abundant crops. It is also equally distinguished for development in live stock interests.

20,000 SQUARE MILES OF COAL BEDS.

But it is not alone in live stock and the production of grain in which Iowa excels. The bituminous coal fields of Illinois extends into Iowa, covering an area of 20,000 square miles; the veins of coal varying in thickness from 2½ feet to 500 feet. The lead mine tract is in a belt occupied by Galena limestone, which touches the Mississippi at Dubuque, and lies along the Turkey river valley in a northwest direction.

The southern part of the state is well wooded along the rivers. In the northern portion trees are comparatively scarce, though groves of pine and cedar are found in some places. Of fruit trees the apple, pear and cherry grow in perfection. The wild plum, grape and gooseberry are indigenous.

The climate here is well adapted to agricultural operations. Owing to there being nothing to obstruct the winds there are cold in winter, but the winds of summer temper the heat. The average annual temperature is 48, spring 47½, summer 70½, autumn 45, winter 23½; annual rainfall 44.27 inches.

While it is always wise to carefully investigate conditions of land before purchase, the land seeker can scarcely go amiss in buying land in Iowa. The soil is generally good, sometimes warm and sandy in river bottoms, though there is but little inferior land. The rich, dark vegetable mold in the valleys of the Des Moines, Iowa and Red Cedar is from 1 to 3 feet thick, is free from pebbles, and is very easy to cultivate. The lowlands are generally marshy.

It is difficult to tell what cannot be grown here. The soil is adapted to the growth of every agricultural production which can be grown in this latitude. For the cultivation of the grains it is unsurpassed, potatoes grow in great perfection, and the soil and climate are favorable for flax and tobacco. Corn is largely grown in the southern part and in the valley regions. Wheat is adapted to the Cedar river district.

The blue grass country is in the southwestern part of the state. Here are found superior breeding farms for horses and other fine stock. From this region is exported large quantities of dairy products and fruit. The beautiful undulating meadows, the clear streams and pleasant hamlets, which abound in this region, emphasize the full pleasures of farm life.

A SUPERIOR AGRICULTURAL SCHOOL.

Another fact adding immensely to the prosperity of farmers in this state is the Iowa Agricultural College, located at Ames, in Story county. In accord with an act of Congress this school was organized in 1869 by an endowment of 204,309 acres.

Every department of this school is very complete and tuition free to residents of Iowa. Among other interesting features in its museums, are collections of botany, geology, entomology and natural history. Its courses of study, which are strictly practical, enable the graduate, in civil, electrical and mining engineering, to survey the routes for

railways across the state, to instal electrical plants beside the rivers, and to test the mineral possibilities and conditions in Iowa. From the school of veterinary science the students go forth to properly care for the live stock in the state. From the dairy department the pupils go out to make success in the production of butter and cheese, for which the state is already famous.

WHAT SCIENTIFIC FARMING HAS DONE.

In the department of agriculture, it is claimed, that one of the professors, through the fitting up of a seed testing appliance, termed "Germination Box," has added \$15,000,000 annually to the wealth of Iowa in the increased production of corn. This box is filled with moistened sawdust, and before planting time kernels are selected from such ears of corn as it is desired to reproduce in the fields. If the seed thus chosen readily germinates the fact is evident that this is a good and reliable seed corn, that every kernel will bring forth a stalk of corn, and every stalk will bear large ears. Thus there is no uncertainty among the young farmers of Iowa as to the quality of seed which they plant, and, weather conditions being right, there is absolute assurance as to production of crop.

The professors of the Agricultural College in Iowa do not stop with simply giving instruction to those who seek their school. They know that thousands of the old style farmers look with suspicion upon "book farming," and unless this prejudice is overcome the state will constantly be a loser in consequence of this ignorance.

Realizing that these old farmers will not come to the school, a commodious car is fitted up to illustrate Iowa possibilities in agriculture, and this car tours the state—an agricultural exposition on wheels. It is accompanied by lecturers who demonstrate and explain, the result being that the farmers of Iowa are getting the science of agriculture down to the finest possible point. It is no wonder that farming in this state, with its knowledge of fertilization, the constituents of soil, the secrets of germination, and the processes of cultivation, should be greatly superior, in pleasure and profit, to the farming of a past generation.

CONDENSED IMPORTANT FACTS.

Altitude. The elevations run from 1,694 feet, at Spirit Lake, in Dickinson county, to 300 feet in the Mississippi river bluffs.

Climate. Temperature average annual Des Moines, January 17; July 75. Extreme heat, 109; extreme cold 30 below. Average annual rainfall 33.1 inches.

History. Was originally a part of the Louisiana purchase in 1803, and was then inhabited by the Sac and Fox Indians. The first white settlement was made in 1788 by Julien Dubuque, a Frenchman from Canada, who obtained a grant of a large tract of land including the city now bearing his name, and the rich mineral lands surrounding it. He built a fort, carried on the mining of lead, and traded with the Indians until his death in 1810. Wisconsin territory in 1836. In 1838 the territory of Iowa was organized and seat of government fixed at Burlington. In 1839 the capitol was removed to Iowa City.

Location of U. S. Government Irrigation Projects.

PRINCIPAL IRRIGATION PROJECTS
IN THE WESTERN UNITED STATES.

IF THE LAND SEEKER HAS NO MONEY.

The question may arise as to what a man can do at any of these projects without money. The answer is plain. Go to work for somebody who has money and wants help.

Very full details are published in the Government relating to opportunities for new comers and settlers on any one of the projects we here describe, the location of which is shown on our map. Write for the bulletins.

Meaning of Irrigation Terms. Acre feet of water, means water sufficient to cover the land one foot in depth. Second feet, means flow of one cubic foot of water per second. Duty of water, means depth of water sufficient to supply the land one year. Units of land, means size of plats of land to be sold.

There is immediate and steady demand for

skilled and unskilled labor at all the irrigated projects. To illustrate: From the bulletin relating to the Wyoming-Shoshone project we clip the following:

There is a steady demand for skilled labor at from \$3.00 to \$5.00 a day and for unskilled labor at from \$2.00 to \$3.00 a day. The wages paid are as follows:

Carpenters.....	\$3.00 to \$4.00
Masons	5.00
Bricklayers	5.00
Blacksmiths	4.00
Painters	3.00
Farm hands, by the day (with board).....	2.00
Farm hands, by the month (with board).....	40.00
Teamsters	2.50 to 3.00
Common labor.....	2.25 to 2.50

How and Where Shall I Get a Farm?

WHAT WILL IT COST TO HAVE CONDITIONS ON WHICH I CAN BUY AND BE ABSOLUTELY SURE OF SUCCESS

WITH weather so uncertain and climatic conditions so unreliable, where can I locate, have no fear of drouth, plant, cultivate, and get full reward for my money?

With the many millions of dollars being expended by the Government in irrigating arid, barren, waste land it is a pleasure to give the accompanying map, showing the principal irrigated regions in the Western United States, while we reproduce from Government literature much important information which land-seekers want to know.

The argument in behalf of settlement on irrigated land is well told in a bulletin issued by the Government on

The Benefits of Irrigated Land

How many times as the season advances does the farmer in Illinois or Missouri or middle western states go to town to be greeted with the question by the tradespeople: "Well, Jones, how's crops?" And how many times does the reply come: "Fine, if we can only have rain!" Irrigation means that Jones has rain when his crop needs it without damage to his neighbor Smith whose crop does not need it. It being the case that in any large section of country where diversified farming is carried on there are different crops which for their perfect maturing require water in different quantities and at different stages, a heavy rainfall at any time, while benefiting some crops must of necessity damage others, with the result that the country at large never reaches its highest possibility of production. It is only in an irrigated country that the crop which requires much water can get it at the times and in the quantities which may be needed without damage to the crop in the next field which needs less.

No Longer Playing Game of Chance.

This fact means much to the farmer. It places within his hands all the elements necessary to successful cultivation of the soil. He is no longer playing a game of chance with nature in which the dice are loaded, but a working partner with her to the end that the earth may yield its fullness. With the ability to select his land and his seed, regulate water with perfect adaptation to the requirement of his crops, with equable apportionment of labor, equipment and cultivation, and an intelligent rotation of crops, the chance of failure to the farmer on irrigated lands is reduced to its lowest degree. It is here alone that

the farmer has an equal chance with men in other trades and professions, here alone may he invest his money and his time with the full assurance that he will have a fair show to reap adequate returns from the same, and that like the merchant or the mechanic, his success is largely dependent on himself.

Only Wants a Fair Chance.

That, given an equal chance, the farmer is no whit behind those of any other trade or profession, and that farming ranks among the most lucrative forms of investment and activity, is amply evidenced by a review of conditions in those sections where irrigated lands have reached a high state of development and where sufficient time has elapsed for a practical solution of its problems.

Great Advance in Nation's Progress.

Great movements in each century mark the progress of humanity, and irrigation is one of the epoch-making events of the twentieth century. A nation's real wealth is in its land, in those things which come out and off of the land. All other values are fluctuating, uncertain and contingent. Irrigation is the Midas touch which in a few years has transformed an uninhabitable desert into a blooming garden and made its sands yield greater riches than the sands of the gold-bearing placers of California or the Klondike, for the latter in time are exhausted, but the irrigated desert yields its harvest perennially. Irrigation has made millionaires of men who a few years ago were "land poor;" it has added materially to the wealth of the nation, and has made homes for thousands.

Liberal Treatment of New Settlers by the Government.

With the increase in population and the increasing demand for the supplies of life, no greater boon can befall us as a people than an increase in the available area of our farming lands, and it is through irrigation that the largest increase of this kind may be expected.

Abolish Landed Aristocracy.

One of the dominating traits of the American people is their home-making instinct. It was this rather than the lure of gold or the love of adventure which induced our forefathers to take their lives in their hands and brave starvation and death in a thousand horrible forms in order to make homes for themselves on the newly discovered continent. In the Old World the land, that basis of wealth and insignia of caste, was in the hands of a few. The value attached to it is demonstrated by the laws of entailment by which it is insured for all time to come into the possession of a few favored houses, thus constituting the landed aristocracy and perpetuating it forever. For the man who was not to his inheritance born, the ownership of land was practically an impossibility; but here was a great new and unoccupied continent offering an opportunity whereby they might acquire a coveted bit of the earth's surface. The cost of failure was death, but they deemed it worth the risk.

Our country is still being overrun today with the peasantry of Europe and the lure which brings them is the same as it was four hundred years ago. Here is a chance to make money and money will buy land. He knows no prestige nor rank which is not identified with ownership of the soil, consequently the thing most desired is land.

One of Our Greatest Dangers.

One of the greatest menaces to our country is the discontent and unrest bred among these foreigners herded in the congested quarters of great cities. The sure remedy is land. Give the man a chance to earn a home, to identify himself with the soil, to actually appropriate to himself a small portion of this country where he must live, and you have done more to make him a peaceful, law-abiding, patriotic citizen than all the preaching and legislating which can possibly be brought to bear.

Acquirement of Homes Easy.

From the very inception of our nation this home making instinct of humanity has been taken into account. It was recognized by the legislators in rewarding the services of her soldiers by liberal grants of land. From that day to this it has been the policy of our government to make the acquirement of homes easy. It has been recognized in the enactment of all those statutes making easy the acquirement of public domain. Areas greater in extent than many of the original states have been donated for the purpose of making habitable the unutilized lands of the people. At one time the property of the nation embraced 1,800,000,000 acres; today it has been reduced to less than 500,000,000 acres. Out of this public domain twenty vigorous commonwealths have arisen and an agricultural empire come into being that is today the marvel of the world.

It is with a view to still further enlargement of this agricultural empire that the United States Reclamation Service was called into being, and for the promotion of this purpose all of its regulations have been established.

EXPLANATION OF RECLAMATION ACT.

On June 17, 1902, the Reclamation Act was made a law by the signature of President Roosevelt. The substance of this act is that all moneys received from the sale and disposal of public lands in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming, beginning with the fiscal year ended June 30, 1901, including the surplus of fees and commissions in excess of allowances to registers and receivers, and excepting 5 per cent of these amounts which is set aside for educational and other purposes, be set aside and appropriated as a special fund in the treasury to be known as the "reclamation

fund," to be used in the examination and survey for, and the construction and maintenance of, irrigation works for the storage, diversion and development of waters for the reclamation of arid and semi-arid lands in the said states and territories.

The public lands so reclaimed are subject to homestead entry, and there is absolutely no charge for the land itself; but the settler must pay to the United States, in not more than ten annual installments—without interest—his proportion, according to the number of acres he owns, of the amount expended by the United States in reclaiming his land.

LIBERALITY OF THE GOVERNMENT.

To make it an inducement for settlers to seek reclaimed land the government supplies the land, constructs the irrigation works, divides the land into small farm units comprising 10, 20, 40, 80 and 160 acres, makes no charge for the land and gives the irrigation improvements to the settler for just what they have cost, payments for the improvements to be made in ten years, including ten annual payments without interest.

The great advance in the work of reclaiming

waste land is shown in our map of over 30 great irrigation projects, the lands thus reclaimed including hundreds of thousands of acres, every one of which will be, or is already, occupied by intelligent agriculturists.

Detailed information as to areas open to settlers may be obtained by addressing the Statistician of the Reclamation Service, Washington, D. C., or the Information Bureau, Reclamation Service, 802 Federal Building, Chicago, Ill.

Where Government Land Offices Are Located.

GOVERNMENT IRRIGATION PROJECTS. HOMESTEAD ENTRY FOR PUBLIC LAND.

May Be Made at Any One of the Following Land Offices:

State.	Project.	Land Office.
Arizona.....	Salt River.....	Phoenix.
Arizona.....	Yuma	Phoenix.
California.....	Yuma	Los Angeles.
California.....	Orland	Sacramento.
California.....	Klamath	Redding and Susanville.
Colorado	Uncompahgre.....	Montrose.
Idaho	Minidoka	Hailey.
Idaho	Boise	Boise.
Kansas	Garden City.....	Dodge City.
Montana	Huntley	Billings.
Montana	L. Yellowstone	Miles City.
Montana	St. Mary	Great Falls.
Montana	Sun River	Great Falls.
Nebraska	North Platte	Alliance.
Nevada	Truckee-Carson	Carson City.
New Mexico	Carlsbad	Roswell.
New Mexico	Hondo.....	Roswell.
New Mexico	Leasburg	Las Cruces.
New Mexico	Rio Grande	Las Cruces.
North Dakota	Buford-Trenton	Williston.
North Dakota	L. Yellowstone	Williston.
North Dakota	Williston	Williston.
Oregon	Klamath	Lake View.
Oregon	Umatilla	La Grande.
South Dakota	Belle Fourche	Rapid City.
Utah	Strawberry Valley	Salt Lake City.
Washington	Okanogan	Waterville.
Washington	Sunnyside	North Yakima.
Washington	Tieton.....	North Yakima.
Wyoming	North Platte	Cheyenne.
Wyoming	Shoshone	Lander.

Publication approved July 28, 1910. FRANK PIERCE, Acting Secretary.

ARIZONA SALT RIVER PROJECT.

Reservoir Area, 25 Square Miles. Irrigates 190,000 Acres.

This project involves the construction of a storage dam at Roosevelt, Arizona, a reservoir with an area of 25.5 square miles, and a capacity of 1,284,000 acre-feet, or enough water to cover 1,284,000 acres one foot in depth. The Roosevelt dam is of rubble masonry 280 feet high, 235 feet long on the bottom and 1,080 feet long on top. Its purpose is to regulate the flow of Salt River. When needed for irrigation the water is allowed to flow down the river from the dam for forty miles, where it is diverted by means of the Granite Reef dam into two canals, one on each side of the river. These canals carry water to about 190,000 acres of land in the vicinity of Phoenix and Mesa. The diversion dam is a rubble concrete weir 38 feet high and 1,100 feet long. The irrigation system includes about 469 miles of canal.

Sends Electric Power Ninety Miles.

A power canal 18½ miles long, having a capacity of 200 second-feet, has been constructed and used to develop 4,400 horsepower which is utilized by all the accessory plants incidental to the work of construction. On this line are tunnels aggregating a total length of 9,780 feet. A powerhouse and a transformer house have been constructed immediately below the dam and the power developed is transmitted electrically about 90 miles down the valley, where it will be used partly to pump water from underground sources to extend the irrigable area to about 50,000 acres

of high lands in the Gila Indian Reservation and in Salt River Valley, and for drainage purposes. A large amount will be available for other purposes. A cement mill erected and operated by the Government furnished the cement used in the construction work, the dam alone requiring about 280,000 barrels.

Evaporation of Water Four Feet a Year.

The lands under this project surround Phoenix, the capital of the state, and are situated in Maricopa County, in Townships 7 North to 2 S., Ranges 2 W. to 14 E. The general elevation is 1,000 to 1,300 feet above sea level; temperature, maximum, 120 degrees; minimum, 20 degrees; mean, 70 degrees; rainfall, 3 to 10 inches. The watershed area is 6,260 square miles, with an additional 6,000 square miles on Verde River. The average annual rainfall on watershed is from 10 to 20 inches, and the estimated annual run-off of watershed is 800,000 acre-feet at Roosevelt dam and 500,000 acre-feet from the Verde. The duty of water is four acre-feet per annum. That is, four feet depth of water is required on this land each year.

A Wide Variety of Crops.

The valley is traversed by the Santa Fe and Southern Pacific Railroads, which connect it with the towns of the State, the Pacific coast cities and the eastern fruit markets. The soil is an

Description of Irrigated Lands in Arizona and California.

alluvial deposit of great fertility and adapted to the cultivation of a wide variety of crops, including those of the temperate and semi-tropical zones. The public lands in the project have all been filed on, but there are many large holdings of private lands which must be subdivided and sold to actual settlers, as no water right can be sold for more than 160 acres under the Reclamation Act.

Roosevelt Dam.

The Roosevelt dam is now completed, and the remainder of the project will probably be completed by the end of the year 1912. Water is now being furnished to about 131,000 acres of land and this area will likely be increased by several thousand acres during the coming season. During the current year the beet sugar industry has been proven a success in this valley, netting the growers handsome returns even under adverse conditions. Forage and grain crops, fruits and vegetables of all kinds produce well and command high prices in the local markets. Electric

power is now furnished to the valley from the Roosevelt power plant.

Items of Historical Interest.

The most interesting historical fact concerning this valley is that it shows prehistoric settlement—not only by the cliff dwellings which are found in the mountain fastnesses, but in the many signs of prehistoric dwelling and irrigation in the valley. Casa Grande, the ruins of a “great house,” is one of the most interesting of all ruins to the ethnologist. It is not known how old is this house of four stories. The wall surrounding it is 400 feet long, a rectangle, and inside of it were many rooms. The Franciscan friars who accompanied Coronado on his exploring expedition through this country in 1540 reported these ruins as existing then. The once irrigated fields of the mysterious people who lived here spread away for miles and many definite evidences of a complete prehistoric irrigating system have been discovered, some of the present canals following exactly the prehistoric grades.

ARIZONA-CALIFORNIA YUMA PROJECT.

A First-Class Land for Oranges and Semi-Tropical Fruits—Clear Skies.

This project involves the diversion of the waters of Colorado River by means of Laguna dam, a structure of the India-weir type, about 10 miles north of Yuma, Ariz., into two canals, one on each side of the river. This dam was completed in March, 1909. It is about 19 feet high, 4,780 feet long, and 260 feet wide up and down stream. By a unique arrangement at the head-gates of the canals the waters of this muddy stream are drawn off comparatively clear. The distribution system consists of 157 miles of canals. A complete system of levees with a length of 73½ miles has been constructed to protect the bottom lands from overflow, and a pumping system will be utilized to remove the surplus waters from the low lying areas.

Indian Reservation.

On the Indian Reservation 173 farm units were opened to entry on March 1, 1910, and many of the entrymen are already clearing and leveling their farms. The cost of the water right is \$55, payable in not more than ten annual installments, with an annual charge of \$1 for operation and maintenance. There is also a charge of \$10 for the price of the Indian lands, payable in not more than ten annual installments.

Frostless Lane.

The bottom lands comprise 17,000 acres in the Yuma Indian Reservation in California, 20,000

acres in the Gila River Valley, in Arizona, and 53,000 acres in Colorado River Valley, in Arizona. When the system is extended to include the mesa, or table lands, south of Yuma and east of the bottom lands in Arizona, about 40,000 acres of practically frostless land will be available for the cultivation of oranges, lemons, grapefruit, limes, olives, vegetables, etc.

These lands are not subject to entry. The cost of water right has not been fixed but will be announced before the lands are opened.

The soil is rich alluvial deposit and produces enormous crops when water is applied. Alfalfa, grains, vegetables, sugar beets, nuts, melons, fruits, cotton, cane, corn, etc., are grown.

Railroad Facilities.

The Southern Pacific Railroad, which crosses the project at Yuma, furnishes transportation facilities to Arizona towns, and the Pacific coast and eastern markets. The watershed area is 200,000 square miles, and the estimated annual run-off is 11,000,000 acre-feet. The lands lie at an elevation of 100 to 300 feet above sea level, and the temperature ranges from 22 to 118 degrees above zero. The nights are cool and on account of the dryness of the atmosphere the sensible temperature is much lower than the thermometer indicates.

CALIFORNIA ORLAND PROJECT.

A Land for the Almond, English Walnut, Citrus and Deciduous Fruits.

This project contemplates the reclamation of 14,000 acres of land lying about 90 miles north of Sacramento in Glenn and Tehama counties. The

towns within the territory to be irrigated are Orland, Greenwood and Malton, on the Southern Pacific Railroad. The lands, which are prac-

Description of Irrigated Lands in Colorado for Sale.

tically all in private ownership, are exceedingly fertile, and for many years have been cultivated and utilized for wheat growing. The soil is a gravelly loam, and with irrigation and the prevailing climatic conditions it has been demonstrated that the land is excellent for the production of alfalfa, nuts, including the almond and English walnut, and both citrus and deciduous fruits. The general elevation is from 175 to 380 feet above sea level; the temperature, maximum, 120 degrees; minimum, 26 degrees; average annual rainfall on the irrigable lands, 17 inches. The duty of water is 3 to 3½ acre-feet per annum. The watershed area is 790 square miles. The average annual rainfall on the watershed is 25 inches, and the estimated annual run-off on watershed 541,000 acre-feet.

The engineering features of the project consist of a storage reservoir controlled by the East

Park dam, on Stony Creek, at a point about 40 miles above Orland, and a diversion dam situated at Miller Buttes for diverting water into two canals, one on each side of the creek, covering lands in the vicinity of Orland. The storage dam is of concrete masonry, gravity section, 139 feet high from bed rock, 40 feet long on the bottom and 250 feet long on top. The diversion dam is of sheet piling capped with concrete, 900 feet long. The canal system includes 25 miles of main canal and 80 miles of laterals. The farmers are pledged to dispose of their holdings in excess of 160 acres to bona fide settlers under the terms of the Reclamation Act.

In the spring of 1911 the greater part or the whole of this project will be opened. No water has been supplied during 1910 other than a small quantity of flood water.

COLORADO GRAND VALLEY PROJECT.

The Apple and Peach Orchards and Cantaloupes Worth \$1,000 per Acre.

This project is planned to irrigate about 53,000 acres of land in Mesa County, Colorado. The work involves the construction of a diversion dam in Grand River, about 60 miles of main canal, and a series of short tunnels on the first few miles of canal having an aggregate length of about 20,000 feet. It is probable that considerable power will be developed at drops in the canal, and used to pump water to elevations above the main canal.

15 Below to 100 Above.

The average elevation of the irrigable area is 4,700 feet above sea level; the temperature ranges from 15 degrees below to 100 degrees above zero, and the rainfall on the irrigable area is from 6 to 11 inches annually. The watershed area is 8,550 square miles.

About 70 per cent of the land is in private ownership or has been entered under the home-

stead law, and the remainder will be thrown open to entry upon completion of the works. The soil is red mesa sand, black bottom sandy loam, and adobe. The duty of water is one second foot of water at the farm per 100 acres of land. The apple and peach orchards of the Grand Valley bottom lands are almost world famous, the crops frequently selling for more than a thousand dollars per acre per annum. Strawberries and cantaloupes are usually grown between the rows while the orchards are growing, also potatoes and other vegetables. Alfalfa and sugar beets are grown in other sections of the project. The Denver & Rio Grande and Colorado Midland Railroads connect the project with the markets of the Mississippi Valley and the Atlantic and Pacific coasts. There are railroad stations at Palisade, Clifton, Grand Junction, Fruita, Loma, and Mack.

COLORADO UNCOMPAHGRE VALLEY PROJECT.

330 Miles of Canals, Irrigating 140,000 Acres—15,000 Open to Entry.

This project provides for the diversion of waters of Gunnison River by means of a tunnel 30,583 feet in length, cross section 10½ by 11½ feet, cement lined, with a capacity of 1,300 second feet. The tunnel passes through a range of mountains and carries the water to Uncompahgre Valley, where it will be used to supplement the local supply and extend the irrigable area to about 140,000 acres of land. Work on the tunnel was commenced in 1904 and it is now ready to carry water. There are 330 miles of canals in the distributing system.

20 Below, 98 Above.

The lands to be irrigated lie in Montrose and Delta counties, Township 15 S., Ranges 94 to 96 W., 6th P. M., and Townships 48 to 51 North,

Ranges 7 to 12 W. N. M. M. The general elevation is 5,000 to 6,400 feet above sea level and the temperature ranges from 20 degrees below to 98 degrees above zero. The watershed area is 3,850 square miles, and the estimated run-off of watershed is 1,500,000 acre-feet. The rainfall on the irrigable area is from 6 to 12 inches, and the rainfall on the watershed ranges from 7 to 20 inches.

The lands for which water is now available are all in private ownership, but upon the completion of the works about 15,000 acres will be opened to entry. The farm unit varies from 40 to 89 acres, and the duty of water is 4 acre-feet per annum at the farm. About 60,000 acres are suitable for raising first-class apples and peaches. Orchard lands produce as high as \$500 per acre

Irrigated Lands and Conditions of Sale in Idaho.

net in the valley. The bottom lands, comprising from 80,000 to 90,000 acres, are adapted to the growing of alfalfa and sugar beets. Farmers make as high as \$80 per acre net from the latter crop, and from \$100 to \$200 per acre from pota-

atoes. The Denver and Rio Grande Railroad traverses the tract, with stations at Montrose, Olathe and Delta. The principal markets are Denver and the local mining camps, although the apples are shipped also to eastern markets.

IDAHO MINIDOKA PROJECT.

507 Miles of Canals — Supplies Electric Power to Adjoining Towns.

The irrigable area under the Minidoka project consists of about 81,000 acres under the gravity system and 50,000 acres under the pumping system (127,650 acres were public, 20,886 State, and 3,147 acres private land). The lands lie on both sides of Snake River, in Lincoln and Cassia counties.

Electrical Power Developed.

The engineering work includes a diversion, power and storage dam on Snake River, at a point about 6 miles south of Minidoka, Idaho; and two canal systems, one on each side of the river, heading at the diversion dam and covering lands in the vicinity of Acequia, Rupert, Heyburn, and Burley. Power is developed at the diversion dam for generating electrical energy for pumping water to lands on the south side of the river too high to be reached by a gravity system. The diversion and power dam, three units of the power plant, and the distributing canals for the gravity system are finished, and the power and pumping plants and canals for the pumping system are about completed. The diversion dam has a height of 86 feet and a length of 650 feet and is of the earth and rock type. The distribution systems include 507 miles of canals. The power and transmission lines will have a length of from 13 to 20 miles. Contracts have been awarded to supply power to the towns on the project.

Thousand Acres to Apples.

The soil is sandy loam and volcanic ash, free from alkali, and exceedingly fertile. The sandy soil is particularly adapted to the raising of alfalfa, potatoes, beet and other root crops, as well as melons, strawberries, etc. It is also especially adapted to the cultivation of sugar beets. The ashy formation is better adapted to grain,

orchards, etc. Noting the success of farmers on the nearest cultivated land the settlers under the Minidoka project planted more than a thousand acres to apples in 1908. It is believed that all fruits of a hardy variety will produce abundantly in this section.

Ample Water; Delightful Climate.

The general elevation is 4,200 feet above sea level, and the climate delightful. There is an ample water supply. The watershed area is 17,900 square miles, and the estimated annual run-off is 8,000,000 acre-feet. The average annual rainfall on the irrigable area is 14 inches.

Low Cost Water Right.

The cost of water right is \$30 per acre, payable in ten annual installments, and the operation and maintenance charge for 1910 was 75 cents per acre for the gravity system. The building, operation and maintenance charges for the high areas to which water must be pumped have not been fixed.

Good Openings for Business.

The farm unit is 40 acres within a radius of 1½ miles from the center of each of the Government townsites, and 80 acres on other lands. There are some State lands which will be sold by the State Land Board at Boise, Idaho, to whom inquiries should be addressed. Lots in the Government towns may be purchased at reasonable prices upon application to the Register of the Land Office at Hailey, Idaho. There are good openings in these towns for professional men, merchants, manufacturers and laborers. The irrigable lands have all been filed on, but farms may be purchased at reasonable prices from present settlers.

IDAHO BOISE PROJECT.

Reclaims 243,000 Acres — Eight Tons of Alfalfa in Three Cuttings.

The south side unit of original Payette-Boise Project, now known as the Boise Project, when fully developed, will reclaim approximately 243,000 acres and will supplement the supply for about 79,000 acres of land in the fertile valleys of the Boise and Snake Rivers, in southwestern Idaho, which are tributary to the Oregon Short Line, the Boise, Nampa, and Owyhee, and the Idaho Northern Railroads. The lands are located in Ada and Canyon counties, Townships 1 to 4 North, Ranges 1 to 5 West and 1 to 2 South, B. M. The general elevation is 2,500 feet above

sea level, and the temperature ranges from 28 degrees below to 107 degrees above zero. The thermometer rarely reaches zero, however, and freedom from wind marks the winter months. The summers are long, sunny, and warm, and with irrigation promote the most rapid vegetable growth. The average rainfall is 12.7 inches. The soil is of volcanic origin, free from rocks, easily worked and rich in the necessary mineral constituents. With rotation of crops and the addition of vegetable mold, it becomes richer and very productive.

Irrigated Lands in Kansas and Montana.

Subdividing Their Holdings.

Practically all of the lands under this project have been filed upon, but some of the settlers are subdividing their holdings and offering relinquishments at prices varying with location and improvements. The farm unit has been fixed at 80 acres.

Farms in a good state of cultivation produce three to eight tons of alfalfa per acre in three cuttings, two to five tons of clover, 50 bushels of wheat and 75 bushels of oats. After the last cutting the meadows furnish pasturage. Both clover and alfalfa seed yield splendid crops. Apples, prunes, and small fruits produce well and are shipped in quantities to eastern markets. Idaho fruits command high prices. Creameries are in operation in nearly every town. Sugar

beet culture is also profitable. Two trolley lines have been extended from the principal towns to cover portions of the valley.

Watershed 2,610 Square Miles.

The engineering works involved the construction of storage reservoirs on the headwaters of the Boise River. A diversion dam has been completed on Boise River, eight miles above Boise, diverting water into an inlet and distributing canal irrigating lands under it and supplying Deer Flat reservoir in the vicinity of Nampa, which has a capacity of 186,000 acre-feet. The watershed area of the Boise River is 2,610 square miles; the average annual rainfall on watershed is 25 inches and the estimated annual run-off of watershed is 1,800,000 acre-feet. The average rainfall on the irrigable area is 12.7 inches.

KANSAS GARDEN CITY PROJECT.

This Plant Consists of Twenty-three Pumping Stations, Electrically Driven.

This project consists of a pumping system for the recovery of underground waters which are delivered into a conduit leading to an old distributing canal known as "The Farmer's Ditch." The plant consists of twenty-three pumping stations, each driven electrically from a central power station. There are 10,677 acres of irrigable land in the project, lying in the vicinity of Garden City, on the north side of Arkansas River, Townships 23 to 24 S., Ranges 32 to 34 W., Sixth Principal Meridian, Finney County.

The lands are all in private ownership, but there are some excess holdings for sale. The soil is a rich, prairie loam capable of the highest

cultivation and well adapted to the raising of grain, sugar beets, cantaloupes, alfalfa, and other crops of the plains region. The average elevation of the area under this project is 2,925 feet above sea level, and the temperature ranges from 20 degrees below to 105 degrees above zero. The Atchison, Topeka & Santa Fe Railway furnishes transportation for the products to the local markets and to Chicago and Kansas City. The water right charge is \$37.50 per acre of irrigable land, and the farmers are also required to pay an annual maintenance and operation fee which at present amounts to \$2.75 per acre.

MONTANA BLACKFEET PROJECT.

Five Proposed Canal Systems Reclaim 132,000 Acres.

This project, which is being built for the Indian Service, involves the immediate reclamation of 50,000 acres of land in the Blackfeet Indian Reservation, Teton County, Montana, and the ultimate reclamation of 132,000 acres total under five proposed canal systems. The first construction involves the diversion of water from the left bank of Two Medicine River immediately below the confluence of Little Badger Creek, and its conduction to lands in the east-central portion of the Reservation. The lands lie at an elevation of approximately 3,850 feet and range in temperature from 40 degrees below zero to 100 degrees F. The soil is rich sandy loam, producing abundantly with sufficient moisture, the average rainfall being about 16 inches, but varying materially. Some hay and grain and excellent pasturage are produced without irrigation.

The land can be irrigated with little leveling or preparatory work, and excellent crops of grain, alfalfa, potatoes and other vegetables can be produced. The lands to be irrigated by the first system now being constructed lie east of the town of Cut Bank and adjacent to the Great Northern Railway which furnishes transportation facilities. Other stations on the Great Northern Railway from which the lands can be reached are Opal, Seville, Bombay, Blackfeet and Browning. The main canal and a portion of the distribution system of the Two Medicine Unit will probably be completed in time for irrigation season 1911. No entry can be made until formal notice has been given by the Secretary of the Interior, at which time the cost per acre for water right, the size of farm unit and method of filing will be made public.

Opportunities Offered on Irrigated Land in Montana.

MONTANA HUNTLEY PROJECT.

Towns Close Together—Two Transcontinental Railroads—All Towns Near Railroads.

This project contains about 30,000 acres of irrigable land located along the Yellowstone River, in Yellowstone County. As the lands are a part of the ceded strip of the Crow Indian Reservation settlers are required to pay \$4.00 per acre to the Indians—one dollar at the time of entry and seventy-five cents annually for four years, beginning with the second year. In addition to this the Government charges the settler the cost of building the irrigation works, which is \$30.00 per acre, payable \$3.00 per acre per annum for ten years. The payments may be made in fewer installments if desired. A further annual charge of 60 cents per acre for operation and maintenance is made. The first payment of \$4.60 becomes due when the land is filed upon.

Delightful Climate.

The general elevation of this part of Montana is 3,000 feet above sea level, its climate is delightful and the soil varying from light sandy loam to heavy clay produces abundant crops when properly watered. The principal products are alfalfa, forage, cereals, sugar beets, vegetables, apples and small fruits. The farm units vary from 40 to 160 acres, depending upon location, and average 40 acres of irrigable land. The irrigated land in this section is worth from \$75.00 to \$200.00 per acre according to the state of cultivation and the crops grown.

Two transcontinental lines of railroad—the Northern Pacific and the Chicago, Burlington and Quincy—traverse the tract its entire length, and eight towns have been laid out on these

lines at intervals of five miles, so that no farm is more than three miles from a shipping point, and the average distance of all farms from a railroad station is only 1½ miles. There is a fine free range country adjoining the project, and the live stock industry affords a permanent home market for alfalfa. The railroads furnish excellent transportation facilities to Chicago, St. Paul and Minneapolis, Omaha, Denver and nearby cities.

Unusually Good Opportunities.

Schools and churches have been established and the towns offer unusually fine opportunities for professional and business men, manufacturers, laborers, etc. The town lots have been appraised, and may be purchased at the land office at Billings, Montana.

Water to Each Farm.

The engineering works consist of a system of canals having a length of 268 miles, which deliver water to each farm. The headworks, culverts and other structures are of reinforced concrete and the three tunnels with an aggregate length of 2,653 feet are lined with cement. The pumping plant near Ballantine is a novel feature, as the drop of water from the main canal is made to lift a portion of the water to a higher level to supply the High Line canal. Vertical turbines and centrifugal pumps are mounted on the same shaft and the operation is nearly automatic. More than 200 farms under this project are still subject to entry.

MONTANA MILK RIVER PROJECT.

Reclaims 248,000 Acres—Many Towns and Railway Stations in Milk River Valley.

This project contemplates the ultimate reclamation of about 248,000 acres of land in the Milk River Valley between Chinook and Glasgow in Chouteau and Valley counties, Montana. About 50 per cent of this area is public land. The average elevation is 2,200 feet above sea level and the temperature varies from 45 degrees below zero to 100 degrees F. The soil is sandy loam and clay, well adapted to the raising of hay, grain, vegetables, alfalfa, sugar beets and other products of the north temperate zone. The Dodson dam has been completed and from the reservoir water will be diverted into the canals on each side of the river. The Dodson South canal has now been completed and about 10,000 acres of land was irrigated during the season of 1910. This canal covers lands extending from Dodson to Nelson Lake Reservoir, from whence it is expected to construct another canal to cover

lands between that point and Glasgow. There are many towns and railway stations in the Milk River Valley, all being upon the Great Northern Railway, which traverses its entire length.

375 Miles Main Canal.

In addition to the regulation of the discharge of Milk River, the water supply will be supplemented from St. Mary Lakes. The discharge of St. Mary basin will be stored and conducted by a canal 25 miles to the head waters of Milk River. The engineering features involve storage and several diversion dams, 375 miles of main canal and an extensive lateral system. It is expected that following the completion of the Dodson South Canal and the supplying of water to the lands thereunder successive units will be developed in order that additional areas may be irrigated as rapidly as possible.

Inducements for Settlers in Montana.

MONTANA SUN RIVER PROJECT.

Reclaims 276,000 Acres — Grazing Land Included With Farm Units.

The lands under this project are located in Teton, Lewis and Clark, Chouteau and Cascade counties, about 25 miles from Great Falls. Sun River Valley is about 70 miles long and from one to five miles wide. The ultimate development of the project involves the reclamation of 276,000 acres of land. A compact body of 16,000 acres, known as the Fort Shaw Unit, has been opened to entry and is being rapidly settled.

No Brush to Be Cleared.

The soils are sandy loam, clay, adobe, and alluvium. There is no sage or other brush to be cleared. The principal crops are alfalfa, hay, grain, vegetables and sugar beets. The general elevation is 3,700 feet above sea level and the temperature ranges from 40 below to 100 degrees above zero. Fine grazing lands surround the project. The farm units vary from 40 to 160 acres of land. Wherever practicable, a tract of grazing land is included in the farm unit.

The watershed area consists of 850 square miles on Sun River and 290 square miles on Deep

Creek, and the estimated annual run-off is about 700,000 acre-feet. The average annual rainfall on the irrigable area is 12 inches.

Homestead Farms Obtained.

Farms under this project are obtainable under the homestead law, subject to the charges of actual cost of water upon the land. This charge has been fixed at \$3,000 per acre of irrigable land in not more than ten annual installments. At present the operation and maintenance charge is 50 cents per acre per annum, and the sum of \$3.50 per acre is due and payable at the time of making entry.

Villages Close Together.

An interesting feature in connection with this project is the establishment of villages every six miles. In connection with the Fort Shaw Unit already opened the villages of Fort Shaw and Simms have been established and town lots may be purchased at the local land office at Great Falls.

MONTANA-NORTH DAKOTA LOWER YELLOWSTONE PROJECT.

Several Thriving Villages on This Project — Abundance of Lignite Fuel in the Vicinity.

The project provides for the diversion of water from the Yellowstone River at a point 18 miles northeast of Glendive, Montana, and will ultimately irrigate 65,000 acres of land, for 47,000 acres of which the works have been completed and the water is now available. Two-thirds of the lands to be irrigated are in Montana, the balance in North Dakota. The lands are traversed by the line of the Missouri River Railway, grading for which has been completed and trains will be operated over same in the fall of 1910. The lands are also tributary to the Great Northern Railway on the north and the Northern Pacific Railway on the south.

Soils Easily Cultivated.

The general elevation is 1,900 feet above sea level, and the temperature ranges from 30 degrees below to 100 above zero. The soil is a deep, sandy loam, easy to cultivate and very fertile. Alfalfa, the great forage crop of the West, is especially adapted to the soil and climate. Small grains are raised with success and it is believed that sugar beets will be a profitable crop. The crop yields for 1909 were abundant. There are several thriving villages on the project. Minneapolis, St. Paul and local towns fur-

nish markets for the produce. The average rainfall is 16 inches. Surrounding the project is one of the largest and best grazing areas in the United States, providing a fine range for vast numbers of cattle and sheep. An abundance of lignite for fuel is found throughout this section.

The principal engineering features consist of a diversion dam 12 feet high and 700 feet long, 146 miles of canals and the development of 290 horsepower.

Lands \$3 Per Acre.

The building charge has been fixed at \$42.50 per acre of irrigable land, payable in not more than ten annual installments, each not less than \$4.25 per acre. The annual charge for maintenance and operation is \$1.00 per acre. The lands have practically all been filed on but as the farm unit has been fixed at 80 acres many of the settlers will be obliged to relinquish a portion of their holdings. In addition to these relinquishments the irrigable railroad lands are on the market and may be purchased at \$3.00 per acre. Private lands may also be purchased at prices varying from \$15.00 to \$25.00 per acre and considering quality of land, location and productiveness, are very low priced.

Opportunities Offered on Irrigated Land — Nevada, Nebraska, Wyoming.

NEBRASKA-WYOMING NORTH PLATTE PROJECT.

150 Miles of Canals — Capacity of Reservoir, 1,025 Feet — Watershed, 12,000 Square Miles.

This project is located about 100 miles north of Cheyenne, Wyoming, and extends along the North Platte River. About 80,000 acres of land practically all of which has been filed upon will be supplied with water in 1910. The land is tributary to the Chicago and Northwestern, Burlington and Missouri River, and Union Pacific Railroads. The average elevation is 4,100 feet above sea level, and the temperature ranges from 25 degrees below to 100 degrees above zero. The average annual rainfall on the irrigable area is about 15 inches.

Soil Very Fertile.

The soil is a fertile, sandy loam, quite free from alkali, and requiring $2\frac{1}{2}$ acre-feet of water per acre per annum. Alfalfa is the principal crop, but cereals, sugar beets and potatoes are successfully grown. Excellent range country borders the irrigable lands in Wyoming.

The farm unit has been fixed at 80 acres, and the building charge is \$45 per acre. There will be an annual charge for operation and maintenance after the second year. All accrued installments must be paid at the time of entry. The watershed area is 12,000 square miles, and

the estimated annual run-off of watershed at Pathfinder dam is 1,500,000 acre-feet.

Canal 150 Miles Long.

The principal engineering features consist of a storage dam forming what is known as The Pathfinder Reservoir on the North Platte River, about 50 miles southwest of Caspar, Wyoming, a diversion dam 150 miles down the river at Whalen, Wyoming, and the interstate canal 150 miles long. The Pathfinder dam is a concrete rubble masonry arch 218 feet high and 432 feet long on top. It is completed and the reservoir has a capacity of 1,025,000 acre-feet. The diversion dam at Whalen is a reinforced concrete weir 25 feet high and 300 feet long. A diversion dam is also planned to be constructed at Guernsey, Wyoming, for diverting water into a canal to cover lands in Goshen Hole, in eastern Wyoming and western Nebraska, which are now withdrawn from entry.

The lands in Wyoming must be filed on at the land office at Cheyenne, Wyoming, and those in Nebraska at the land office at Alliance, Nebraska.

NEVADA TRUCKEE-CARSON PROJECT.

Canals, 600 Miles — Irrigates 260,000 Acres — Contains Several Storage Reservoirs — Homesteads Open to Entry.

This project is located in western Nevada, in Churchill, Lyon and Storey counties, Townships 17 to 20 North, Ranges 17 to 31 East, M. D. M. The first unit of the project was opened in 1907 and lands are now subject to homestead entry. In addition to the land office filing fee each settler is required to pay \$3 per acre annually for ten years, without interest on deferred payments. An annual maintenance fee of 60 cents per acre is charged in addition. The first payment of \$3.60 per acre must be paid at the time of filing on the land. The farm unit is 80 acres.

Three Feet Depth Water Required.

The climate in this valley is healthful and mild. The elevation above sea level is about 4,000 feet, and the temperature ranges from zero to 112 degrees F. It is so dry, however, that the extremes, which seldom occur, are not injurious. The average rainfall on the irrigable area is 4 inches per annum. The soil is sandy loam, clay loam, and volcanic ash, requiring 3 acre-feet of water per annum for each acre. The valley will produce every variety of crop grown in the north temperate zone. Alfalfa, wheat, barley, and oats grow luxuriantly, and corn is also a profitable

crop. Apples, pears, peaches, apricots, cherries, potatoes and garden vegetables do well and find a ready market in the nearby mining towns. The Southern Pacific and Nevada and California Railroads traverse the tract and furnish transportation to the markets of the country.

The watershed area is 3,450 square miles, the annual rainfall on the watershed, 25 inches, and the estimated run-off, 1,000,000 acre-feet.

Homesteads Open for Entry.

A dam has been built on Truckee River, near Wadsworth, to turn the flow of the stream into a canal 31 miles long, which carries the waters to Carson River. Here a diversion dam turns the waters as needed into two main canals. The first unit of this project, which is now complete, involves more than 600 miles of canals and laterals, 50,000 feet of dikes and the dams on Truckee and Carson Rivers. The project in its entirety will irrigate about 260,000 acres of land and will involve the construction of several storage reservoirs and the development of power. A limited number of homesteads are at present open to entry.

Irrigated Lands in New Mexico and Texas.

NEW MEXICO CARLSBAD PROJECT.

Principal Crops, Peaches, Pears, Apples, Cherries, Small Fruits, Alfalfa, Cotton and Garden Truck.

The principal works under the Carlsbad project include the reconstruction of canals and storage reservoirs on Pecos River, in Eddy County, which were built to irrigate about 20,000 acres of land. These lands are all in private ownership, but several thousand acres are included in excess holdings and may be purchased. The price of these lands varies from \$20 to \$60 per acre. The cost of water right is \$31 per acre, payable in ten annual installments, and the annual maintenance and operation fee is \$1.35 per acre.

The general elevation is 3,100 feet above sea level, and the temperature ranges from zero to 110 degrees above. The soil is a light, sandy

alluvium, and very fertile. The principal crops in the valley are peaches, pears, apples, cherries, small fruits, alfalfa, cotton, sweet potatoes, celery and garden truck. Fodder, corn, cane and milo maize produce good crops. Stock raising is very profitable, owing to the extensive range lands on the east and west. The Santa Fe Railway furnishes transportation facilities to nearby markets and to Denver and Chicago.

The watershed area is 22,000 square miles, the average annual rainfall on watershed area is 16 inches, and the estimated annual run-off, 150,000 acre-feet. The average annual rainfall on the irrigable area is 15 inches.

NEW MEXICO HONDO PROJECT.

Fertile Alluvium Soil Growing Alfalfa, Corn, Fruits and Vegetables in Abundance.

The Hondo project provides for the diversion and storage of the flood waters from Hondo River, a tributary of the Pecos, to irrigate 10,000 acres of land in Chaves County, near Roswell. The lands are all in private ownership, but excess holdings may be purchased at reasonable prices. The general elevation is 3,750 feet above sea level, and the temperature ranges from 0 to 100 degrees above zero. The soil is a fertile

alluvium and requires $2\frac{1}{2}$ acre-feet of water per acre per annum. Alfalfa, corn, fruits and vegetables produce abundantly when properly watered. The Santa Fe Railway furnishes transportation facilities.

The watershed area is 1,037 square miles, the average annual rainfall on watershed is 17 inches, and the estimated annual run-off is 40,000 acre-feet.

NEW MEXICO-TEXAS RIO GRANDE PROJECT.

Reservoir 190 Feet Deep at Lower End — Dam 265 Feet High, 45 Miles Long, With Storage Capacity of 2,538,000 Acre-Feet.

This project contemplates the reclamation of 185,000 acres of land, 110,000 of which are in New Mexico, 45,000 in Texas, and 25,000 in Mexico, which are provided for by the Treaty proclaimed January 16, 1907.

Connects With Old Canal.

The Leasburg dam for the first unit of the Rio Grande project is completed, diverting water for 25,000 acres in Mesilla Valley. It is of concrete, 600 feet long, with sluice and head gates. From the diversion dam six miles of canal were constructed to connect with the old Las Cruces Canal.

Reservoir 45 Miles Long.

The Engle dam, which is planned to be constructed across the Rio Grande, opposite Engle, will be rubble concrete gravity type, 265 feet high, 1,480 feet long on top, and will create a reservoir 190 feet deep at its lower end and 45 miles long with a storage capacity of 2,538,000

acre-feet. Work is being prosecuted rapidly. The valley has good railroad facilities and contains many thriving towns, of which El Paso, Texas, is the metropolis.

Requires $2\frac{1}{2}$ Feet Water.

The general elevation is 3,700 feet above sea level and the temperature ranges from zero to 100 degrees above. The average annual rainfall on the irrigable area is 9.5 inches. The soil is a fertile alluvium, requiring $2\frac{1}{2}$ acre-feet of water per acre per annum. It produces abundant crops when sufficient water is applied, the principal products being alfalfa, corn, fruit, vegetables and melons.

Watershed 37,000 Square Miles.

The watershed area is 37,000 square miles; the average annual rainfall on watershed is unknown, but the estimated annual run-off is 800,000 acre-feet.

Opportunities Given on Irrigated Lands in North Dakota.

NORTH DAKOTA PUMPING PROJECTS.

Pumps Run by Power Obtained From Lignite Coal — Pumps on Floating Barges.

The Government has two pumping projects in western North Dakota which raise water from the Missouri River to irrigate bench lands which cannot be reached by feasible gravity systems.

Williston Project—The initial unit of this project includes about 8,000 acres of bench and valley lands surrounding Williston, but the system may be enlarged to cover 12,000 acres. The general elevation is 1,875 feet above sea level, and the temperature ranges from 45 degrees below to 107 degrees above zero. The soil of the bottom lands is a heavy clay, but the bench lands are a rich, sandy loam, requiring 2 acre-feet of water per acre per annum. The principal crops grown are wheat, flax and oats. The supply of oats is always far short of the demand.

For Winter Feed.

Alfalfa is profitable grown for winter feed, and sugar beets are likely to become an important crop. Small fruits do well and dairy farms and market gardens are needed. The State experiment farm, near Williston, is of assistance in demonstrating the value and methods of irrigation to the farmers.

Government Townsite.

The main line of the Great Northern Railroad passes through Williston, which is the distributing point for a large area north and south of it. Land has been reserved for a Government townsite about eight miles north of Williston. A daily rural delivery is maintained over the project.

The building charge on this project has been fixed at \$38.00 per acre of irrigable land, payable in not more than ten annual installments, each not less than \$3.80 per acre. An additional annual charge of 70 cents per acre is also required for operation and maintenance, and 50 cents per acre-foot of water actually pumped and delivered for irrigation in any one year. The first installment of \$4.50 per acre is due and payable at the time of filing water right application.

Power From Lignite Coal.

The engineering features are unique. On account of the low fall of the river gravity canals were not feasible, and pumping was resorted to with power generated with lignite coal, vast deposits of which are found in this vicinity, on Government land. The power plant is located near one of the coal outcrops, the fuel being mined and delivered by gravity to the boilers. The power is converted to electricity and transmitted to the various pumping stations, some of which are 28 miles distant. On account of the unstable character of the river banks the pumps have been placed on floating barges connected to the shore by flexible pipes. The water is pumped to settling basins from which canals carry it over the lands.

Power Distributed 28 Miles.

Buford-Trenton Project — This project embraces about 12,500 acres of bench and bottom lands bordering the north bank of the Missouri River for about twenty miles east of the Montana-North Dakota State line, and lying along the Great Northern Railroad. Power for the pumps on this project is developed at the main power station at Williston, and is transmitted electrically over a transmission line 28 miles long.

Required to Sell.

The climate and crop conditions are practically the same as those at Williston. Practically all the land is in private ownership, but farmers owning more than 160 acres are required to sell their excess holdings, and farms can be bought at from \$15.00 to \$25.00 per acre.

Grazing Land Included.

The farm unit for public lands is from 40 to 80 acres of irrigable land, depending upon location, and wherever practicable a tract of grazing land has been included in the farm unit bringing the total up to 120 or 160 acres. The building, operation and maintenance charge and charge for water actually pumped are the same as under the Williston project.

OREGON UMATILLA PROJECT.

Climatic Conditions Favorable for Early Ripening and Marketing of Small Fruits
—Bees Very Profitable.

The Umatilla project is located 190 miles east of Portland, Oregon, in Umatilla County, and contains about 25,000 acres of irrigable land bordering upon Columbia River immediately east of Umatilla River. Water is now available for

15,000 acres principally in private ownership. Some excellent homesteads, however, yet remain open to entry. Lands may be purchased from settlers having holdings in excess of 160 acres. In the spring of 1911 the fourth unit of about

Oregon and California Irrigated Lands.

5,000 acres with a large number of good homesteads was opened to entry. The farm unit on public lands is limited to 10 or 20 acres.

Building Charges.

The total building charge is \$60 per acre, and the annual operation and maintenance at present is \$1.30 per acre. The building charge may be paid in not more than ten annual payments, each not less than \$6 per acre. With all new entries, or water right applications, payment must be made of all accumulated charges.

Very Fine Honey Produced.

The land to be irrigated all lies below an elevation of 600 feet above sea level. Climatic conditions are extremely favorable for the early ripening and marketing of small fruits, for which the soil is especially suited, as well as for the raising of all kinds of deciduous fruits. Alfalfa is profitably grown, but the land is too valuable for pasture crops. Hogs and poultry raising pay well, and bee colonies are very profitable, the honey being exceptionally fine. Not only is the land fertile in a high degree, and the climate such as will permit of the raising of high-priced crops, but the transportation facilities are of the best. In addition to the Oregon Railroad and Navigation Company's line, which skirts the western end of the project, and the Spokane

branch, running through the northern portion, there will be available the Columbia River, which, as soon as the Celilo Locks, now under construction, are completed, will afford open navigation to Portland and Astoria. The Northern Pacific has built a line of railroad from Pasco to Portland, on the north bank of the Columbia.

Watershed 1,610 Square Miles.

The watershed area is 1,610 square miles, the average rainfall on watershed 20 inches, and the estimated annual run-off 530,000 acre-feet. The average annual rainfall on the irrigable area is 9 inches.

Distributing Canals 133 Miles.

The engineering works include a storage reservoir having a capacity of 50,000 acre-feet, which is supplied with water by an inlet canal from the Umatilla River. There are 133 miles of distributing canals. A by-pass canal has been constructed through which water may be turned from the inlet canal directly into the distributing system without passing through the reservoir.

Opportunities for Business.

There are good opportunities for merchants, mechanics and professional men in the towns of Hermiston, Umatilla and Echo, which are growing rapidly.

OREGON-CALIFORNIA KLAMATH PROJECT.

To Be Reclaimed, 127,000 Acres, Improving Lake and Swamp Bottoms.

The Klamath project contemplates the reclamation of 127,000 acres of land situated in Klamath County, Oregon, and Modoc and Siskiyou counties, California. The plans involve, in addition to the irrigation of the valley lands, the reclamation by drainage and future irrigation of a portion of the Lower Klamath and Tule Lakes, lands which are now either swamp or lake bottoms. Practically all the uplands, which include the greater part of the project, are held in private ownership, much being in large holdings which, under the terms of the Reclamation Act, must be subdivided into tracts of not to exceed 160 acres, as this is the maximum area for which water can be furnished to individual owners. The public lands under the project, which include a large portion of the lake and swamp areas, are at present withdrawn from entry. When these are restored to entry homesteaders may file applications for available lands.

Potatoes an Important Crop.

The general elevation of the irrigable area is 4,100 feet above sea level, and the temperature ranges from 5 degrees below zero to 100 degrees above. The soil is exceedingly fertile, being decomposed basalt with rich deposits on the lake bottoms. The duty of water is 1.8 acre-feet per acre per annum. The principal crops grown are alfalfa, wheat, oats, barley, rye, vegetables, and some deciduous fruits. Potatoes are an impor-

tant crop, the yield and quality being excellent. The climate is especially adapted to dairying and stock raising and forage crops grow to perfection.

The principal town is Klamath Falls, located on Link River, and having about 2,500 inhabitants. Other towns in the valley are Merrill, situated near Tule Lake, Bonanza, on Lost River, within the so-called Upper Project, and several villages. The California and Northeastern Railway, a branch of the Southern Pacific road, is now built through the project, and affords transportation for the farm products to Portland, San Francisco and other coast markets.

Watershed 3,700 Square Miles.

The entire watershed area is 3,700 square miles, and the estimated run-off, 1,700,000 acre-feet. The annual average rainfall on the watershed area is 20 inches, but the rainfall on the irrigable area is only 15 inches.

Maintenance 75 Cents Per Acre.

The building charge for the first unit of this project has been fixed at \$30 per acre of irrigable land, and the operation and maintenance charge at present is 75 cents per acre each year. All installments for building and operation and maintenance, each \$3.75 per acre, then due, must be paid at the time of making water right application.

Opportunities in South Dakota and Utah Irrigated Land.

SOUTH DAKOTA BELLE FOURCHE PROJECT.

Reclamation of 102,000 Acres Contemplated—Little North of the Black Hills.

When completed this project will reclaim about 102,000 acres of land lying north and northeast of the Black Hills, in Butte and Meade counties, South Dakota. Only part of this land has been filed on. Water is now available for about 47,000 acres. There is a large amount of land in private ownership which, on account of the limit of the individual water supply to 160 acres, is offered for sale at from \$20 to \$30 per acre, depending upon improvements and location. The farm unit on public lands is 80 acres, except within two miles of townsites, where it is 40 acres. Settlers are required to pay a building charge of \$30 per acre, and an annual charge of 40 cents to 60 cents per acre for operation and maintenance.

Excellent Market in Black Hills.

The average elevation is 2,800 feet above sea level. The climate is delightful, with little snow in winter, the temperature ranging from 20 degrees below to 95 degrees above zero. As in other parts of the arid region, the sensible temperature does not vary so much, owing to the dryness of the atmosphere. The soil is about equally divided between clay loam and sandy loam, exceedingly fertile and free from excessive alkali. Fruits, such as apples, cherries, plums, and small fruits, do well, especially on the higher portions of the project near the bluffs, and potatoes can be raised on the south side of the river, where the soil is more sandy. The main crop, however, is alfalfa and native hay, which

is in great demand for winter feed, the great number of cattle and sheep summer pastured on the open range surrounding the project creating a constant demand for alfalfa. All the fruits and vegetables that can be raised on the project can be sold at the mining camps in the Black Hills. The Chicago & Northwestern Railroad passes through the town of Belle Fourche, which is one of the largest live stock shipping points in the United States. This road has also built a line through the center of the project on which the new towns of Fruitdale, Nisland, and Newell are rapidly coming to the front.

Reservoir Makes Largest Lake in the State.

The engineering work on this project involves the construction of one of the largest earth embankments in the country, which is being built in a depression between two hills, and is now nearly finished. It will be 115 feet high, 20 feet wide on top, and more than a mile long. The reservoir thus created will be filled with water by an inlet canal from the Belle Fourche River and will be the largest lake in the State.

The reservoir is being used for the storage of sufficient water for 50,000 acres during the season of 1910.

The watershed area is 4,300 square miles, the average annual rainfall on watershed 20 to 30 inches, and the estimated annual run-off 400,000 acre-feet.

UTAH STRAWBERRY VALLEY PROJECT.

Water Carried Through Mountains by Tunnel Four Miles Long.

This project provides for the irrigation of about 60,000 acres of land in Utah and Wasatch counties, on the eastern shore of Utah Lake. The water supply will be obtained from a storage reservoir which is being built in Strawberry Valley, about 30 miles east of the irrigable area. By means of a tunnel four miles long the stored waters will be carried through the mountains and emptied into Spanish Fork, from which a canal 18 to 20 miles long will convey them to the irrigable area. Power created from the high line canal is now transmitted electrically to the tunnel for drilling and later will be utilized to pump water to lands above the gravity system, and for drainage of low-lying lands.

The lands have an elevation of about 4,600 feet and the temperature ranges from 10 degrees below to 95 degrees above zero. The soil is a

sandy loam and gravel, with a deep black soil in the bottom lands, and is exceedingly fertile. Alfalfa, hay, cereals, sugar beets, fruits and vegetables are grown. Settlers are getting ready to plant orchards as soon as water is available. The lands are all in private ownership and existing canals are being enlarged to form part of the Government system. It is possible to purchase lands at reasonable prices from present owners.

Artesian Water.

The watershed area is 200 square miles, the annual rainfall on watershed 45 inches, and the estimated annual run-off 125,000 acre-feet. This valley has one of the finest domestic water supplies in the West, artesian water being found at no great depth.

Fruit Raising on the Irrigated Lands of Washington.

WASHINGTON OKANOGAN PROJECT.

In Twenty Years of History Never a Failure of Fruit Crop From Frost.

This project is designed to supply water to 10,000 acres of land in Okanogan County, Washington. The soil is volcanic ash, sand and gravel, and is very fertile. Grain, hay, fruit, nuts and vegetables are grown, but the principal crop is apples. The elevation of the land is about 1,000 feet above sea level.

Never a Failure of Fruits.

The temperature ranges from 10 degrees below to 105 degrees above zero. In the history of twenty years of fruit growing in the valley frost has never injured the crops, and there has never been a failure with apples, peaches, plums, prunes, apricots, pears, cherries, nectarines, grapes or any variety of small berries grown there.

Excess Lands for Sale.

On account of the possibilities of high development in this section the farm unit has been fixed at 40 acres. The building charge is \$65 per

acre of irrigable land, and the operation and maintenance charge at present amounts to \$1.50 per acre per annum. The lands are all entered, but excess holdings may be purchased at from \$150 to \$300 per acre.

Dam 60 Feet High, 1,000 Feet Long.

One of the interesting engineering features is a storage dam 60 feet high and 1,000 feet long, which has been built by the hydraulic fill process. A railroad connecting with the Great Northern at Oroville is being built down the valley of the Okanogan to the Columbia River. This will give the project excellent transportation facilities.

Watershed 150 Square Miles.

The watershed area is 150 square miles, the average annual rainfall on watershed 17 inches and the estimated annual run-off 30,000 acre-feet. The annual rainfall on the irrigable area is 8 inches.

WASHINGTON YAKIMA PROJECT.

To Store Water for 460,000 Acres — Lands Valued at \$300 to \$1,000 per Acre for Fruit Raising.

On the eastern side of the Cascade Mountains, in Washington, is a succession of valleys in the drainage of the Yakima River. It is estimated that with storage the water supply is sufficient for about 460,000 acres of land. Storage is being provided by erecting dams at the outlets of several mountain lakes, the capacity of which when ultimately developed, will total 930,000 acre-feet. The development of a comprehensive system of irrigation in Yakima Valley will be accomplished by the successive construction of several units of a general project, the work being gradually extended to embrace the entire irrigable area.

Lands Worth From \$300 to \$1,000 Per Acre.

Teton Unit—The lands under this unit are in Yakima County, near the city of North Yakima. The engineering features are difficult and expensive. For 12 miles the main canal is excavated along the steep sides of the Teton Canyon, and in five places the canyon walls are tunneled, the total length of the tunnels being more than two miles. The lands to be irrigated are rolling, and the distribution system will also be expensive. In order to replace in the Naches River the water needed to supply prior appropriations, it was necessary for the Government to construct storage works at Bumping Lake, Wash., on the headwaters of that stream. The lands, embracing somewhat over 35,000 acres, are nearly all in private ownership, and the land-owners are confident that the results will justify the expenditures, as the lands in the vicinity,

not more favorably situated for fruit raising, range in value from \$300 to \$1,000 per acre. The elevation is from 1,300 to 2,100 feet above sea level and the temperature ranges from 21 below zero to 102 degrees above. The soil is a volcanic ash, exceedingly fertile, and although a great variety of crops could be grown the lands are so valuable that it is probable the principal crops will be fruit and hops. The lands are tributary to the Northern Pacific Railway which has North Yakima for its nearest station to the unit. Flood water is being delivered on a rental basis to about 2,000 acres and additional areas will be irrigated in 1911. The cost of water right has not yet been determined.

Sunnyside Unit—The first unit of this system is now available for 11,590 acres of land in addition to the 40,000 acres under the old canal. The cost of water right is \$52 per acre, payable in not more than ten annual installments, and the operation and maintenance charge at present is 95 cents per acre of irrigable land. Work on the system consists of the enlargement and extension of the existing Sunnyside Canal, which was purchased by the Government. The extension of this system will cover more than 50,000 acres of new land. The project lies in Yakima and Benton counties, and embraces the towns of Parker, Zillah, Outlook, Sunnyside, Granger, Grandview, Belma, Mabton and Prosser. The average elevation is 700 feet above sea level and the temperature ranges from 21 below zero to 110 degrees above.

Attractions of Wyoming on the Irrigated Lands.

Three Feet of Water.

The soil is deep volcanic ash and gravel, and requires three acre-feet of water per acre per annum. The farm unit is 40 and 80 acres of irrigable land. Forage, hops, vegetables and fruits are grown. The orchards of Yakima Valley are famous for their yields of fine fruits.

Notice Given of Opening.

Wapato Unit—The irrigable lands under this unit are in the Yakima Indian Reservation. There are about 116,000 acres susceptible of irrigation, 15,000 acres of which are now receiving water during high water periods through canal systems constructed by the Indians. The soil and transportation facilities are excellent. For the reclamation of these lands, the plans provide for the enlargement of the old and new reservation canals which were built with tribal funds, the building of other canals and laterals, and the storage of over 200,000 acre-feet of water in

Yakima lakes. Due notice of a formal opening will be made by the Secretary of the Interior through the public press.

In Market Later.

Kittitas Unit—This unit contemplates the irrigation of land in the vicinity of Ellensburg. A canal 90 miles long will bring water from the Yakima River just above Easton. The growing season is somewhat shorter here than in the lower valleys, but the lands are well adapted to diversified farming. This is the dairying section of eastern Washington and the soil and climate are favorable for the growing of cereals, timothy, vegetables and winter apples. Construction work has not begun on this unit.

West Bank Columbia River.

Benton Unit—The lands under this project lie on the west bank of the Columbia River, from Kennewick to Priest Rapids. Work has not yet commenced on this unit.

WYOMING SHOSHONE PROJECT.

Has Highest Dam in the World — Elevation From Bed Rock, 328.4 Feet.

The project involves the construction of an impounding dam at the head of the canyon of the Shoshone River in northern Wyoming and the diversion of the waters for the irrigation of about 155,000 acres of land. This dam, the highest in the world, was completed in the winter of 1909-1910. Fifteen thousand acres were opened to entry in 1908 and a similar area was opened May 22, 1909, and so rapidly have these lands been taken up that work is now being pushed on the third unit of a similar area.

Climate Very Delightful.

The elevation is about 4,500 feet above sea level, and the temperature ranges from 20 below to 95 degrees above zero. The climate is dry and delightful and the soil of light, sandy and clay loams, produces abundantly when water is applied. Alfalfa, hay, wheat, oats, barley and vegetables can be grown; also potatoes, sugar beets and fruits. Large numbers of cattle and sheep are pastured on the surrounding ranges during the greater part of the year, but require feeding in the winter months, so that there is always a good home market for hay. Hog and poultry raising are also very profitable.

Annual Maintenance \$1 Per Acre.

The farm unit varies from 40 to 80 acres of irrigable land. The building charge is \$46.00 per acre of irrigable land, payable in ten annual installments. The annual maintenance and operation charge at present is \$1.00 per acre, one-tenth of the building charge and one year's maintenance charge, or \$5.60 per acre, are due at the time of filing. All new entries must be accompanied by payment of the charges for operation and maintenance which have accumulated since 1909.

The tract is traversed by the Chicago, Bur-

lington and Quincy Railroad, and has good transportation facilities to the big markets of the Mississippi Valley, Denver, and the Pacific Coast.

Watershed 1,380 Square Miles.

The watershed area is 1,380 square miles, the average annual rainfall on watershed 15 inches, and the estimated annual run-off is 1,000,000 acre-feet. The rainfall on the irrigable area is from 6 to 10 inches.

Highest Dam Known.

Considerable interest attaches to the engineering work on this project, as the Shoshone dam is the highest structure of its kind in the world. It is 328.4 feet high from bed rock to top of parapet walls, 108 feet thick on the bottom and only 200 feet long on top. The reservoir created by it has an area of 6,600 acres and a capacity of 456,000 acre-feet. The diversion dam, which turns the waters of the river through a tunnel 3 1-3 miles long into the main canal, is a reinforced concrete masonry structure 18 feet high and 400 feet long.

Several Flourishing Towns.

Four flourishing towns, Cody, Garland, Powell and Ralston, are located on the project. They contain schools, churches, banks, newspapers, manufacturing establishments, hotels, stores, etc., and offer opportunities for professional and business men and artisans.

Timber and Coal.

The surrounding mountains are covered with spruce and fir and supply the farmers with timber and the stockmen with summer range. Coal mines located in the vicinity supply cheap fuel for domestic and manufacturing purposes. Well water of good quality is found at depths varying from 30 to 50 feet.

Conditions Under Which Settler Can Get Irrigated Land.

REGULATIONS RELATING TO METHODS BY WHICH HOMESTEAD MAY BE OBTAINED ON RECLAIMED LAND.

Homestead Entries.

1. Q. In what way can public land be taken under the Reclamation Act?

A. The only way in which land can be taken is under the terms of the homestead law, which requires actual residence and cultivation.

2. Q. Can I take up a homestead under the Reclamation Act and obtain title when I am earning a living in a nearby city?

A. You cannot obtain a homestead unless you live on the land and make it your home. Occasional absence is allowable, if some good reason is given, but you cannot live elsewhere and claim a homestead.

3. Q. Is it necessary for me to live on the land more than once in six months?

A. Yes; actual and continuous residence is required by law; you must establish your home on the land and live there for the full term required.

4. Q. Must I move onto the land at once?

A. You are given six months from the time of making your entry to establish residence, and before the end of that time you must be actually living on the ground.

5. Q. Is it sufficient to erect an ordinary claim shanty, with one door and window?

A. No; the claim shanty and nominal residence which may have sufficed under some conditions will not be sufficient on the irrigable land. An actual home, where you sleep and take your meals habitually and the cultivation of a part of your claim, will be required.

6. Q. Can I enter 160 acres and then sell off part of it?

A. You can obtain title only to a certain piece of land, which may be from 10 to 160 acres, and you can not convey any title to this or to any portion of it until final certificate has issued to your entry. Under certain conditions you may relinquish or give up a portion of it, and in that event some other person can make a new homestead entry, but you cannot transfer to him any rights or privileges, and he must begin his term of residence as required in the case of a new entry.

7. Q. Must I live on the land if water is not available?

A. Yes; after you make your homestead entry you must comply with the terms of the homestead law. No excuse will be accepted because of lack of water; if lands are entered before water is ready there is a presumption that the person making the entry does it for speculative purposes rather than for an actual home.

8. Q. What is the area of the farm unit on the project?

A. One hundred and sixty acres.

9. Q. When can I ascertain the limit for which water may be obtained under a project?

A. Under section 4 of the Reclamation Act the Secretary of the Interior will give public notice of the lands irrigable and limit of area per entry, "which limit shall represent the acreage which, in the opinion of the Secretary, may be reasonably required for the support of a family upon the lands in question." This notice is usually given during the season preceding that during which water is to be furnished.

10. Q. What assurance is there that the land which I enter will be irrigated?

A. You can have no assurance that the land will be irrigated until public notice has been given. If you enter in advance of the public notice, you make a speculative entry, wholly at your own risk, and without any guaranty or safeguard that water will be supplied, and with a reasonable probability that you may lose your homestead right.

11. Q. How will the notice be given?

A. Through the public press. When the

adjustment of entries to the farm units is necessary, the register and receiver of the local land office will give notice by posting in the local land office, by publication, and by mailing special notice by registered mail to every person who may have made entry to the farm unit.

12. Q. If a homestead entry is made before the issuance of the public notice as to the area of the farm unit, will the entryman be permitted to prove up as to the entire tract?

A. No. When the farm unit is established, notice will be sent to the various entrymen informing them of the fact, and that they will be required to cut down their holdings to the limit decided upon by the Secretary of the Interior as sufficient for the support of a family, and giving them the option of selecting such part of the land as they may prefer and amending their entries accordingly; or in case they fail to make such selection, the United States will make it for them and cancel the remainder of the entry.

13. Q. Where the entryman is in default as to the payment of any annual installment, will his relinquishment relieve the land of the charge against it?

A. No. The annual charge is not a rental obligation, and a succeeding entryman takes the land burdened with whatever charges may have been duly levied against it and not paid or discharged by his predecessor.

14. Q. What is the effect of a relinquishment of an entry made under the Reclamation Act?

A. The cancellation of an entry, whether by relinquishment or otherwise, carries with it the forfeiture of all claim to the water right. When the land is re-entered the water right that is appurtenant to the land inures to the second entryman, who is obliged to pay all charges then due or afterwards apportioned against the tract.

15. Q. What are farm unit plats?

A. Farm unit plats are township plats approved by the Secretary of the Interior, showing the subdivision of land under reclamation projects, and the number of acres of irrigable land contained in each farm unit or separate tract of private land. They will be on file at the local land offices and at the offices of the Reclamation Service, after the issuance of the public notice provided by the Reclamation Act.

16. Q. How much water will be furnished for the land?

A. Such amount as may be available from the works controlled by the United States not to exceed the amount necessary for the proper irrigation of the same. The quantity will be duly announced for each project when the Secretary of the Interior gives the public notice under section 4 of the act.

Desert-Land Entries.

17. Q. May a desert-land entryman or his assignee apply for a government water right?

A. Yes; but he must live on the land or in the neighborhood and relinquish to the United States any land in the entry exceeding 160 acres.

18. Q. Will the time for making final proof on desert-land entries be extended?

A. Yes; his entry becomes subject to the provisions of the Reclamation Act as to residence, payments, etc.

About Units.

Units differ in size. On very favorable land it may be ten and twenty acres. On other lands more.

To show what these irrigated projects are, where located and various facts about them, we give the Reclamation map herewith and reproduce much of the literature employed by the government in describing each one.

STATE AND THE 105 COUNTIES OF KANSAS

With Their Boundaries

LOCATION AND POPULATION OF KANSAS COUNTIES

Location and Population
of
KANSAS COUNTIES

Loca- tion	COUNTIES	Pop. 1910
1.....	Cheyenne..	4,248
2.....	Rawlins..	6,380
3.....	Decatur..	8,976
4.....	Norton..	11,614
5.....	Phillips..	14,150
6.....	Smith..	15,365
7.....	Jewell..	18,148
8.....	Republic..	17,447
9.....	Washington..	20,229
10.....	Marshall..	23,880
11.....	Nemaha..	19,072
12.....	Brown..	21,314
13.....	Doniphan..	14,422
14.....	Sherman..	4,549
15.....	Thomas..	5,455
16.....	Sheridan..	5,654
17.....	Graham..	8,700
18.....	Rooks..	11,282
19.....	Osborne..	12,827
20.....	Mitchell..	14,082

Loca.	County	Pop.
21.....	Cloud..	18,388
22.....	Clay..	15,251
23.....	Riley..	15,783
24.....	Pottawatomie..	17,522
25.....	Jackson..	16,861
26.....	Atchison..	28,107
27.....	Wallace..	2,759
28.....	Logan..	4,240
29.....	Gove..	6,044
30.....	Trego..	5,398
31.....	Ellis..	12,170
32.....	Russell..	10,800
33.....	Lincoln..	10,142
34.....	Ellsworth..	10,444
35.....	Ottawa..	11,811
36.....	Saline..	20,338
37.....	Dickinson..	24,361
38.....	Geary..	12,681
39.....	Morris..	12,397
40.....	Wabunsee..	12,721
41.....	Shawnee..	61,874
42.....	Jefferson..	15,826
43.....	Leavenworth..	41,207
44.....	Wyandotte..	100,068
45.....	Douglas..	21,724
46.....	Johnson..	18,288
47.....	Greeley..	1,335
48.....	Wichita..	16,060
49.....	Scott..	3,047

Loca.	County	Pop.
50.....	Lane..	2,603
51.....	Ness..	5,883
52.....	Rush..	7,826
53.....	Barton..	17,846
54.....	Rice..	15,106
55.....	McPherson..	21,521
56.....	Marion..	22,415
57.....	Chase..	7,527
58.....	Lyon..	24,927
59.....	Osage..	19,903
60.....	Franklin..	20,884
61.....	Miami..	20,030
62.....	Hamilton..	3,360
63.....	Kearney..	3,206
64.....	Finney..	6,908
65.....	Gray..	3,121
66.....	Hodgeman..	2,930
67.....	Pawnee..	8,859
68.....	Edwards..	7,033
69.....	Stafford..	12,510
70.....	Reno..	37,853
71.....	Harvey..	19,200
72.....	Butler..	23,059
73.....	Greenwood..	16,060
74.....	Coffey..	15,205
75.....	Anderson..	13,829
76.....	Linn..	14,735
77.....	Stanton..	1,034
78.....	Grant..	1,087

Loca.	County	Pop.
79.....	Haskell..	993
80.....	Ford..	11,393
81.....	Kiowa..	6,174
82.....	Pratt..	11,156
83.....	Kingman..	13,386
84.....	Sedgwick..	73,095
85.....	Morton..	1,333
86.....	Stevens..	2,453
87.....	Seward..	4,091
88.....	Meade..	5,055
89.....	Clark..	4,093
90.....	Comanche..	3,281
91.....	Barber..	9,916
92.....	Harper..	14,784
93.....	Sumner..	30,654
94.....	Crowley..	31,790
95.....	Elk..	10,128
96.....	Chautauqua..	11,420
97.....	Woodson..	9,450
98.....	Allen..	27,640
99.....	Bourbon..	24,007
100.....	Wilson..	19,810
101.....	Neosho..	23,754
102.....	Crawford..	51,178
103.....	Montgomery..	49,474
104.....	Labette..	31,433
105.....	Cherokee..	38,162
Total.....		1,690,949

Kansas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
*Abilene	37.....	4,118	Agua	5.....	347	Allendale	98.....	260	Altamont	104.....	606
Admire	58.....	205	Alden	54.....	255	*Alma	40.....	1,010	Alta Vista	40.....	499
			Allen	58.....	286	Almena	4.....	702	Altton	19.....	414

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Kansas Cities and Villages with 1910 Populations

VILLAGES			VILLAGES			TOWNS			TOWNS		
	Loca.	Pop.		Loca.	Pop.		Loca.	Pop.		Loca.	Pop.
Altona	100.	1,462	*Cottonwood			Goddard	81.	225	Latham	72.	361
Andale	84.	237	Falls	57.	899	Goff	14.	322	*Lawrence	45.	12,374
*Anthony	92.	2,660	*Council			*Goodland	14.	1,993	*Lebanworth	43.	19,362
Arcadia	102.	691	Grove	39.	2,545	*Gorham	32.	200	Lebo	6.	731
Arkansas	93.	466	Courtland	8.	506	Grainfield	29.	309	Lecompton	45.	386
Arlington	70.	450	Coyville	100.	227	*Great Bend	53.	4,622	Lenexa	56.	385
Aurora	106.	327	Crestline	105.	287	Greeley	75.	492	Lenexa	46.	333
*Axtell	66.	269	Croweburg	102.	860	Green	32.	289	Leonora	4.	454
Assaria	89.	910	Cuba	8.	776	Greenleaf	9.	851	Leon	72.	494
*Athol	36.	246	Cullen	35.	326	*Greensburg	81.	1,199	Leona	13.	250
*Athol	26.	16,429	Cunningham	33.	393	Gridley	95.	532	*Leonardville	23.	376
Atlanta	94.	330	Curranville	102.	775	Grinnell	74.	299	*Leoti	18.	500
Attica	92.	737		D		Gross	102.	309	Lo Roy	74.	86
*Atwood	2.	910	Dearing	103.	250	Gypsum	36.	623	*Lewis	87.	1,500
Augusta	72.	1,235	Delphos	35.	767	Haddam	9.	408	*Liberal	68.	55
Aurora	21.	450	Denison	25.	290	Hall	105.	250	Liberty	103.	380
Axtell	10.	748	Denton	13.	337	Hallowell	105.	250	*Lincoln	33.	1,508
	B		Derby	84.	350	Halstead	71.	1,015	Lindsborg	55.	1,939
Badger	105.	306	De Soto	37.	210	Hamilton	12.	208	Linn	9.	490
Baldwin	33.	1,386	Detroit	99.	290	Hamilin	9.	1,039	Linnwood	43.	323
Barnard	43.	425	Devon	90.	512	Hanover	92.	1,638	Little River	54.	661
Barnes	9.	650	*Dighton	54.	379	Harper	58.	589	Logan	5.	714
Bartlett	104.	249	*Dodge City	80.	3,214	Hartford	40.	331	Long Island	5.	291
Basethor	43.	280	Dorrance	32.	281	Harveyville	103.	227	Longton	95.	1,300
Bassett	98.	415	Douglass	72.	657	Havana	70.	528	Louisburg	56.	276
Baxter Spgs.	105.	1,598	Downs	19.	1,427	Havensville	24.	412	Louisville	24.	217
Beattie	10.	750	Dresden	3.	209	Hazelton	81.	568	Lowell	105.	206
Belle Plaine	93.	849	Dunkirk	102.	490	*Hay	91.	1,961	Lucas	32.	573
Belleville	8.	2,224	Durham	36.	268	Hayne	87.	1,436	Luray	32.	341
*Beloit	20.	3,082	Dwight	39.	298	Herington	37.	3,273	*Lyndon	59.	763
Belpre	46.	485		E		Herkimer	10.	200	*Lyons	54.	2,071
Benedict	100.	215	Earleton	101.	225	Herdon	2.	273	McCracken	52.	371
Bennington	35.	386	Edgerton	46.	443	Hewins	96.	225	McCune	102.	730
Benton	72.	240	Eldon	104.	489	*Hiawatha	12.	2,974	McFarland	40.	388
Bern	11.	306	Edwardsville	44.	250	Highland	13.	783	*McPherson	55.	3,546
Beverly	33.	335	Effingham	26.	674	*Hill City	17.	983	Macksville	69.	626
Bison	52.	350	*Eldorado	32.	3,129	Hillsboro	56.	1,134	Madison	73.	721
Blaine	24.	245	Elgin	96.	400	Holtsdale	61.	260	Mahaska	9.	246
Blue Mound	76.	596	Elk City	103.	659	Holbrook	34.	361	Maize	84.	260
Blue Rapids	10.	1,756	Elk Falls	95.	271	Holt	25.	2,842	Manchester	37.	250
Bluff City	92.	307	Ellinwood	53.	976	Holton	34.	361	Manhattan	23.	5,722
Bonanza Springs	44.	1,462	Ellis	31.	1,404	Holyrood	10.	200	*Mankato	7.	1,155
Brewster	15.	590	*Ellsworth	34.	2,041	Home	37.	567	Maplehill	40.	277
Bronson	99.	955	Elmdale	57.	253	Hope	37.	567	Mapleton	99.	230
Brookville	36.	280	E Paso.	84.	235	Horton	12.	3,600	*Marion	56.	1,841
Bucklin	80.	1,090	Elmhore	98.	212	*Howard	95.	1,163	Marquette	55.	715
Buffalo	100.	807	Elmwood	13.	686	Hoxie	16.	532	*Marysville	10.	2,260
Buffville	100.	309	Emmet	20.	209	Hoyt	25.	350	Matfield	57.	225
Buhler	70.	250	*Emporia	58.	9,058	Hudson	69.	248	Mayetta	25.	337
Bunkerhill	32.	242	Engleware	102.	376	Humboldt	98.	208	Mayfield	93.	200
Burden	94.	424	Englewood	89.	518	Hunnewell	93.	253	Meade	88.	661
Burlingame	59.	1,422	Enterprise	37.	706	Huron	26.	260	*Medico's Lodge	91.	1,225
Burlington	74.	2,180	*Erie	101.	1,309	*Hutchinson	70.	16,364	Melrose	105.	270
Burns	56.	489	Esbon	7.	341				Melvern	59.	505
Burr Oak	7.	1,132	Esbridge	40.	797				Meriden	42.	467
Burton	71.	689	Eudora	45.	640				Midway	102.	509
Bushton	54.	222	*Eureka	73.	2,333				Milan	93.	350
	C		Everest	12.	436				Mildred	98.	390
Caldwell	93.	2,205	Ezbon	7.	347				Millford	38.	209
Cambridge	94.	225		F					Miltonvale	21.	829
Caney	103.	3,597	Fairview	12.	386				Mineral	105.	1,170
Canton	55.	634	Fall River	73.	383				*Minneapolis	35.	1,895
Carbondale	59.	461	Florence	66.	1,468				Minneapolis	89.	348
Carlisle	98.	250	Fontana	61.	242				Moline	55.	860
*Carroll	105.	460	Ford	80.	205				Moran	98.	555
Castleton	70.	290	Formosa	7.	453				Morganville	22.	285
Cawker City	36.	870	Fort Dodge	80.	360				Morland	17.	237
Cedar Vale	96.	418	Ft. Leavenworth	43.	2,509				Morrill	12.	398
Centerville	76.	200	Fort Riley	38.	3,508				Morrowville	9.	206
Centralia	11.	665	*Fort Scott	99.	10,463				*Mound City	76.	698
Chanute	101.	9,272	Fowler	88.	473				Moundridge	55.	626
Chapman	37.	781	Frankfort	10.	1,426				*Mound Valley	104.	956
Chase	54.	163	Franklin	102.	598				Mount Hope	84.	519
Chautauqua	96.	348	*Fredonia	102.	3,390				Mount Pleasant	102.	987
Cheney	84.	734	Frontenac	102.	3,396				Mullinville	81.	288
Cherokee	102.	1,452	Fuller	102.	609				Mulvane	93.	1,084
Cherryvale	103.	4,404	Fulton	99.	416				Munden	8.	275
Chetopa	104.	1,548		G					Muscotah	26.	491
Chicope	102.	1,459	Galena	105.	6,096					N	
*Cimarron	95.	467	Galva	55.	322				Narka	8.	278
Circleville	25.	265	*Garden City	64.	3,171				Nashville	83.	260
Clafin	53.	559	Garden Plain	84.	296				National Mill-		
*Clay Center	22.	3,438	Gardner	46.	514				tary Home	43.	2,508
Clear Water	84.	569	Garfield	67.	333				Natoma	19.	407
Clifton	9.	614	Garland	99.	345				Neodesha	100.	2,872
Clinton	45.	250	*Garnett	75.	2,334				Neosho Falls	97.	571
Clyde	21.	1,057	Gas	98.	1,281				Neosho Rapids	58.	256
Coats	82.	269	Gaylord	6.	398				*New City	51.	712
Coffeyville	103.	12,687	Gem	15.	250				*Newkawa	25.	250
*Colby	56.	1,130	Geneseo	54.	566				New Albany	101.	213
*Coldwater	75.	684	Genua Springs	94.	254				New Cambria	36.	280
Colony	75.	530	Glard	102.	2,446				*Newton	71.	7,862
*Columbus	105.	3,064	Glade	5.	206				Nickerson	70.	1,195
Colwich	84.	258	Langdon	70.	202				Niotaze	96.	317
*Concordia	21.	4,415	Lansing	43.	890				Norcut	3.	482
Conway Sprgs.	93.	1,292	*Larned	67.	2,911				*Norton	4.	1,787
Corning	11.	411									

Kansas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	
Nortonville	42	638	Prescott	76	255	Selden	16	297	V			
Norwich	83	392	Preston	82	278	Seneca	11	1,806	Valley Center	84	381	
O			Pretty Prairie	70	327	Severance	13	383	Valley Falls	42	1,129	
Oakland	41	1,465	Princeton	60	250	Severy	73	608	Vermillion	10	366	
Oakley	28	681	Protection	90	390	Sharon	91	356	Victoria	31	1,500	
Oak Valley	95	202	Q			*Sharon Spgs.	27	440	Viets	10	209	
*Oberlin	3	1,157	Quenemo	59	556	Shawnee	46	450	W			
Ogden	23	230	Quincy	73	280	Sidd	85	250	Wabaunsee	40	260	
Oketo	10	253	Quindaro	44	306	Silver Lake	41	260	*Wakeeney	30	883	
*Olathe	46	3,272	Quinter	29	450	Simpson	20	211	Wakefield	22	514	
Olzburg	24	220	R			Skidmore	105	480	Waldo	32	209	
Onaga	24	759	Radley	102	508	*Smith Center	25	1,450	Waldron	92	262	
Oneida	11	211	Ramona	56	256	Soldier	25	338	Walnut	102	639	
Opolis	102	350	Randall	7	325	Soldiers Home	43	4,281	Walton	71	357	
Osage City	59	2,432	Randolph	23	455	Solomon	37	949	Wamego	24	1,714	
Ossawatimie	61	4,046	Ransom	51	290	South Haven	93	483	*Washington	9	1,547	
*Osborne	19	1,566	Ransomville	60	290	South				Waterville	10	704
*Oskaloosa	42	851	Rantoul	60	282	Hutchinson	70	387	Wathena	13	777	
*Oswego	104	2,317	Reading	58	289	Spearville	80	575	Waverly	74	751	
Otego	7	290	Redfield	99	232	Spivey	83	252	Webber	7	309	
*Ottawa	60	7,650	Reece	73	280	Spring Hill	46	605	Webster	18	208	
Overbrook	59	571	Republic	8	450	Stafford	69	1,927	Weir	105	2,289	
Overland Park	46	209	Reserve	12	390	Stanley	46	200	Welda	15	229	
Oxford	93	624	Rexford	15	369	Sterling	54	2,133	*Wellington	93	7,034	
Ozawkie	42	283	Richland	41	250	Stilwell	46	360	Wellsboro	60	646	
P			Richmond	60	350	Suppville	105	250	West Mineral	105	1,853	
Palco	18	279	Riley	23	343	*Stockton	18	1,317	*Westmoreland	24	484	
Palmer	9	390	Rosaba	12	492	Stone City	105	508	Westphalia	75	560	
*Paola	61	3,207	Rosedale	44	5,960	Strong	57	762	West Plains	88	333	
Parker	76	398	Roseland	105	396	Summerfield	10	554	Wetmore	11	482	
Parsons	104	12,463	Rossville	41	672	Sylvan Grove	35	464	Wheaton	24	225	
Partridge	70	246	Rushcenter	52	200	Sylvia	70	634	White City	39	506	
Pawnee Rock	53	458	*Russell	32	1,692	*Syracuse	62	1,126	White Cloud	13	1,119	
Paxico	40	238	S			T			White Water	72	518	
Peabody	56	1,416	Sabetha	11	1,857	Tablemound	103	1,260	*Whiting	25	426	
Peoria	60	225	Saint Francis	1	492	Talmo	8	288	*Wichita	81	52,450	
Perry	42	406	Saint John	69	1,785	Tampa	56	256	Willard	41	206	
Perth	93	280	Saint Marys	24	1,397	Tescott	35	421	Williamsburg	60	399	
Peru	96	575	Saint Paul	101	927	Thayer	101	542	Wilsey	39	460	
Peterson	59	260	Saint Peter	17	250	Tipton	20	210	Wilson	34	981	
Pfeifer	31	402	*Salina	36	9,688	Tonganoxie	43	1,018	Winchester	42	456	
*Phillipsburg	5	1,302	*Santa Fe	79	280	Topeka	41	43,684	*Winfield	94	6,790	
Piedmont	73	208	Savonburg	98	257	(capital)	97	627	Woodbine	37	250	
Piqua	97	290	Sawyer	82	250	Toronto	13	943	Woodruff	5	260	
Pittsburg	102	14,755	Scammon	105	2,233	*Troy	44	260	Woodston	18	299	
Plains	88	350	Scandia	8	579	Turner	70	572	Y			
Plainville	18	1,090	Schoenchen	31	496	Turon	103	603	Yale	102	809	
Pleasanton	76	1,373	*Scott	49	819	Tyro	U			*Yates Center	97	2,024
Pomona	60	523	Scottsville	20	248				Yocemento	31	320	
Portis	19	304	Scranton	59	770				Z			
Potwin	72	249	*Sedan	96	2,211	Udall	94	330	Zenda	83	269	
Powhattan	12	216	Sedge	71	626	Uniontown	99	256				
*Pratt	82	3,302				Utica	51	306				

KANSAS

Torn by Political Foment in Its Early History—Later Devastated by Drouth and Grasshoppers—Finally Triumphs Over All Difficulties and Becomes a Most Prosperous State

The geographical center of the United States—A state visited by a great number of catastrophes of which the people have been victims.

Kansas is the center of the United States. The exact geographical center, exclusive of Alaska, lies near Manhattan, in Riley county, Kansas, about 100 miles west of Kansas City.

The width of the state is 400 miles from east to west, and in length 210 miles from north to south. Its area covers 82,080 square miles, being larger than New England; twice as large as Kentucky, Ohio, or Indiana, and larger than New York and Indiana combined.

Kansas has been more frequently mentioned in recent history than any other western state. Everything about Kansas was remarkable. Here was the great American Desert, here were the vast buffalo herds, here lived the drouth stricken people of other years, here was grasshopper headquarters, here was the contest between the free state settlers and the pro-slavery denizens who came in from Missouri determined to make Kansas a slave state.

Here Lawrence, Topeka, Ossawatimie, and other towns, were settled by people from New England, sent out by the Massachusetts emigrant aid society to make the state politically anti-slavery. Here John Brown, of Harper's Ferry notoriety, began his anti-slavery crusades, resulting in murder and excitement in 1855, here Quantrell and a band of pro-

slavery guerillas burned Lawrence and killed 185 persons in 1863.

DROUTH, GRASSHOPPERS AND HARD TIMES.

Here drouth, grasshoppers and hard times compelled great numbers of the people to mortgage their properties to eastern capitalists. For the purpose of investigating the cause of the evil conditions that had fallen upon Kansas, here gathered the people in every district into their school houses, and these men and women discussed free silver, gold standard, monopoly, trusts and the tariff. Here they talked and talked and acquired such practice and fluency in oral discussions as to enable great numbers of men and women to go forth from Kansas highly accomplished public speakers.

Here again the rains fell, the wheat and corn-fields responded in over bountiful supply, the granaries and barns were filled to overflowing, the mortgages were paid, the farmers opened bank accounts, the school house gatherings are no longer held, while the Kansas orators, with the tillers of the soil, aided by favoring climatic conditions, have settled down to the making of money from their exceedingly fertile soil.

Great as Kansas is in area, in intellectuality of people, in stirring events of the past, in wealth of agriculture and natural resources, it seems strange not to speak of Kansas in any other way than in the superlative degree.

Kansas Described

In Speech of Hon. J. J. Ingalls, Formerly United States Senator From Kansas. In "A Kansas Souvenir."
Published by the Kansas Immigration and Information Association, We Find the Following:

Kansas is the navel of the nation. Diagonals drawn from Duluth to Galveston; from Washington to San Francisco; from Tallahassee to Olympia; from Sacramento to Augusta, intersect at its center.

Kansas is the nucleus of our political system, around which its forces assemble; to which its energies converge; and from which its energies radiate to the remotest circumference.

Kansas is the focus of freedom, where the rays of heat and light concentrated into a flame that melted the manacles of the slave, and cauterized the heresies of state sovereignty and disunion.

Kansas is the core and kernel of the country, containing the germs of its growth, and the quickening ideas essential to its perpetuity.

It seems incredible that there was a time when Kansas did not exist; when its name was not written on the map of the United States; when the Kansas cyclone, the Kansas grasshopper, the Kansas boom, and the Kansas Utopia were unknown.

I was a student in the junior class at Williams College, when President Pierce, forgotten but for that signature, approved the act establishing the Territory of Kansas, May 30, 1854. I recall the inconceivable agitation that preceded, accompanied, and followed the event. It was an epoch. Destiny closed one volume of our annals, and opening another, traced with shadowy finger upon its pages a million epitaphs, ending with "Appomattox."

Kansas was the prologue to a tragedy whose epilogue has not yet been pronounced; the prelude to a fugue of battles whose reverberations have not yet died away.

Floating one summer night upon a moonlit sea, I heard far over the still waters a high, clear voice singing:

"To the West! To the West! To the land of the free,
Where the mighty Missouri rolls down to the sea;
Where a man is a man if he's willing to toil,
And the humblest may gather the fruits of the soil."

A few days later, my studies being completed, I joined the uninterrupted and resistless column of volunteers that marched to the land of the free, St. Louis was a squalid border town, the outpost of civilization.

The railroad ended at Jefferson City. Trans-continental trains, with sleepers and dining cars, annihilating space and time, were the vague dream of a future century.

Overtaking at Hermann a fragile steamer that had left her levee the day before, we embarked upon a monotonous voyage of four days along the treacherous and tortuous channel that crawled between forests of cottonwood and barren bars of tawny sand, to the frontier of the American Desert.

It was the mission of the pioneer with his plough to abolish the frontier, and to subjugate the desert. He has become a boundary, and the other an oasis. But with so much acquisition, something has been lost for which there is no compensation or equivalent. He is unfortunate who has never felt the fascination of the frontier; the temptation of unknown and mysterious solitudes; the exultation of helping to build a State; of forming its institutions and giving direction to its career.

Kansas, in its rudimentary stage, extended westward six hundred and fifty-eight miles to the crest of the Rocky Mountains, the eastern boundary of Utah. By subsequent amputation and curtailment, it was shorn to its present narrow limits of fifty-two million acres; three thousand square miles in excess of the entire area of New England. Denver, Manitou, Pueblo, Pike's Peak, and Cripple Creek are among the treasures which the State-makers of 1859, like the base Indian, threw unconsciously away, though richer than all his tribe.

Thirty years ago, along the eastern margin of the grassy quadrangle which geographers called Kansas, the rude forefathers of Atchison, Leavenworth, Wyandotte, Lawrence and Topeka slept in the intervals of their strife with the petty tyrants of their fields, and beyond their western horizon, the rest was silence, solitude, and the wilderness, to the Rio

Grande; to the Yellowstone; to the Sierra Nevada; like the lonely steppes of Turkestan and Tartary; inhabited by wandering tribes, whose occupation was war; whose pastime was the chase; pastured for untold centuries by roaming herds that followed the seasons in their recurring migrations from the arctic circle to the Gulf.

It has been sometimes obscurely intimated that the typical Kansan lacks in reserve, and occasionally exhibits a tendency to exaggeration in dwelling upon the development of the State, and the benefits and burdens of its citizenship.

Censorious scoffers, actuated by envy, jealousy, malignity and other evil passions, have hinted that he unduly vaunteth himself; that he brags and becomes vainglorious; that he is given to bounce, tall talk, and magniloquence.

There have not been wanting those who affirm that he magnifies his calamities as well as his blessings, and desires nothing so much as to have the name of Kansas, in any capacity, always in the ears and mouths of men.

Such accusations are well calculated to make the judicious grieve. They result from a misconception of the man and his environment.

The normal condition of the genuine Kansan is that of shy and sensitive diffidence. He suffers from excess of modesty. He blushes too easily. There is nothing he dislikes so much as to hear himself talk. He hides his light under a bushel. He keeps as near the tail end of the procession as possible. He never advertises. He bloweth not his own horn, and is indifferent to the band wagon.

He is oppressed by the vast responsibility of being an inhabitant of a commonwealth so immeasurably superior, in all the elements of present glory, in all the prophecies of future renown, to its inferior companions.

To be a denizen of a State that surpasses all other communities, as Niagara excels all other cataracts, as the sun transcends all other luminaries, imposes obligations that render levity impossible.

The every-day events of Kansas would be marvels elsewhere; our platitudes would be panegyrics; the trite and commonplace are unknown. It is impossible to over-estimate the value of citizenship in a State that sent more soldiers into the Union armies than it had voters when Sumner felt that exceeded all quotas without dirt or bounty; that had the highest rate of mortality upon the field of battle. That a State so begotten and nurtured should be as indomitable in peace as it was invincible in war, was inevitable. Its gestation was heroic. It represented ideas and principles; conscience, patriotism, duty; the "unconquerable mind and freedom's holy flame."

No other State encountered such formidable obstacles of nature and fortune. Our disasters and catastrophes have been monumental. Swarms of locusts eclipsing the sun in their flight, whose incredible voracity left the forests, and the orchards, and the fields of June as naked as December; drouths changing the sky to brass and the earth to iron; siroccos that in a day devastated provinces and reduced thousands from comfort to penury—these and the other destructive agencies of the atmosphere have been met by a courage that no danger could daunt, and by a constancy unshaken by adversity.

The statistics of the census tables are more eloquent than the tropes and phrases of the rhetorician. The story of Kansas needs no reinforcement from the imagination. Its arithmetic is more dazzling and bewildering than poetry, and the historian is compelled to be economical of truth and parsimonious in his recital of facts, in order not to impose too great a strain upon the capacity of human credulity.

Notwithstanding the mishaps of husbandry and the fatalities of nature, it is a moderate and conservative statement that no community ever increased so rapidly in population, wealth and civilization, nor gained so great an aggregate in so brief a time, as the State of Kansas. There is no other State where the rewards of industry have been so ample, and the conditions of prosperity so abundant, so stable and so secure as here.

CONDENSED IMPORTANT FACTS RELATING TO KANSAS.

Altitude. Highest at Conorado, Sherman county, 3,906 feet. The decline from this to the eastern edge of the state is about 3,000 feet, causing the many rivers to flow rapidly.

Climate. Leavenworth, Leavenworth county, average annual temperature January 24 above; July 78. Extremes: 107, 29 below. Average annual rainfall, 38.4 inches; at Dodge, Ford county, 19.8 inches.

Dimensions. See general description of Kansas.

History. Believed to have been visited by Spaniards under Vasquez de Coronado in 1541. Partly explored by Frenchmen from Louisiana in 1819-20. After an exciting contest between advocates of pro-slavery and free state, a constitutional convention was held at Wyandotte, Kansas, in 1859, and a constitution adopted prohibiting slavery. In 1861 Kansas was admitted to the Union. During the civil war 20,151 men went into the service in defense of the Union. In various parts of the State Indian massacres occurred between 1864 and 1870 and locusts devoured the crops in 1874.

STATE AND THE 119 COUNTIES OF KENTUCKY

With Their Boundaries

LOCATION AND POPULATION OF KENTUCKY COUNTIES

Location and Population of KENTUCKY COUNTIES			Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
Lo- ca- tion	COUNTIES	Pop. 1910	26	Woodford	6,153	58	Menifee	6,153	90	Hickman	11,750
1	Trimble	6,512	27	Jessamine	12,613	59	Morgan	16,259	91	Fulton	14,114
2	Carroll	8,110	28	Fayette	47,715	60	Elliot	9,814	92	Graves	33,539
3	Gallatin	4,691	29	Clark	17,987	61	Lawrence	20,067	93	Marshall	15,771
4	Boone	9,420	30	Bourbon	17,462	62	Johnson	7,482	94	Calloway	19,867
5	Kenton	70,355	31	Nicholas	12,601	63	Martin	7,291	95	Trigg	14,539
6	Campbell	99,369	32	Montgomery	10,868	64	Livingston	10,627	96	Christian	38,845
7	Oldham	7,248	33	Bath	13,988	65	Crittenden	13,296	97	Todd	16,488
8	Henry	17,716	34	Fleming	16,066	66	Lyon	9,423	98	Logan	24,977
9	Owen	14,248	35	Lewis	16,887	67	Caldwell	14,063	99	Warren	30,579
10	Grant	10,581	36	Greenup	18,475	68	Hopkins	34,291	100	Simpson	11,460
11	Pendleton	11,985	37	Rowan	9,438	69	Muhlenburg	28,598	101	Allen	14,882
12	Bracken	10,308	38	Carter	21,066	70	Butler	15,895	102	Barren	25,293
13	Jefferson	262,920	39	Boyd	23,414	71	Edmonson	10,469	103	Metcalfe	10,453
14	Shelby	18,011	40	Henderson	29,352	72	Hart	18,173	104	Monroe	13,663
15	Franklin	21,135	41	Daviess	11,020	73	Green	11,871	105	Cumberland	9,846
16	Scott	16,956	42	Hancock	8,512	74	Taylor	11,961	106	Adair	16,503
17	Harrison	16,173	43	Beckinridge	21,034	75	Casey	15,479	107	Russell	10,861
18	Robertson	4,121	44	Union	19,886	76	Lincoln	17,897	108	Clinton	8,153
19	Mason	18,611	45	Webster	20,974	77	Rock Castle	14,473	109	Wayne	17,518
20	Meade	7,783	46	McLean	13,341	78	Jackson	10,734	110	Pulaski	35,985
21	Hardin	22,696	47	Ohio	27,643	79	Lee	9,531	111	Laurel	19,872
22	Bullitt	9,487	48	Grayson	19,958	80	Owsley	7,979	112	Clay	17,789
23	Nelson	16,830	49	Larue	10,701	81	Wolfe	9,864	113	Leslie	8,976
24	Spencer	7,567	50	Washington	13,940	82	Breathitt	17,540	114	Perry	11,255
25	Anderson	10,146	51	Marion	16,330	83	Magoffin	13,654	115	Letcher	...
			52	Mercer	14,063	84	Knott	10,791	116	Whitley	31,982
			53	Boyle	14,668	85	Floyd	18,623	117	Knox	22,116
			54	Garrard	11,894	86	Pike	31,679	118	Bell	28,447
			55	Madison	26,951	87	Ballard	12,690	119	Harlan	10,566
			56	Estill	12,273	88	McCracken	35,064			
			57	Powell	6,268	89	Carlisle	9,040	Total	2,289,905	

Kentucky Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Adairville	A	98	Amos	101	420	Bailey Mine	B	39	Baskett	40	270
*Albany	108	579	Anchorage	13	384	Bandana	87	337	*Beattyville	79	1,364
Alexandria	6	353	Arlington	89	550	*Barbourville	117	1,633	Beaver Dam	47	762
Allensville	97	436	Asbury	55	290	*Bardstown	23	2,126	*Bedford	1	269
Almo	94	225	Ashburyburg	68	750	*Bardwell	89	1,087	Beech Grove	46	208
Alms House	13	209	Ashland	39	8,688	Barlow	87	532	Bellevue	6	6,683
Alpine	110	360	Athertonville	49	306	Barnesley	68	375	*Benton	93	824
Alvaton	99	209	Auburn	98	631	Barrenfork	110	560	Berea	55	1,510
			Augusta	12	1,787				Berkeley	89	309

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Kentucky Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Bernstadt	111	406	Curdsville	41	235	*Harrodsburg	52	3,147	Mitchellsburg	53	230
Berry	17	339	*Cynthiana	17	3,693	*Hartford	47	976	Monterey	59	260
Beyer	69	208				*Hawesville	42	1,002	*Monticello	109	1,338
Big Clifty	48	260				Hazel	14	537	Moorefield	31	209
Big Spring	20	309	D			Hazel Green	81	257	Moore's Ferry	33	560
Birdsville	64	260	Daleville	113	360	Hebbardsville	40	350	*Morehead	37	1,105
Birmingham	93	349	Danville	53	5,420	Hellier	86	525	Moreland	76	250
Blackford	45	449	Dawsonsprings	68	1,350	*Henderson	40	11,452	*Morganfield	44	2,725
Blanche	118	300	Dayton	6	6,979	Henshaw	41	306	*Morgantown	70	549
Blantonville	87	229	Dekoven	44	690	*Hickman	91	2,736	Mortons Gap	68	1,266
Bloomfield	23	352	Denton	38	432	High Bridge	27	296	Mortonsville	26	202
Bloomington	83	360	Dexter	38	432	Highland Park	13	1,977	Moscow	90	500
Bonanza	85	260	Dishman	116	220	Hillside	69	560	*Mount Olivet	18	321
Bonham	111	280	*Dixon	45	741	*Hindman	84	370	Mount Pleasant	1	657
Bonnieville	72	257	Drakesboro	69	1,126	*Hodgenville	49	744	*Mt. Sterling	32	2,932
*Booneville	80	236	Dry Ridge	10	360	*Hopkinsville	96	9,419	*Mt. Vernon	77	230
Bosworth	118	408	Dundee	47	200	Horse Cave	72	881	Mt. Washint'n	22	460
Botland	23	290	Dundee	57	402	Hutsonville	76	384	Mouthcard	86	250
*Bowl'g Green	91	9,173	Durbin	39	360	*Hyden	113	316	*Mumfordsville	72	475
Bradfordville	51	330							*Murphyville	94	2,859
Bradshaw	78	396	E						*Murray	94	2,809
*Brandenburg	20	482	Earlington	68	3,931	I			Myers	31	280
Bremen	69	294	E. Bernstadt	111	698	Idamay	79	200			
Brent	28	380	East Point	62	250	*Inez	63	412	N		
Brighton	28	350	Echols	47	250	*Irvine	56	272	Nebo	68	298
Brodhead	77	477	*Eddyville	66	1,442	Irvington	43	665	Nepton	34	235
Bromley	5	819	Eden	63	412	Island	46	647	Nerinx	51	220
Bromley	9	819	*Edenton	55	381				Nevada	52	206
*Brooksville	12	492	*Edmonton	103	250	J			*New Castle	8	468
*Brownsville	71	313	*Elizabethton	21	1,970	*Jackson	82	1,316	New Haven	23	405
Bruce	35	209	*Elkhorn City	86	360	Jeffersonton	13	345	New Hope	23	249
Buffalo	49	298	*Elkton	97	1,228	Jellicoecreek	116	546	New Liberty	9	214
Bulah	90	260	Ellisburg	75	325	Jonesville	9	648	*Newport	6	30,309
Burgin	105	679	Elsmere	6	960	Junction City	53	747	*Nicholasville	27	2,935
*Burkesville	52	619	Elvira	112	320				Normal	39	300
Burnside	110	1,117	Eminence	8	1,274	K			North Fork	19	260
Butler	11	426	Empire	96	220	Keene	27	590	North Middle-		
			Epworth	35	209	Kensee	116	206	town	30	390
C			Erlanger	5	700	Kevil	87	200	North Pleasure-		
*Cadiz	95	1,005	Ewing	34	390	Kewanee	86	226	village	8	235
Cairnes	118	209				Kidds Store	75	309	Nortonville	68	254
*Calhoun	46	742	F			Kings Mount'n	76	350			
California	6	248	Fairfield	23	292	Kirkmansville	97	206	O		
Campbellsburg	8	269	Falcon	83	220	Kirksey	94	269	Oakdale	82	2,073
*Campbells'v'le	71	1,206	Falls of Rough	48	250	Knotts'ville	41	212	Oakland	99	257
Camp Nelson	27	260	*Falmouth	11	1,180	Kuttawa	66	889	Oakton	90	266
*Campton	81	326	Fancy Farm	92	226				Olive Hill	38	1,132
Canada	86	320	Farmers	37	427	L			Olympia	33	260
Caney	59	480	Firebrick	35	260	La Center	87	426	*Owensboro	41	16,011
Caneyville	48	430	Fiskburg	5	250	La Fayette	96	266	*Owington	9	1,024
Cannel City	59	296	Fitch	38	380	La Grange	7	1,152	*Owingsville	33	942
Carbondale	68	209	Flat Lick	11	250	Lancaster	54	1,517			
*Carlisle	31	1,383	*Flemingsburg	34	1,219	Lanonia	5	1,882	P		
Carrollton	2	1,966	Florence	4	250	*Lawrenceb'g	25	1,723	*Paducah	88	22,760
Carrollville	64	298	Flossie	109	320	Layman	119	206	Paint Lick	54	225
Carter	38	259	Folsomdale	92	250	Lebanon	51	3,079	*Paintsville	62	942
Caseyville	44	230	Ford	29	702	Lebanon Jct.	22	807	*Paris	30	5,859
*Cattlettsburg	39	3,520	Fordsville	47	649	Lee City	81	269	Parkers Lake	110	280
Cave City	102	645	Fort Branch	114	360	*Leitchfield	48	1,053	Parksville	53	209
Cayce	91	250	Fort Thomas	6	590	Lesbas	111	290	Patesville	61	580
Centertown	47	299	(Capitol)	15	10,465	Lewisburg	98	253	Peach Orchard	61	580
Centerville	30	290	*Franklin	100	3,063	Lewisport	42	596	Pembroke	96	731
Central City	69	2,545	Fredonia	67	421	*Lexington	28	35,099	Perryville	53	407
Cerulean	95	272	Fulton	91	2,575	*Liberty	75	330	Petersburg	4	393
Chester	111	360	Ferguson	110	404	Little	36	290	Pettit	41	280
Chesley	68	220	G			Little Hick'm'n	27	250	Pewee Valley	7	651
Chinnville	36	209	Garnettsville	20	290	Little Rock	30	280	Peytontown	55	209
Cicero	26	250	Garrison	35	206	Livermore	46	1,220	*Pikeville	86	1,280
Clahill	36	290	*Georgetown	16	4,533	Livingston	77	685	Pine Hill	77	506
Clarkson	48	376	Germantown	12	287	*London	11	1,638	Pine Knot	116	209
Clay	45	1,098	Ghent	2	421	Lot	116	250	*Pineville	118	2,161
Clay City	57	581	Gilbertsville	93	458	*Louisa	61	1,356	Pittsburg	111	931
Clay Switch	92	260	*Glasgow	102	2,316	*Louisville	13	223,928	Pleasant View	116	560
Clearfield	37	209	Glasgow Jct.	102	303	Lovelsaveville	87	400	Pleasure		
Clermont	22	280	Glencoe	3	237	Lowes	92	220	Ridge Park	13	220
*Clinton	90	1,497	Glensboro	25	230	Ludlow	5	4,163	Pleasureville	8	522
Cloverport	43	1,403	Glen Dean	43	269	Lunah	82	206	Pollard	39	1,506
Coalport	17	275	Gourd	115	360	M			Powderly	69	309
Coalton	39	480	Grahn	38	350	McHenry	47	530	Praise	86	306
Cold Spring	6	660	Grahamton	20	325	McKinney	76	420	*Prestonsburg	85	1,120
Coleburg	21	220	Grand Rivers	64	320	McNeal	39	206	Princess	39	306
College Hill	55	269	Gratz	9	213	*Madisonville	68	4,966	*Princeton	67	3,015
Colly	115	260	*Grayson	117	400	*Manchester	112	626	Providence	45	2,084
Colson	115	320	*Greensburg	38	735	*Marion	65	1,627	Pryorsburg	92	242
*Columbia	106	1,022	*Greenup	73	450	Marrowbone	105	280	Puncheon	84	390
Columbus	90	970	*Greenville	69	680	Maxon Mill	19	220			
Concord	35	213	Greenwood	110	460	*Mayfield	92	5,916	Q		
Conway	77	226	Grit	111	320	Mays Lick	19	308	Quincy	35	285
Coolidge	110	250	Guthrie	97	1,096	*Maysville	19	6,141	Quinton	110	506
Corbin	116	2,589	H			Mead	39	200			
Corinth	10	252	Hagerhill	62	251	Mentor	6	250	R		
Cornishville	52	360	Haldeman	37	280	Mercer	69	1,290	Randville	35	250
Corydon	40	912	Halsey	116	590	Middlesboro	118	7,308	Redash	116	590
*Covington	5	53,200	Hamby Sta.	68	230	Midway	26	937	Regina	86	260
Crab Orchard	76	467	Hanson	68	509	Millburn	89	207	Render	17	306
Crab Orchard Mine	111	250	Hardin	93	366	Millersburg	30	799	*Richmond	55	5,340
Crab Orchard Sp'gs	5	350	*Hardinsburg	43	737	Milton	1	355	Riverton	36	290
Crofton	96	402	*Harlan	119	560	Mining City	70	250	Robard	40	334
Cunningham	89	250							Robbins	82	209
									Robinet	77	260
									Robinson Creek	86	250
									Rochester	70	437

Kentucky Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Rockport	47	658	Siloam	36	290	*Taylorsville	24	622	Wasioto	118	360
Rowland	76	590	Slade	57	402	Templer	111	290	Waterford	24	206
Rowletts	72	233	Slate Lick	55	290	Tippie	88	509	Water Valley	92	228
Ruddells Mills	30	240	Slaughterville	45	443	Tolesboro	35	460	Waverly	44	311
Rumsey	46	413	Sloans Valley	110	220	*Tomk'sville	104	639	Webbville	61	260
Rural	86	209	Smithfield	8	359	Torchlight	61	220	Wentz	114	290
Russell	36	1,038	Smithland	64	557	Travelers Rest	80	296	*West Covington	5	1,751
*Russellville	98	3,111	Smiths Grove	99	726	Trenton	97	633	*West Liberty	59	442
S			Smith Mills	40	390	Turnersville	76	280	West Point	21	282
Sacramento	46	438	*Somerset	110	4,191	Tyler	88	506	Westport	7	390
Sadleville	16	467	Sonora	21	250	Tyrone	25	544	Wheatcroft	45	490
Saint Charles	68	660	South			U			White Plains	68	281
Salem	61	320	Carrollton	69	365	Union	4	275	*Whitesburg	115	321
Salt Lick	33	532	South Gate	6	627	Uniontown	44	1,356	Whitesville	41	452
Salvisa	52	393	South			Urban	112	496	*Wickliffe	87	989
Salversville	83	310	Portsmouth	36	520	Utica	41	390	*Williamsburg	116	2,004
Sanders	2	250	Spottsville	40	448	V			Williamsport	62	290
Sandyfork	113	250	Springfield	50	1,329	Valley View	53	596	*Williamstown	10	806
Sardis	19	261	Stamping			Vanceburg	37	1,145	Wilmore	27	1,060
Science Hill	110	257	Ground	16	381	Verona	4	220	Wilton	117	296
*Scottsville	101	1,327	*Stanford	76	1,532	Versailles	26	2,268	*Winchester	29	7,156
Sebree	45	1,509	*Stanton	57	278	Vine Grove	21	570	Wingo	92	404
Sedalia	92	250	Stephensport	43	205	Visalia	5	250	Woburn	82	217
Shady Grove	65	206	Stewartsville	10	209	Viva	111	250	Wolf	38	306
Shannondale	28	200	Stinson	38	200	W			Woodburn	99	217
Sharongrove	97	306	Stithon	21	390	Waco	55	210	Woodville	88	250
Sharpsburg	33	410	Sturdis	44	1,467	Waddy	14	254	Worthville	2	326
Shawhan	30	390	Sulphur	8	255	Wallsend	118	506	Y		
Shelby City	53	275	Summer Shade	103	110	Walton	4	650	Yale	33	260
*Shelbysville	14	3,412	Summersville	73	320	Warsaw	3	960	Yelvington	41	406
*Shepherdsville	22	318	Switzer	15	390	Washington	19	433	Z		
Sherrburne	34	253	T						Zion	40	224
Sherman	10	350	Talcum	84	208						
Shively	13	280	Taylor Mines	47	353						

KENTUCKY

The Blue Grass Regions—Fine Live Stock—Support of the Union Cause

GENERAL DESCRIPTION OF THE STATE.

Kentucky. Historic name. It is difficult to do justice or even partial justice to this state in so many ways renowned. Here **Daniel Boone** explored portions of the state in 1769, built a fort at the point occupied by the **village of Boonsboro**, in Clark Co., Ky., in 1775. Had numerous skirmishes with the Indians, but survived to remove to Upper Louisiana, in 1798, to a tract of land, comprising 2,000 acres, given to him by the Spanish authorities. He settled with his family and followers at Charette, on the Missouri River, beyond the inhabited regions of the country, and there followed the occupation of hunting and trapping bears till his death, which occurred in 1820. He was one of the **daring land seekers** and pioneers, who was brave enough to contend with the difficulties which sometimes beset settlers in a new country.

DISTINGUISHED MEN OF KENTUCKY.

Kentucky was the home of **Henry Clay** for 50 years, 46 years of which period he ably represented his state in Congress, being **outspoken** in favor of the **abolition of slavery**. He was the author of tariff legislation favorable to protecting infant industries in the United States; was the author of the "Missouri Compromise," favored the recognition of the **South American Republics**, the independence of Texas, and many public measures of great importance; speaker of the House for a time; secretary in cabinet of John Quincy Adams; candidate for Congress in 1824 and 1832 and a most graceful and **polished speaker**. He was for nearly a half century one of the **most influential members** of the National legislature ever in Congress.

Here at Lexington was the home of **Cassius M. Clay**, from 1840 to the close of his official life, as Minister to Russia in 1860. He was in the Mexican war, was an out and out **opponent of slavery**. His paper, **The True America**, was destroyed by a pro-slavery mob. He subsequently revived his paper and circulated it in Kentucky, although printed in Cincinnati. His "Life, Writings and Speeches" are published in two volumes.

THE REGION OF FEUDS.

Here was the feud region of the South, where misunderstanding and ill feeling arising between two families would go on and on, through a generation, the fire of animosity and revenge only becoming extinguished when the last surviving member of one family was shot by a member of the other family, which happened to survive.

Happily these feud quarrels and the manufacture of illicit whisky by moonshiners in the mountains are becoming past events in the onward march of the civilization of the South. We allude

to them here only as relics of a peculiar people in a past age.

Though a **slave state**, every possible effort was made by the Governor and the authorities of Kentucky to keep the State out of the ranks of the seceded states during the Civil War. This was successful in that no act of secession was passed, but some 40,000 men of the state went into the Confederate service. The loyalty to the Union cause was demonstrated, however, by 91,900 troops being recruited for the Union side. This is also long past history.

FAMOUS BLUE GRASS REGION OF KENTUCKY.

Kentucky contains the celebrated Blue Grass region. From this section of the United States come the famous Kentucky **high bred horses** and the premium Shorthorn cattle.

Of the 40,000 square miles of territory, it is claimed that there are not over 200 square miles of irrefragable land. The southeast part of the state is broken by the Cumberland mountains, none of whose summits attain over 3,000 feet in height. The hills and valleys are well wooded. West and north of this region lies a gently undulating upland, intersected by rivers flowing through deep valleys. The soil of this region is of the very finest quality, being in fact what is known as the Blue Grass region, extending from the Ohio River, southward, to the Cumberland River, through the central portion of the state. The **barrens**, so called, lie to the westward of the blue grass country. The region is being brought forward farmed, and though naturally not so fertile as the blue grass soil, bids fair, under proper management, to be profitable land to cultivate.

Land seekers are advised to investigate this region carefully.

COAL AND HYDRAULIC LIMESTONE FOR CEMENTS.

The coal measures, which occupy the whole eastern part of the state, are a part of the great Appalachian coal field, which overspreads western Virginia and Pennsylvania.

Limestones of wide extent and great thickness are found. Hydraulic limestone is found near the falls at Louisville and is extensively used in the manufacture of cement.

The Mammoth Cave, in Edmonson Co., near Green River, is one of the wonders of the world, which people from all parts of the earth come great distances to see. It has been explored for a distance of more than 10 miles.

That this region has been, in former times, the abode of mammoth animals is shown in the finding of the remains of the **mastodon**, **mammoth**, **musk ox**, **elk**, etc., in large numbers.

Kentucky Opportunities in Agriculture and Varied Enterprises

SALT BEDS OF KENTUCKY.

In Clay and Meade Cos. salt is obtained in large quantity by boring. Iron ores are found in the northeast corner of the state, where numerous furnaces are in operation. Other products of the state are saltpeter, gypsum, natural gas, asphaltum and petroleum.

WILD ANIMALS AND FORESTS OF KENTUCKY.

Of the larger wild animals deer yet remain in abundance. The smaller animals, including the badger, raccoon, groundhog, rabbit, opossum, etc., are yet common, as are the wild turkey, partridge, ducks, etc.

In the forests, which yet cover a large part of the State, particularly in the river valleys, may be found a numerous variety of trees, comprising the ash, elm, white pine, yellow pine, tulip, hickory, sweet gum, black walnut, sugar maple, white, red and black oaks, locust, buckeye, cottonwood, coffee tree, cypress and catalpa.

That enterprising, industrious tillers of the soil can be well rewarded for their labor throughout all portions of the state, is revealed by a study of climatic conditions. The average annual temperature is about 55. Winter continues from the last of November till the first of April, but snowfalls are light and seldom remain long upon the ground. The average annual rainfall for the state is 47 inches, which ensures almost invariably a regular and abundant crop.

With the abundance of streams traversing the State in all directions along the elevations it is highly probable that many of the valleys could be irrigated, making them absolutely free from any possibility of loss of crops from drouth.

FERTILIZING MATERIAL IN THE BLUE GRASS REGION.

The blue grass region covers something over 10,000 square miles. This portion of the state is overlaid with a substratum of limestone, which is continually undergoing decay. This serves as fertilizer, enriching the soil to such a degree that abundant crops can be grown on the same land for a century without apparently diminishing the fertility of the land.

People in search of location for homes should visit the blue grass region. What is there about limestone that so tends to fertilize the soil? Is it the stone itself in bulk or must it be pulverized? Is the disintegration of the stone on the soil through the natural process of exposure to air necessary to secure fertilization? or can this stone be ground into a fine meal, taken elsewhere and spread upon land with favorable result?

Used anywhere this limestone is a superior fertilizer. The agriculturist of the blue grass region has the advantage of having this material right on the ground, and fortunate is the agriculturist who owns a farm in the blue grass country of Kentucky.

A very certain crop in this state is tobacco. Other crops in their order are corn, oats, wheat, potatoes, hay and rye. Apples and peaches are the reliable fruits.

The principal industries in the order of value of output are distilling liquors, flour and grist milling, lumber making from logs, manufacturing chewing and smoking tobacco and snuff, foundry and machine shop work, slaughtering and meat packing, stemming tobacco, tanning leather, malt liquors, wooden goods, iron and steel furniture, agricultural implements, cigars, brick, tile and cotton goods.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest at Big Black Mountain, in Harlan Co., 4,100 feet.

Climate. Average annual January temperature at Louisville, 34 above, July 79. Extremes, 107 and 20 below.

Dimensions. Extreme length of state, 350 miles. Extreme width, 175 miles. Area of state, 40,400 square miles.

History. Was formerly a portion of the territory of Virginia. The first white explorer was John Finley, who went there with a few companions in 1767. Daniel Boone, Finley and others went there in 1770. In 1774 a settlement made at Harrodsburg by James Harrod and others. A fort built by Daniel Boone at Boonesboro. Several skirmishes and battles with the Indians. Kentucky organized as a territory in 1790. Admitted to the Union as a state in 1792.

THE MAMMOTH CAVE OF KENTUCKY.

From an article by W. Stump Forward, published in the American Cyclopaedia, we gather the following:

Mammoth Cave, the largest cavern known, situ-

ated near Green River in Kentucky, about seventy-five miles south by southwest of Louisville.

Its mouth is reached by passing down a wild rocky ravine through a dense forest. It is an irregular funnel-shaped opening, from fifty to one hundred feet in diameter at the top, with steep walls about fifty feet high.

The cave extends about nine miles, and it is said that to visit the portions already traversed requires from 150 to 200 miles of travel. This vast interior contains a succession of marvelous avenues, chambers, domes, abysses, grottoes, lakes, rivers, cataracts, etc., which for size and wonderful appearance are unsurpassed.

The rocks present numerous forms and shapes of objects in the external world, while stalagmites and stalactites of gigantic size and fantastic form abound, though not so brilliant and beautiful as are found in some other caves.

Chief among the objects of interest are Silliman's Avenue, about one and a half miles long, from twenty to two hundred feet wide, and from twenty to forty feet high; Marion's Avenue, of about the same dimensions; the Star Chamber, about 500 feet long and seventy feet wide, the ceiling of which, seventy feet high, is composed of black gypsum and is studded with innumerable white points, which by a dim light present a most striking resemblance to stars; and Cleveland's Cabinet, an avenue about two miles long, spanned by an arch of fifty feet, with an average central height of ten feet.

By many the last is regarded as the most wonderful object in the cave. It is encrusted, from end to end, with the most beautiful formations in every variety of form. The base of the whole is sulphate of lime, in one part of dazzling whiteness and perfectly smooth; and in other places crystallized so as to glitter like diamonds in the light.

Growing from this in endless diversified forms is a substratum resembling selenite, translucent and imperfectly laminated. Some of the crystals bear a striking resemblance to celery, and all are of about the same length; while others, a foot or more in length, have the color and appearance of vanilla cream candy; others are set in sulphate of lime, in the form of a rose, and others still roll out from the base in forms resembling the ornaments on the capital of a Corinthian column.

Some of the incrustations are massive and splendid; others are as delicate as the lily or as fancy work of shell or wood.

Sidesaddle Pit, over which rests a dome sixty feet high, is about ninety feet deep and twenty feet across. This and some of the other pits and domes in the cave have been formed out of the solid rock by the solvent action of water charged with carbonic acid.

The deepest of the pits are the Maelstrom, 175 feet in depth, and twenty feet in diameter, and the Bottomless Pit, about the same depth.

There are several bodies of water in the cave, the most considerable being Echo River, which is about three-fourths of a mile long, 200 feet wide at some points and from ten to thirty feet deep, its course being beneath an arched ceiling of smooth rock, about fifteen feet high. This river has invisible communication with Green River, the depth of water and the direction of the current in the former being regulated by the stage of water in the latter.

The River Styx, 450 feet long, fifteen to forty feet wide, and from thirty to forty feet deep, is spanned by an interesting natural bridge about thirty feet above it.

Lake Lethe is about 450 feet long and from ten to forty feet wide, and varies in depth from three to thirty feet. It lies beneath a ceiling about ninety feet above its surface. Its waters sometimes rise to a height of sixty feet in consequence of freshets in Green River.

The Dead Sea is gloomy body of water somewhat smaller than the preceding two. Remarkable species of animal life are found in the cave in the form of an eyeless fish and the eyeless crayfish, which are nearly white in color. Another species of fish has been found with eyes, but totally blind.

Other animals known to exist in the cave are lizards, frogs, crickets, rats, bats, etc., besides ordinary fish and crawfish washed in from Green River.

The atmosphere of the cave is pure and healthful; the temperature, which averages 59 degrees above zero, is about the same winter and summer, not being affected by climate outside.

The Mammoth Cave was discovered in 1809 and has always been the property of private individuals. For sometime after its discovery saltpetre was made there.

In this vicinity are also Proctor's Cave, about three miles in length; White Cave, Diamond Cave and Indian Cave, each about a mile long.

STATE AND THE 60 COUNTIES OF LOUISIANA

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF LOUISIANA PARISHES (COUNTIES).

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Caddo..	58,200	17.....	Richland..	15,769	33	West Feliciana..	13,449	49.....	Iberia..	31,262
2.....	Bossier..	21,738	18.....	Franklin..	11,989	34	East Feliciana..	20,055	50.....	St. Mary..	39,368
3.....	Webster..	19,186	19.....	Mason...	.....	35.....	St. Helena..	9,172	51.....	Assumption..	24,128
4.....	Claiborne..	25,050	20.....	Tensas..	17,060	36...	Tangipahoa..	29,160	52.....	St. James..	23,009
5.....	Lincoln..	18,485	21.....	Sabine..	19,874	37...	Washington..	18,886	53	St. John the	.....
6.....	Union..	20,451	22...	Natchitoches..	36,455	38...	St. Tammany..	18,917	Baptist	14,338	
7.....	Morehouse..	18,786	23.....	Grant..	15,958	39.....	Acadia..	31,847	54.....	Terrebonne..	28,320
8.....	West Carroll..	6,249	24.....	La Salle..	9,402	40.....	Lafayette..	28,753	55.....	La Fourche..	23,111
9.....	East Carroll..	11,637	25.....	Catahoula..	10,415	41.....	St. Martin..	23,076	56.....	St. Charles..	11,207
10.....	De Soto..	27,689	26.....	Concordia..	14,278	42	W. Baton Rouge..	12,636	57.....	Orleans..	339,075
11.....	Red River..	11,402	27.....	Vernon..	17,384	43.....	Iberville..	39,954	58.....	Jefferson..	18,247
12.....	Bienville..	21,776	28.....	Rapides..	44,545	44.....	Ascension..	23,887	59.....	Plaquemines..	12,524
13.....	Jackson..	18,818	29.....	Avoynes..	34,102	45	E. Baton Rouge..	34,580	60.....	St. Bernard..	5,277
14.....	Winn..	18,357	30.....	Calcasieu..	62,767	46...	Livingstone..	10,627			
15.....	Caldwell..	8,593	31.....	St. Landry..	66,661	47.....	Cameron..	4,288			
16.....	Ouachita..	25,830	32.....	Coupee..	.....	48.....	Vermillion..	26,390			
									Total.....	1,656,388	

Louisiana Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
*Abbeville	48...	2,907	Albemarle	51...	1,202	Alliance	59...	220	*Amite	36...	1,677
Abita Springs..	38...	365	Alberta	12...	590	Ama	56...	890	Anchor	32...	390
Adeline	50...	808	Alden Bridge..	2...	560	Amelia	50...	400	Angle	37...	346
			Alexandria ..	28...	11,213	Amelia	50...	460	Anslvey	13...	660
			Allemands ..	56...	506	Amesville ..	58...	290	Antrim	2...	350

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Louisiana Cities and Villages with 1910 Populations

Towns

Loca. Pop.

Arabi40. 250

Arbroth42. 390

*Arcadia12. 1,079

Argyle32. 260

Arnoldville31. 279

Ashtland22. 200

Athens4. 514

Atkins2. 360

Atlanta14. 311

Belt City Island49. 208

Avoca51. 380

Ayers21. 250

B

Baldwin50. 1,062

Bancroft30. 290

Barataria58. 660

Barham27. 250

*Bastrop7. 854

Batchelor32. 290

Baton Rouge (capital)45. 14,897

Bayou Goula43. 1,020

Bayou Lacomb38. 600

Bayou Sara33. 630

Baywood45. 360

Belair59. 660

Belcher1. 260

Belle City30. 325

Belle Alliance51. 860

Belledean29. 409

Bellerose51. 506

Benson10. 209

Bentley23. 209

*Benton2. 318

Bermuda22. 270

Bernice6. 781

Bertrandville59. 360

Berwick50. 2,183

Bethany1. 250

Bienville1. 656

Bijou28. 290

Blanchard1. 260

Bogalusa37. 1,808

Boleyn22. 350

Bolinger2. 380

Bonami30. 309

Bonita7. 273

Bossier2. 773

Bourg54. 560

Boutte56. 309

Bowie53. 1,069

Boyce28. 339

Breaux Bridge41. 1,339

Brice12. 250

Broussard40. 449

Brusly42. 390

Bryceland12. 250

Bunkie29. 1,765

Buras59. 560

Burton52. 406

C

Calhoun16. 260

*Cameron47. 260

Campti22. 664

Carenero40. 609

Carson30. 560

Carville43. 306

Caspiana34. 918

Cataro31. 260

Centerville50. 509

Charenton50. 402

Chauvui54. 260

Cheneyville28. 498

Cheniere16. 226

Choubrant5. 360

Church Point39. 481

Cinclare42. 406

Clarks15. 750

*Clinton31. 260

Cloverville22. 360

Cocoville29. 590

*Colfax23. 1,049

Collinston7. 333

*Columbia15. 580

*Convent52. 390

Caryose21. 260

Cooper27. 309

Cottonport29. 866

Cotton Valley1. 750

*Coushatta31. 264

*Covington38. 2,601

*Crowley39. 5,099

Cut Off55. 260

Cypremort50. 206

D

Daniels30. 325

Dean6. 320

Delcambre49. 308

Delhi17. 685

Delta19. 290

Denham Spgs.46. 574

De Quincy39. 715

De Ridder30. 2,100

Des Allemands56. 560

Diamond59. 360

Dime59. 200

Dodson14. 845

*Donaldsville44. 4,090

Donner54. 260

Dorcyville43. 206

Doyline3. 390

Dubach3. 206

Dubberly31. 250

Dubuisson38. 260

Dunbar28. 238

E

Echo28. 238

*Edgard53. 250

Edna30. 220

Elizabeth30. 290

Ellendale54. 360

Empire59. 208

Eola29. 460

Erath48. 575

Eros13. 898

Estherwood39. 544

Eunice31. 1,684

Evangeline39. 460

Evans27. 225

Evergreen29. 290

F

*Farmerville6. 598

Ferriday26. 77

Fisher21. 1,060

Florian21. 250

*Floyd8. 260

Fordoché32. 230

Forest Hill28. 260

Fort Jesup21. 1,026

*Franklin50. 3,857

*Franklinston37. 814

*Friedberg12. 290

Fryburg12. 290

Fullerton27. 1,238

G

Garden City50. 560

Garville53. 1,060

Genesee36. 606

Gheens55. 560

Gibland54. 1,065

Gibson54. 290

Gilbert18. 250

Gladis37. 560

Glenwild50. 506

Good Pine24. 508

Grace14. 250

Grand Cane10. 485

Grand Coteau31. 392

Grand Isle58. 252

Grappe Bluff22. 360

Graysen15. 206

*Greensburg35. 268

*Greenwood1. 250

*Gretna58. 3,500

Grosse Tete43. 506

Gueydan48. 1,085

Gulldets36. 260

H

Hackberry47. 220

Hahnville56. 306

Hall City30. 890

Hammond36. 2,942

*Hawthornburg25. 361

Hawthorn2. 249

Haynesville27. 280

Hecker30. 400

Hermitage42. 208

Hodge13. 360

Holly10. 406

*Homer4. 1,855

Hope12. 260

Hornbeck27. 459

Hosson1. 280

*Houma34. 5,024

Husser36. 280

Hydropolis29. 590

I

Ida1. 520

Independence36. 1,004

Iota39. 769

J

Jackson34. 2,146

Jacoby32. 275

Joanerette49. 2,206

*Jena24. 689

Jennings30. 3,925

Jesuit Bend59. 243

Jonesboro13. 1,134

Jonesville25. 287

Junonia30. 360

Junction City6. 396

K

Kahns42. 250

Kaplan48. 315

Keatchie10. 560

Kellogg19. 350

Landing58. 1,253

Kenner36. 3,609

Kentwood30. 635

Kinder30. 635

Klotzville51. 508

L

*Labadieville51. 506

*La Fayette40. 6,392

Lafourche

*Crossing55. 360

Lake4. 360

Lake Arthur30. 1,093

Lake Charles30. 1,149

*Lake

Providence9. 1,568

Lakeside47. 225

Lanesville3. 400

L'Argent26. 280

Laura51. 206

Lechmpte28. 1,058

*Lecheville27. 2,043

Lena Station38. 260

Levenille30. 306

Letsworth32. 750

Lincooem23. 520

Little Texas51. 280

Livonia32. 380

Lobdd42. 590

Lockport55. 669

Lofton14. 290

Logansport10. 420

Lostown16. 260

Long Bridge28. 560

Longleaf38. 506

Longwood9. 250

Loreauville49. 291

Loring21. 706

Ludington30. 380

Ludwine55. 220

Luling56. 350

Lutcher52. 1,026

M

McCall44. 700

McDonoghville58. 2,500

Madisonville38. 1,028

Mallard50. 290

Mandeville38. 1,166

Mangham17. 470

*Mansfield10. 1,799

Mansura29. 695

*Many21. 683

Marco22. 390

Mariongouin4. 417

Marion6. 634

*Marksville29. 1,076

Marthaville22. 285

Mathews55. 1,306

Melville31. 1,093

Mermenton39. 383

Mer Rouge7. 536

Miland39. 260

Millicens Bend19. 260

Milton49. 206

*Minden3. 302

Moberly56. 598

*Monroe16. 10,209

Montpeller35. 660

Montrose22. 250

Mooringsport1. 709

Moreaueville29. 728

Morgan City50. 5,477

N

Nairn59. 309

Naomi59. 220

*Napoleonville51. 1,201

*Natchitoches22. 532

Neame27. 500

Neptune59. 330

Nero59. 450

Nesser45. 230

Nettie44. 260

Newellton20. 424

*New Iberia49. 7,499

Newlin30. 208

*New Orleans57. 339,075

*New Roads31. 1,352

Nicholls59. 250

Ninock2. 250

Noble21. 453

O

Oakdale30. 500

Oak Grove8. 398

Oak Ridge7. 332

Oberlin30. 232

Oil City22. 500

Old River24. 250

Olla21. 260

*Opelousas31. 4,623

Orange27. 360

P

Paincourtville51. 550

Parcerperdue49. 260

Parks4. 350

Patterson60. 2,988

Pearl River38. 27

Pelican10. 360

Pickering27. 750

Pineville28. 1,212

Pioneer8. 950

Plain Dealing2. 474

*Plaquemine43. 4,955

*Plaquemine29. 380

Pleasant Hill21. 442

*Pointe a la Hache59. 560

Pollock23. 675

Ponchatoula36. 1,035

*Port Allen42. 750

Port Barre31. 660

Port Barrow44. 802

Port Eads59. 260

Port Hudson45. 350

Port Vincent46. 260

Potash59. 250

Powhatan42. 230

Prairieville44. 250

Provencal22. 262

Q

Quiltman13. 215

R

Raceland55. 560

Ramos50. 250

Ramsay38. 425

Randall39. 306

Randolph6. 590

Randolph Jct.6. 560

Rayne39. 2,247

*Rayville17. 1,079

Reserve53. 408

Richardson37. 319

Ringsgold12. 490

River37. 265

Robeline22. 438

Rochelle22. 468

Rosedale43. 405

Roseland36. 586

Roseline27. 325

Ruddock53. 708

*Ruston5. 3,377

Rustville27. 250

S

Saint Amelia52. 250

*St. Bernard60. 560

*St. Francisville33. 966

St. Gabriel43. 750

*St. Joseph20. 740

Louisiana Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
*St. Martinville..41...	2,318		Springhill .....3	750		Urania .....U			Weeks .....49...	260	
St. Patricks.....52...	260		Stables .....27...	620			24...	250	Welsh .....30...	1,250	
St. Rose.....56...	506		Standard .....24...	806			V		Westlake .....30...	1,500	
St. Tammany.....38...	275		Starling .....38...	260		Vacherie .....52...	256		West Monroe..16...	1,127	
Saline .....12...	346		Sterlington .....16...	406		Vacherie Sta..52...	260		Westwego .....58...	560	
Sarepta .....3	320		Strader .....36...	290		Venice .....59...	480		White Castle..43...	289	
Scotland .....45...	209		Sulphur .....30...	350		Verda .....23...	250		Whitehall .....46...	206	
Scott .....40...	229		Sun .....38...	250		Victoria .....22...	350		Wilson .....34...	762	
Sellers .....56...	260		Sunset .....31...	377		*Vidalia .....26...	1,345		*Winfield .....14...	2,925	
Selma .....23...	860		Sycamore .....28...	290		Vienna .....5...	380		*Winnboro .....18...	821	
Seymourville .....43...	560			T		Ville Platte..31...	603		Winona .....14...	223	
*Shreveport .....1,28,015			Taft Station..56...	596		Vinton .....30...	809		Wyatt .....13...	336	
Sibley .....3	489		*Tallulah .....19...	847		Vivian .....1...	826			Y	
Simsboro .....5	282		Tangipahoa .....36...	391			W		Yellow Pine...3...	1,000	
Slaughter .....34...	284		Terre Haute..53...	250		Walker .....46...	592		Youngsville .....40...	328	
Slidell .....38...	2,188		*Thibodaux .....55...	3,824		Wallace .....53...	309			Z	
Smoke Bend .....44...	660		Tlaga .....28...	633		Walls Lake...16...	290		Zachary .....45...	419	
Sodus .....21...	350		Torres .....32...	560		Washington ..31...	1,528		Zimmerman .....28...	560	
Solitude .....33...	208		Tremont .....5...	506		Water Proof..20...	445		Zwolle .....21...	973	
Springville .....46...	250		Trout .....24...	502							

LOUISIANA

An Ideal Region for the Agriculturist on a Fertile Soil Made from the Wash of Many States

So many good things are to be said of Louisiana it is difficult to do the State justice with the limited space at our command.

COUNTRY LAND BELOW RIVER LEVEL

So far as topography of the State is concerned it has the single disadvantage in some portions of being low, much of the southern part of the State being not more than ten feet above sea level and liable to frequent inundations. The land along the Mississippi River, below New Orleans, and 120 miles above, is below the surface of the river at high water, and is protected from inundation by artificial embankment, called levees. A break in the levee, called a crevasse, sometimes occurs, inundating hundreds of thousands of acres of valuable land.

At present the levee lines by which the shores of rivers are protected in Louisiana from overflow are about 1,430 miles long. Of this 805 miles are situated on the Mississippi River, 395 miles on the Red River and tributaries, 70 miles on the Atchafalaya and 150 miles on Bayou Lafourche.

COST OF MAINTAINING THE LEVEES

To maintain the levees, and protect all low land from inundation, the State levies a general tax of one mill on the dollar, which yields \$315,000 a year. A special tax of 2½ cents per acre and a produce tax is levied, in the levee district, which yields \$1,000,000 annually. Besides this the United States Government has expended for several years yearly about \$700,000 for levee protection through the Mississippi River Commission. Thus it is seen that a thoroughly efficient system is being pursued for the protection of the agricultural interests in Louisiana.

While this is something of a tax on farmers of this region, it is so light, compared with benefits, that no one complains. It should be understood that this vast area of low land, comprising about one-half of the State, for thousands of years, has been receiving fertilizing sediment brought down by the Mississippi River, from the up country.

As the soil in the valleys of Egypt have, for countless centuries, been enriched by the overflow of the Nile, so these Louisiana low lands possess a soil of the very richest fertility. Added to this an annual rainfall, in this section, of over 60 inches, accounts for the fact of abundant crops and no crop failures.

WHAT CAN BE GROWN IN LOUISIANA

Should the question be asked as to what can be grown here, the reply may be, "Ask what cannot be grown."

Either on the uplands or the lowlands, nearly all crops, natural to the North, can be grown, the warm temperature, long seasons with abundant

rainfall, permitting two or three crops to be grown on the same land during a year.

Included in the list of crops which can be grown are vegetables of all kinds, fruits in great variety, pecans and oranges in South Louisiana; bananas and pineapple on the Gulf Coast; sugar cane all over the State; rice, cotton and a great many other products.

"LOUISIANA YESTERDAY AND TOMORROW"

Walter Parker has written an article on the changes taking place in the agricultural development of the State, particularly with reference to the reclamation of wet lands, which contains much important information. He says:

Because Louisiana's climate is mild and her soil is immensely fertile, her sons and daughters have never had to work very hard to earn the necessities of life. And it has only been recently, when great tracts of Louisiana's alluvial prairies began passing from the hands of ancient owners into the hands of enterprising land developers, that the spirit of American enterprise, as it is understood throughout the Middle West, became manifest. The work of reclamation and development is now progressing rapidly, and thousands of thrifty farmers become land owners and move into the State each year.

Yesterday, Louisiana was the home of the great planter whose broad acres of sugar cane and cotton were cultivated by hired negro labor. The planter and his family resided in pleasure-loving New Orleans. On many a place of 5,000 acres no more than five white men resided. The negro does not vote in Louisiana because of the property and educational qualifications. Consequently, throughout the richest agricultural areas in the State the franchise was largely exercised by men whose direct interests were more or less plutocratic, therefore largely contrary to the spirit of the great Middle West.

Today, all this is undergoing complete change. The huge stretches of alluvial prairies, which were built up by silt deposits from the overflowing Mississippi river, are being drained by modern machinery in such a way as to create navigable canals to the harbor at New Orleans out of each main drainage canal. These virgin tracts are subdivided into 10, 20 and 40-acre farms and sold to homeseekers from Indiana, Illinois and other States, and to Hollanders, Germans and other high type agriculturists at less than half the price per acre the half worn-out farm lands in the Middle West now sell for.

THE BEGINNING OF RECLAMATION

The work of reclamation began two years ago when the State of Louisiana withdrew all taxes on real estate mortgage loans, reclamation bond issues and similar forms of investment, and the influx of homeseekers began immediately. Because these artificially drained farms are highly productive and relatively cheap, the demand for them has run

Louisiana Opportunities in Agriculture and Varied Enterprises

ahead of the ability of the drainage machines, and in order to meet this demand, plantation estates are being cut up and sold off in small tracts. In this way all comers are served, and at the same time hundreds of voters are occupying areas on which hundreds of people lived but of which very few could vote. This means a complete change in the political aspect of agricultural Louisiana, and with that change is developing much greater agricultural influences on State and parish political affairs. This will mean better schools and more of them, better roads and expanding enterprise, which of course means better markets and improving values generally.

The Louisiana of tomorrow will be a very different commonwealth from that of yesterday, although the mild climate, the sea breezes, the hospitality of the people, and the wonderful soil will undergo no change. The metamorphosis will relate strictly to the use the new population will make of the advantages Nature has provided.

The new plows will plow deep and often—there is almost no limit to the productiveness of the soil nor is there any ice or snow to terminate growth and maturity—and the owners will accumulate bank rolls for later use.

Rapid refrigerator trains will haul Louisiana fruit and vegetables into the northern markets in increasing volume both before and after other sections can supply those markets.

ONE MILLION ACRES NEAR NEW ORLEANS

New Orleans, which has never had suburbs, will rest in the center of a 1,000,000-acre garden intensively cultivated in 10-acre units. It will all be suburbs, closely linked with the city by inter-urban car lines.

The opening of the Panama Canal will create many new enterprises in city and State, and all of the new workers will require food. The clothing bill in South Louisiana does not have to include flannels and furs.

The other day a party of New York investors paid \$600,000 for a canal that connects the Mississippi River with the Mississippi Sound in order to obtain an all-water route from the Alabama coal mines to New Orleans, where they will spend millions in creating a great coaling station from which to supply the demand the Panama Canal will create.

Another concern has arranged to establish a great packing plant at New Orleans to take care of the cattle that will be imported from South America. They expect the Panama Canal to give impetus to this new traffic.

Recently Louisiana exempted all over-sea steamship lines domiciled in Louisiana from taxation in order to encourage direct steamship lines from New Orleans to South America, where corn and manufactures are needed, and to the Far East, where cotton, rice and manufactures are needed.

Even now, about \$25,000 worth of fresh vegetables from this part of the world are shipped to Panama each week, and the canal is not yet ready for business.

ONCE A PART OF THE GULF OF MEXICO

The soil formation of the Mississippi Valley, and particularly of Southern Louisiana, stands in a class by itself. Southern Louisiana was once a part of the Gulf of Mexico, and the land was built up from the bottom of the sea by silt deposits brought down by the river. The tributaries of the Mississippi river drain more than twenty States—the twenty States that during the past half century have stood at the head of the agricultural list.

The soil in all these States is constantly washing, and in solution is carried southward by the several rivers. These rivers rise at different times of the season from freshets, and from the melting of snow and ice. In this way at different times each year during many hundreds of years thin layers of the silt from various soils in the various sections were deposited in the sea, and gradually built up what is now the sugar, rice, orange and vegetable district of Louisiana. The land is all soil plumed to the bottom of the prehistoric sea.

Some fifty years ago the building of levees protected these alluvial prairies from further overflows,

and the great river is now busily engaged in extending Louisiana further and further to the southward in the Gulf. The drainage of these alluvial prairies began only three years ago when freedom from taxation, the invention of practical machinery, the high cost of living, the high price of Middle West lands, and the approaching completion of the Panama Canal turned widespread interest on Louisiana.

LOUISIANA AN EXPORTER INSTEAD OF AN IMPORTER

Since then Louisiana has become an exporter of corn in place of an importer, which was easy since the production of fifty bushels an acre without cultivation from sod corn is a simple matter on the alluvial prairies.

Recently, at the National Corn Exhibit at Columbus, Ohio, a 17-year-old boy—Stephen Henry, of Melrose, La.—won first prize in competition with 46,000 other boys. Henry exhibited the best ten ears, and won on 138 bushels grown by him on less than one acre at a total cost of 13½ cents per bushel. For the honor of representing Louisiana at the Columbus Show many boys competed with young Henry, and more than 100 of them produced over 100 bushels on a single acre.

Because of the open winter and the bottomless soil, the enterprising South Louisiana farmer who desires to pile up profit may keep his land continuously in use. During the winter, cabbages, onions and similar stuff are grown. Late winter finds the land planted in all kinds of high priced vegetables. Late in March the land goes into corn, which is harvested in July, sun dried and ready for export. During the fall many vegetables to catch the late season northern markets grow in profusion. Meanwhile, the busy farmer has no worries concerning fertilizer, nor does he fear soil exhaustion.

WHY SOIL IS SO RICH

On top of all the soil in South Louisiana there is a layer three to four feet thick of humus or decayed vegetable matter mixed in with the silt. The rich silt itself has no bottom.

Of this soil combination in Louisiana, Prof. Firman G. Bear, Chief Chemist of the Ohio State University, after having made an exhaustive analysis, said:

"There is enough nitrogen present in the first eight inches to supply nitrogen for 1,000 fifty-bushel crops of corn. I have never analyzed a soil with so high a percentage of nitrogen."

Corn experts estimate that in 1911 Louisiana will export 60,000,000 bushels of corn, 100,000,000 bushels in 1912, and probably 200,000,000 by 1915. Five years ago Louisiana annually imported 20,000,000 bushels of corn for feeding purposes.

Great credit is due the Louisiana Meadows Co., of New Orleans, the pioneers in the reclamation of the alluvial wet prairies of Southern Louisiana, for the remarkable transformation of vast areas of these wet lands into veritable gardens, with beautiful navigable canals—like Holland—to each farm, and the northern and western farmer with all his energy, progressiveness and courage, cultivating this wonderfully fertile soil the year round, much to his profit and happiness.

CONDENSED FACTS RELATING TO LOUISIANA

Altitude: Highest in State at Arcadia, Bienville county, 368 feet.

Climate: New Orleans, average temperature in January, 54; in July, 84; extreme, 102 and 7 above. Annual rainfall, 60.5 inches.

Dimensions: Extreme length, 275 miles; extreme width, 280 miles.

Mardi Gras: February.

History: Visited by DeSoto, 1541; Marquette, 1673; La Salle, 1682. Settlements made site of New Orleans about 1706. The territory ceded to Spain in 1762 and retroceded to France in 1800. Through Louisiana purchase came to United States in 1803. Seceded from Union in 1861. Captured by Samuel Farragut in 1862 and turned over to the Federal Army, General Butler coming into control of the city, succeeded by General Banks. Readmitted to the Union, 1868.

STATE AND THE 16 COUNTIES OF MAINE

With Their Boundaries

LOCATION AND POPULATION OF MAINE COUNTIES		
Loca- tion	COUNTIES	Pop. 1910
1.....	Oxford	36,256
2.....	Franklin	19,119
3.....	Somerset	26,301
4.....	Piscataquis	19,387
5.....	Penobscot	85,285
6.....	Arroostook	74,664
7.....	York	68,526
8.....	Cumberland	112,014
9.....	Androscoggin	59,822
10.....	Kennebec	62,863
11.....	Sagadahoc	18,574
12.....	Lincoln	18,216
13.....	Knox	28,981
14.....	Waldo	23,383
15.....	Hancock	35,575
16.....	Washington	49,905
Total.....		742,371

LOCATION AND POPULATION OF MAINE CITIES AND VILLAGES 1910		
Towns	Loca.	Pop.
A		
Abbot Village	4	716
Acadia	6	650
Acton	7	778
Addison	16	420
Albany	1	415
Albion	10	645
Alexander	16	333
*Alfred	12	645
Alna	12	506
Alton	5	348
Amherst	15	365
Andover	1	520
Anson	3	244
Appleton	13	1,080
Argyle	5	253
Ashland	6	1,260
Atkinson	3	896
Atlantic	15	432
*Auburn	99	15,064
Augusta (capital)	10	13,211
B		
Bailey Island	8	506
Baldwin	8	468
*Bangor	5	24,803
Bar Harbor	15	1,181
Baring	16	273
*Bath	11	9,396
Beals	16	508
Beans Corner	2	250
*Belfast	14	4,618
Belgrade	10	450
Belgrade Lakes	10	360
Bemis	2	280
Benedicta	6	450
Benton	10	520
Benton Falls	10	240
Berry Mills	2	250
Berwick	7	2,289
Bethel	1	834
Biddeford	7	17,079
Biddeford Pool	7	480
Bingham	3	802
Blaine	6	976
Blanchard	4	248
Blue Hill	15	1,828
Bolsters Mills	8	420
Boothbay	12	320
Booth Bay Harbor	12	2,060
Bouchard	6	566
Boundary	6	360
Bowdoin	11	420
Bowdoinham	11	1,302

Maine Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Bowery Beach	8	308	Bucksport Center	15	262	Cashes Corner	8	275
Bradford	5	495	Burleigh	6	250	Castine	15	947
Bradford Center	5	260	Burlington	5	391	Caswell Planta	6	375
Bradley	5	283	Burnham	14	686	Center Lincolnville	14	530
Bremen	12	299	Buxton	7	861	Center Lovell	1	260
Brewer	5	5,667	Buxton Center	7	280	Center Montville	14	352
Bridgewater Center	6	586	Byron	1	206	Centraltown	9	1,060
Bridgton	8	2,660	C			Chain of Ponds	2	250
Bridgton Junction	1	310	Calais	16	6,116	Charleston	5	796
Brighton	3	434	Cambridge	3	421	Charlotte	16	315
Bristol	12	706	Camden	13	3,015	Chase Mills	9	200
Brooklin	15	506	Canaan	3	1,130	Chebeague Island	8	562
Brooks	14	669	Canton	1	1,953	Chelsea	10	3,216
Brooksville	15	410	Cape Elizabeth	8	780	Cherryfield	16	1,800
Brookton	16	429	Cape Jellison	14	1,202	Chester	5	402
Brownfield	1	1,025	Cape Neddick	7	260	Chesterville	2	250
Brownville	4	1,570	Cape Porpoise	7	660	China	10	550
Brownville Junction	4	380	Caratunk	3	218	Chisholm	2	806
Brunswick	8	5,341	Caribou	6	5,347	Clifton	5	284
Bryant Pond	1	250	Carmel	5	1,066	Clinton	10	1,398
Buckfield	1	357	Carroll	5	546	Columbia	16	516
Bucksport	15	2,239	Carthage	2	280	Columbia Falls	16	698
			Cary	6	420			
			Casco	8	810			

Maine Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Cooper	16.	264	Falmouth Foreside	8.	240	Kittery	7.	3,533	Muscongus	12.	608
Coopers Mills	12.	450	Frankfort	14.	1,099	Kittery Depot	7.	240	Muscongus	12.	608
Corinna	5.	1,102	Franklin	15.	1,406	Kittery Point	7.	1,062	Muscongus	12.	608
Corinth	5.	240	Freedom	14.	370	Knightville	8.	666	Muscongus	12.	608
Cornish	7.	1,118	Freeman	2.	307	Knox	14.	257	Muscongus	12.	608
Cornville	3.	460	Freeport	8.	965	Knox Station	14.	250	Muscongus	12.	608
Costigan	6.	235	Frenchville	6.	1,660				Naples	8.	746
Crawford	16.	206	Friendship	13.	1,080				New Castle	12.	532
Crouseville	6.	275	Fryeburg	1.	540				Newfield	7.	456
Cumberland Center	8.	672	Fryeburg Center	1.	240				New Gloucester	8.	1,125
Cumberland Mills	8.	2,400							Newhall	8.	216
Curtis Corner	9.	280							New Harbor	12.	330
Cushing	13.	233							New Limerick	6.	606
Cutler	16.	462							Newport	6.	1,096
D									New Portland	3.	466
Damariscotta	12.	1,012							New Sharon	2.	1,064
Damariscotta Mills	12.	350							New Sweden	6.	507
Danforth	16.	1,380							New Vineyard	2.	660
Davidson	5.	509							Nobleboro	12.	810
Dayton	7.	509							Norlands	9.	286
Deadwater	3.	380							Norridgewock	3.	1,706
Deedham	15.	290							North Amity	6.	290
Deer Isle	15.	897							North Anson	3.	1,206
Denmark	1.	380							North Auburn	9.	266
Dennysville	16.	452							North Bath	11.	210
Detroit	3.	590							North Belgrade	10.	240
Dexter	5.	3,540							North Berwick	7.	1,809
Dickey	6.	250							North Bradford	5.	320
Dixfield	1.	563							North Bridgton	8.	490
Dixmont	5.	334							North Brooks-		
Dorman	16.	206							ville	15.	290
*Dover and Foxcroft									North Buckfield	1.	360
Dover South Mills		1,908							North Carmel	5.	230
Dresden	12.	305							North Castine	15.	340
Dresden Mills	12.	235							North Chapleigh	7.	466
Dryden	2.	260							North Chester-		
Dry Mills	8.	280							ville	2.	206
Durham	9.	587							North Cornville	3.	220
Dyer Brook	6.	250							North Cutler	16.	202
E									North Deer Isle	15.	375
Eagle Lake	6.	762							North Dexter	5.	240
East Baldwin	8.	380							North Dixmont	5.	240
East Benton	10.	230							North East Har-		
East Blue Hill	15.	210							bor	15.	660
East Boothbay	12.	540							North Edge-		
Eastbrook	15.	246							comb	12.	393
East Brownfield	1.	340							North Fryeburg	1.	210
East Corinth	5.	589							North Gorham	8.	250
East Dixfield	1.	250							North Gray	8.	262
East Eddington	5.	620							North Haven	13.	655
East Hampden	5.	360							North Islesboro	14.	630
East Harpswell	8.	240							North Jay	2.	450
East Hiram	1.	310							North Limington	7.	260
East Holden	5.	209							North Mon-		
East Jackson	14.	230							mouth	10.	480
East Lamoine	15.	250							North Newburg	5.	220
East Lebanon	7.	262							North New		
East Limington	7.	262							Castle	12.	250
East Livermore	9.	2,641							North New Port-		
East Lowell	5.	260							land	3.	550
East Machias	16.	1,637							North Newry	1.	286
East Madison	3.	560							North Parson-		
East Millinocket	5.	2,062							field	7.	366
Easton	6.	320							North Perry	16.	206
East Orland	15.	450							Northport	14.	545
East Orrington	5.	260							North Raymond	8.	268
East Otisfield	8.	220							North Scarborough	8.	306
East Parsonsfield									North Sullivan	15.	220
East Poland	7.	390							North Vassal-		
Eastport	16.	4,961							boro	10.	782
East Raymond	8.	260							North Waldo-		
East Sangerville	4.	856							boro	12.	250
East Sebago	8.	280							North Water-		
East Sullivan	15.	425							boro	7.	460
East Summer	1.	480							North Water-		
East Vassalboro									ford	1.	206
East Waterford	10.	350							North Wayne	10.	206
East Wilton	2.	430							North White-		
East Winn	5.	236							field	2.	426
Eden	15.	4,441							North Windham	8.	350
Ellis	7.	650							North Wood-		
*Ellsworth	15.	3,549							stock	1.	250
Ellsworth Falls	15.	420							North Yar-		
Empire Road	9.	347							mouth	8.	306
Enfield	5.	389							Norway	1.	5,358
Etna	5.	527									
Eustis	2.	208									
Exeter	5.	887									
F											
Fairbanks	2.	360									
Fairfield	3.	2,801									
Falmouth	8.	245									

Maine Cities and Villages with 1910 Populations

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
P		Seal Harbor	15... 308	Springvale	7... 2,505	West Brooklin	15... 240
Palermo	14... 512	Sears Mount	14... 949	Spruce Head	13... 200	West Brooks-	
Palmyra	3... 805	Searsport	14... 1,509	Standish	8... 1,506	ville	15... 250
Paris	1... 262	Sebago	8... 576	Stark	3... 466	West Buxton	7... 861
Paris Hill	1... 718	Sebago Lake	8... 250	Steep Falls	5... 618	West Cumber-	
Parkman	4... 409	Sebec	4... 585	Stetson	5... 752	land	8... 240
Passadumkeag	5... 409	Sedgewick	15... 950	Steuben	16... 752	West Denmark	1... 202
Patten	5... 1,206	Shapleigh	7... 847	Stockholm	6... 375	West Dresden	12... 220
Pejebscot	11... 394	Shapleigh Cor-		Stockton	7... 774	West Durham	9... 380
Pejebscot	11... 394	nel		Springs	14... 741	West Enfield	5... 380
Pequid	12... 375	Shawmut	7... 380	Stonington	15... 1,648	West Falmouth	8... 780
Penobscot	16... 834	Shawmut	7... 380	Stow	1... 291	West Farming-	
Penobscot	15... 834	Sheepcott	12... 350	Stratton	2... 568	ton	2... 590
Perham	6... 725	Sherridan	6... 366	Strickland	2... 627	Westfield	6... 500
Perry	1... 250	Sherman Mills	6... 1,100	Strong	2... 565	West Franklin	15... 500
Peru	6... 706	Shiloh	9... 662	Stroudwater	8... 340	West Gardiner	10... 853
Phair	2... 823	Shirley Mills	4... 248	Sullivan	15... 325	West Gorham	8... 320
Phillips	11... 1,254	Sidney	10... 1,205	Summer Station	1... 426	West Goulds-	
Phipsburg	8... 350	Sidney	10... 1,205	Sunset	15... 368	boro	15... 210
Pittsfield	3... 2,891	Silvers Mills	5... 350	Surry	15... 909	West Gray	8... 240
Pittston	10... 1,105	Skowhegan	3... 5,180	Swans Island	15... 808	West Jonesport	16... 617
Pleasantdale	8... 850	Smithfield	3... 479	Swanville	14... 689	West Kenne-	
Pleasant Point	13... 255	Snows Falls	1... 266	Sweden	1... 282	burg	10... 700
Plymouth	9... 689	Solon	3... 1,065			West Lubec	16... 275
Poland	9... 560	Somerset	3... 208	Temple	2... 470	West Mills	2... 552
Popham Beach	11... 290	Somerville	12... 374	Tenants Harbor	13... 2,060	West Minot	9... 466
Portage	6... 608	South Acton	7... 530	The Falls	15... 420	West Newfield	7... 250
Port Clyde	13... 405	South Atkinson	4... 230	The Forks	3... 245	Weston	6... 370
Porter	1... 906	South Berwick	7... 2,935	Thomaston	13... 2,688	West Palmyra	3... 204
*Portland	8... 58,571	South Brewer	5... 380	Thomdike	14... 589	West Paris	1... 760
Pownall	8... 592	South Bridgton	8... 350	Togus	10... 2,306	West Pembroke	16... 6,902
Pownall	8... 250	South Bristol	12... 580	Topfield	16... 375	West Peru	1... 420
Prentiss	5... 410	South Brooks-		Topsham	11... 1,066	West Poland	9... 875
Presque Isle	6... 2,938	ville	15... 308	Tremont	15... 306	Westport	12... 451
Princeton	16... 1,027	South China	10... 223	Tray	14... 375	West Pownall	8... 250
Prospect	14... 356	South Corinch	5... 262	Turner	9... 1,025	West Rockport	13... 360
Prospect Ferry	14... 356	South Deer Isle	15... 450			West Scarborough	8... 400
Prospect Har-		South Dover	4... 206	Union	13... 806	West Sidney	10... 275
bour		South Elliot	7... 950	Unity	14... 922	West Sullivan	15... 665
Prouts Neck	8... 350	South Freeport	8... 320	Upper French-		West Sumner	1... 250
		South Gardiner	10... 490	ville	6... 1,165	Westville	2... 390
		South Harswell	8... 250	Upper Glou-		West Waldo-	
		South Hiram	1... 340	cester	8... 305	boro	12... 250
Randolph	10... 1,205	South Hope	13... 541	Upper Mada-		Whitefield	12... 405
Rangleley	2... 695	South Jefferson	12... 260	waska	6... 2,056	Whiterock	8... 275
Ramond	8... 552	South Lagrange	5... 262			Whiting	16... 393
Razorville	13... 240	South Levant	5... 221			Whitneyville	16... 413
Readfield	16... 600	South Liberty	14... 310	Van Buren	6... 3,065	Willard	8... 565
Red Beach	11... 2,049	South Lubec	16... 205	Vassalboro	10... 2,977	Willimantic	4... 271
Richmond	1... 1,066	South Montville		Veazie	5... 650	Wilton	2... 1,806
Ridgdonville	1... 1,066		14... 380	Vinal Haven	13... 2,358	Wilton Station	2... 200
Ripley	3... 450	South Newburg	5... 260			Windham	
Riverside	10... 299	South New		Waldo	14... 566	Center	8... 255
Riverview	3... 244	Castle	12... 750	Waldoboro	12... 2,636	Winn	5... 708
Robbinston	16... 460	South Orrington	5... 360	Waldo Station	15... 468	Winnecook	14... 290
Robinsons	6... 1,050	*South Paris	1... 1,542	Wales	6... 266	Winnegance	11... 308
*Rockport	13... 8,174	South Penobscot		Wallagrass	6... 595	Winslow	10... 2,769
Rockland	13... 2,144		15... 200	Walnut Hill	8... 605	Winslow Mills	12... 400
Rome	12... 450	South Poland	9... 750	Waltham	15... 242	Winter Harbor	15... 660
Round Pond	1... 222	Southport	12... 525	Warren	13... 1,542	Winterport	14... 1,566
Rumford	1... 6,777	South Portland	8... 7,471	Washburn	6... 1,225	Winterport	
Rumford Corner	1... 311	South Presque		Washington	13... 1,660	Ferry	15... 208
Rumford Falls	1... 5,427	Isle	6... 200	Waterboro	7... 792	Winterville	6... 281
Rumford Point	1... 306	South Robin-		Waterford	1... 201	Winthrop	10... 2,088
		ston	16... 320	Waterville	10... 11,458	Winthrop	
Sabattus	9... 805	South Scurry	7... 250	Wayne	10... 709	Center	10... 1,509
Saco	7... 6,583	South Scurry	15... 200	Webbs Mills	8... 350	*Wiscasset	12... 1,273
Saint Agatha	6... 365	South Thomas-		Weeks Mills	10... 740	Woodland	16... 1,562
Saint Albans	3... 1,206	ton	13... 505	Wellington	2... 484	Woodland Num-	
Saint David	6... 551	South Union	13... 236	Wells	7... 1,200	ber One	6... 1,066
Saint Francis	6... 461	South Vassal-		West Athens	3... 320	Woodville	5... 560
Saint George	13... 250	boro	10... 566	West Baldwin	8... 460	Woolwich	11... 892
Saint John		South Waldo-		West Bath	11... 291	Wyman	16... 260
Plantation	6... 386	boro	12... 208	West Bethel	1... 240		
Salem	2... 218	South Water-		West Boothbay		Y	
Sandy Creek	8... 275	ford	1... 295	Harbor	12... 240	Yarmouth	8... 950
Sandy Point	14... 365	South West Har-		West Bowdoin	11... 520	Yarmouthville	8... 1,108
Sanford	7... 9,046	bor	15... 850	West Bridgton	8... 209	York Beach	7... 380
Sangerville	4... 1,046	South Wind-		Westbrook	8... 8,281	York Corner	7... 500
Santiago	4... 465	ham	8... 1,205			York Harbor	7... 306
Sargentville	15... 357	Spaulding	6... 725			York Village	7... 1,260
Scarboro	8... 350	Springfield	5... 509				

PICTURESQUE RESORTS

Rangley Lakes, Me.—This group of six lakes, in the western part of the State, is connected by streams passing from one to the other, until an unbroken water route of about 60 miles is formed. Their names are Umbagog, Lower Richardson, Molechunkamunk, Mooselucmagentic, Cupsuptic and Rangley. The surrounding scenery is extremely picturesque and grand, and the entire resort presents many attractions for artists, tourists, hunters and fishermen. Indian Rock is a favorite camping ground for sportsmen. Near by is Dixville Notch, from one point of which portions of Canada, Vermont, New Hampshire and Maine may be seen.

Old Orchard Beach, Saco Bay, Me.—Fifteen miles west from Portland, Me., Old Orchard Beach, the summer resort, extends from the Dunstan River, on

the north, to the Saco River, on the south, a distance of six miles, with a solid sand beach. In Saco Bay, in that vicinity, are the following islands, which add to the picturesqueness of the scenery: Stratten's Island, about half a mile long and containing a few houses, but no trees; close by is Bluff Island, about 450 feet long, with a cluster of trees near the center; Wood Island, off the mouth of the Saco River, is nearly half a mile long, covered with trees, and contains a lighthouse and fog-bell; Stage Island is nearly one-fourth mile long, and has no trees, but a graystone monument 40 feet high; Basket Island is about 450 feet in diameter; Ram Island is oval-shaped and about 450 feet long; Eagle Island is about 450 feet across, with foliage, but no trees.

MAINE

A New England Region of Rapid Running Streams and the Wild in Nature

Land seekers, who contemplate leaving cities for the purpose of going upon farm land, should not forget that many of the most prosperous men in mercantile life, many distinguished in the professions and in all lines of work, throughout the United States, had the advantage of farm life among the rugged hills of New England.

THE BEST OF FOODS

Not only is this a grand region to come from, but it is a superior part of the world in which to rear children.

In everything relating to food here is the best. Suppose our home to be in Maine. In the clear waters of the running brooks we will get the finest speckled trout; here is the sweetest honey and the most delicious maple sugar. The cattle that feed on the tame grass and drink the fresh waters from the running streams, yield the best milk and cream; on the dry sidehills grow the mealiest potatoes. The live stock of the country are protected from storms, the hens live on the best carefully prepared foods and hence give us eggs of exquisite flavor. And so throughout all the range of foods in New England—people there live on only the best.

It is a splendid region in which to rear a boy on a farm by a family compelled to get a living from land. Compared with the over abundant yield of land in the prolific West, the smaller crop which must be carefully harvested and every straw saved, compels frugality, prudence and economy. The never ceasing labor and necessity in planting, cultivating and harvesting, compels those habits of industry which tend to temperance and success, wherever the New England boy is placed in after life.

The family, especially before emigrating far away, should look up the farms out of which the young men have gone to the West. Possibly the farm houses are entirely deserted and the land turned over to stock raising or perhaps the young men of the family gone, the old folks who yet remain will be glad to make an arrangement highly advantageous to any new family who will take the farm.

In the tour of inspection among New England farms it may be profitable to visit the State of Maine. Give a week—a month will be better—in looking up some of the old farms. On some of the lands that can be bought cheaply and upon which a delightful home may be made.

BACK TO THE NEW ENGLAND FARM

There exists a strong inclination with many people in the West to go back to the New England hills, at least for summer residence. The picturesque scenery, rapid running streams, beautiful evergreens, lakes and the wild in Nature all appeal to them.

There are hundreds of these old homes where

Lakes in Maine.

Many Picturesque Localities with Lakes May Be Found in This State.

	Miles Long.	Miles Wide.
Alligator Lake, Hancock Co.	3¼	1¼
Barrows Lake, Washington Co.	2	1
Baskahagan Lake, Washington Co.	3½	3
Beaver Dam Lake, Washington Co.	2	1
Big Lake, Washington Co.	12	2
Big Wilson Pond, Piscataquis Co.	5	3½
Boyd's Lake, Washington Co.	3	1½
Caribou Lake, Piscataquis Co.	5	3
Cathanes Lake, Washington Co.	4	2½
Centre Pond, Piscataquis Co.	2	1
Chain Lakes (3), Washington Co.	8	1½
Chain Lakes (7), Franklin Co.	40	3 to 5
Chamberlain Lake, Piscataquis Co.	10	5
Chesuncook Lake, Piscataquis Co.	18	3
Chimquassabamtook Lake, Piscataquis Co.	3	3
Clifford's Lake, Washington Co.	3	2
Cold Stream Lake, Penobscot Co.	4¼	3
Cranberry Lakes (3), Washington Co.	4	1
Crawford Lake, Washington Co.	5	1
Cupsupt Lake, Franklin Co.	4	1½
Dexter Pond, Penobscot Co.	3	½
Eagle Lake, Hancock Co.	2	¾
Eagle Lakes, Aroostook Co., each	14	2½
Long Lake, Cumberland Co.	10	1
Long Pond, Piscataquis Co.	6	1
Long Pond, Washington Co.	3	¾
Loon Lake, Piscataquis Co.	3	1
Love Lake, Washington Co.	6½	1
Machias Lake, Washington Co.	3	1
Madenteant Lake, Penobscot Co.	1	½
Mapaug Lakes, Washington Co.	6	1
Matteacunt Lake, Penobscot Co.	3	1
Mattagamont Lake, Penobscot Co.	3½	1½
Mattimiscantis Lake, Penobscot Co.	2	1

houses can be painted, the trees trimmed and the lawns so put in order as to make the property highly salable, and all this mostly the result of exercising taste in putting the place in order.

But if old and run-down estate are not readily found select sequestered nooks, build cottages, fit the grounds up tastefully and sell the property to those who are hunting for just such quiet, romantic places among the mountains and hills of the "Down East."

People of wealth in the central cities who are seeking these rural spots do not ask for large houses and elaborate furniture. They want somewhere from five to twenty acres of land, a group of two, three or four cottages, with an abundance of piazza room. They desire a running brook close by, trees, mountains and hills to look up to, shrubbery, tangled vines, rocks and ferns. They want the rustic. Accustomed to the highly polished, the beautifully finished in architecture and landscape gardening, they yearn for the wild and untrained.

Look over our list of towns, write to the Agricultural Department of the State University in Maine. Tell them what you want and enclose an addressed prepaid return envelope to yourself. Get into touch with real estate dealers, they know about old homes in that State.

Go and see for yourself and, if opportunity offers, dress up old properties or make them new for those who need and want summer cottages and rural homes.

CONDENSED IMPORTANT FACTS RELATING TO MAINE

Altitude: Highest in Maine, Mt. Katahdin, in Piscataquis county; near the center of the State, 5,200 feet.

Climate: The climate is severe in winter and the air dry and pure. Average January temperature, 22 above summer heat, 62 degrees. Average annual temperature at Portland, 48 degrees. With cool summers, hunting and excellent fishing, Maine is a delightful summer resort State. The winters are long and snows deep. The soil is so well drained malaria is almost unknown. Extremes of heat and cold at Portland 97 and 17 below. Average rainfall, 45.2 inches.

Dimensions: Area, 33,040 square miles; extreme length, 235 miles; extreme width, 205 miles. Primeval forest covers three-fourths of the State. Coast line, 278 miles; including indentations, 2,486 miles.

History: This coast believed to have been visited by the Northmen in 990; visited by Cabot, 1498; by the French in 1524; in 1525 by the Spaniards. Pemaquid, Lincoln county, settled in 1625. Indian raids were common and but little improvement made until after the Revolutionary War. Admitted to the Union, 1820. Maine liquor law prohibiting manufacture and sale of intoxicating liquors passed in 1851; permanently in 1858.

Lakes in Maine.

	Miles Long.	Miles Wide.
Mattawamkeag Lake, Aroostook Co.	8	4
Medybemps Lake, Washington Co.	8	2
Meluncas Lake, Aroostook Co.	3	1¼
Millinokett Lakes, Penobscot Co.	6	4½
Molasses Pond, Hancock Co.	2½	2
Molechunckamunk Lake, Oxford Co.	6	3
Monson Pond, Piscataquis Co.	2	1
Moosehead Lake, Piscataquis Co.	40	20
Mooslucmaguntic Lake, Oxford Co.	12	4
Mud Pond, Piscataquis Co.	2	½
Mud Lake, Piscataquis Co.	1	½
Musquash Lake, Washington Co.	3	1
Portage Lake, Aroostook Co.	5	2½
Pushaw Lake, Penobscot Co.	3	1
Ragged Lake, Piscataquis Co.	3	1
Rangely Lakes, Franklin Co.	9	3
Reed's Pond, Hancock Co.	6¼	1¼
Richardson Lakes, Oxford Co.	17	3
Ripogenus Lake, Piscataquis Co.	3	1
Roach Lake, Piscataquis Co.	7	2
Rocky Lake, Washington Co.	2½	1
Rocky Pond, Hancock Co.	1½	1
St. Croix Lake, Aroostook Co.	2	1
Schoodic Lakes, Piscataquis Co.	8	3
Schroodic Lake, Washington Co.	13	½
Sebago Lake, Cumberland Co.	13	1
Sebec Lake, Piscataquis Co.	12	5
Seboois Lake, Penobscot Co.	7	1
Scraggley Lake, Penobscot Co.	3½	1
Shining Lake, Washington Co.	2	2
Shin Ponds, Penobscot Co.	3½	1
Sisladobis Lake, Penobscot Co.	8½	1½
Spider Lake, Piscataquis Co.	2	1
Squawpan Lake, Aroostook Co.	10	3

STATE AND THE 24 COUNTIES OF MARYLAND

With Their Boundaries

LOCATION AND POPULATION OF MARYLAND COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	
1.....	Garrett.	20,105	8.....	Cecil.	24,759	15....	Queen Anne.	16,839	22.....	Wicomico.	26,815	
2.....	Allegheny.	62,411	9... ..	Montgomery.	32,089	16.....	Charles.	16,336	23.....	Somerset.	26,455	
3... ..	Washington.	48,671	10.....	Howard.	16,106	17.....	Calvert.	10,325	24.....	Worcester.	21,811	
4.....	Frederick.	52,673	11 Baltimore City.	558,485	18.....	Talbot.	19,620	Total.....			1,295,846	
5.....	Carroll.	33,934	12 Prince Georges.	36,147	19.....	Caroline.	19,216					
6.....	Baltimore.	122,399	13. Anne Arundel.	39,553	20.....	St. Marys.	17,030					
7.....	Harford.	27,965	14.....	Kent.	16,957	21.....	Dorchester.	29,669				

Maryland Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			Bond	1.....	206	*Chestertown	14... ..	2,735	Eastport	13... ..	1,560
Aberdeen	7.....	616	Boonsboro	3.....	759	Cherry Chase	9.....	250	Eccleston	6.....	350
Abingdon	7.....	208	Bowie	12.....	496	Chillum	12.....	290	Eldorado	21.....	290
Accident	1.....	290	Bradshaw	6.....	536	Choptank	19.....	225	Elk Mills	8.....	362
Adamstown	4.....	200	Branchville	12.....	206	Church Creek	21.....	396	Elkridge	10.....	1,096
Alberton	10.....	562	Brookeville	9.....	835	Church Hill	15.....	306	Elkton	8.....	2,487
Allen	22.....	360	Brooklandville	6.....	390	Churchton	13.....	596	Ellerslie	2.....	606
Andrews	21.....	206	Brooklyn	13.....	1,200	Churchville	7.....	208	*Ellicott City	10.....	1,151
Annapolis (Capital)	13.....	8,609	Bruceville Station	5.....	266	Clear Spring	3.....	521	Elliot	21.....	460
Aquasco	12.....	350	Brunswick	4.....	3,271	Cockeysville	6.....	1,509	Emmitsburg	4.....	1,054
Arlington	6.....	1,066	Buckeytown	4.....	415	College Park	12.....	309	Ellwell	23.....	725
Ashland	6.....	450	Burkittsville	4.....	228	Conowingo	12.....	308	F		
B			C			Corriganville	2.....	290	Fairmount	23.....	320
Baldwin	6.....	326	Calvert	8.....	200	Crellin	1.....	290	Falkner	16.....	380
*Baltimore	11.....	558,485	*Cambridge	21.....	6,407	Crisfield	23.....	3,468	Federsburg	19.....	1,050
Barton	2.....	1,208	Camp Parole	13.....	306	Crumpton	15.....	228	Fishing Creek	21.....	650
Bayview	8.....	281	Cardiff	7.....	580	*Cumberland	2.....	21,836	Flint Stone	2.....	315
Bel Air	7.....	1,063	Carlos	2.....	590	D			Fords Store	15.....	1,200
Berlin	24.....	1,317	Carlos Junction	2.....	509	Dames Quarter	23.....	1,066	Forest Hill	7.....	350
Berwyn	12.....	1,066	Carroll	6.....	2,062	Darlington	7.....	205	Forestville	12.....	290
Bethesda	9.....	250	Catonville	6.....	4,066	Deer Park	1.....	988	Fork	6.....	309
Betterson	14.....	308	Cecilton	8.....	518	Delmar	22.....	959	Fort Washington	12.....	405
Big Gunpowder	6.....	208	*Centerville	15.....	1,435	*Denton	19.....	1,481	Four Locks	3.....	750
Bishop	24.....	226	Charlestown	8.....	271	Dickerson	9.....	225	Franklin Mines	2.....	209
Bishopville	24.....	262	Chase	6.....	396	E			*Frederick	4.....	10,411
Bivalve	22.....	560	Cherry Hill	8.....	350	East New Market	21.....	280	Friendsville	1.....	466
Bladensburg	12.....	460	Chesapeake City	8.....	1,016	*Easton	18.....	3,083	Fruitland	22.....	350
Blomington	1.....	372	Chester	15.....	350				Frostburg	2.....	6,028

Explanation: Index to Towns. First Column. Names of Towns; Second Column. Number the Same as Number of the County Where Town is Located; Third Column. Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Maryland Cities and Villages with 1910 Populations

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
Fullerton	6.....506	*La Plata	16.....299	Parkton	6.....360	Stevensville	15.....350
Funkstown	3.....568	Lanauville	6.....1,099	Parkville	6.....299	Still Pond	24.....496
G		Laurel	12.....2,415	Parole	13.....390	Stockton	24.....252
Gaithersburg	9.....625	Leitersburg	3.....350	Parsonsburg	22.....260	Sudbrook Park	6.....250
Galena	14.....262	*Leonardtown	20.....525	Patapsco	5.....250	Suddersville	15.....247
Galloways	13.....250	Lewiston	4.....225	Pekin	2.....206	Sugarland	9.....560
Gamber	5.....225	Libertytown	4.....589	Perry Hall	6.....250	Suitland	12.....206
Gardenville	6.....668	Lime Kiln	4.....1,062	Perryman	7.....271	Sykesville	5.....565
Girdletree	24.....325	Lindnersville	2.....502	Perryville	8.....635	T	
Glencoe	6.....290	Loch Lynn .....	.....	Petersville	4.....290	Takoma	9.....1,156
Glen Echo	9.....293	Heights	1.....216	Pikesville	6.....1,293	Taneytown	5.....824
Gencig	10.....263	Lonaconing	2.....1,553	Pisgah	16.....225	Taylor	7.....280
Glyndon	6.....311	Long Green	6.....260	Pittsville	22.....366	Taylorsville	5.....204
Golden Ring	6.....392	Loreley	6.....220	Pocomoke City	24.....2,363	Texas	6.....1,060
Goldsboro	19.....231	Lothair	16.....360	Point of Rocks	4.....364	Thurmont	4.....903
Govanstown	6.....1,590	Luke	2.....505	Pomonkey	16.....250	Tilghman	18.....1,209
Graceham	4.....269	Lutherville	6.....663	Pondsville	3.....280	Timonium	6.....262
Grange	6.....206	M		Port Deposit	8.....1,394	Toddville	21.....269
Granite	6.....678	McCoys	3.....750	Powhatan	6.....560	Tompkinsville	16.....206
Grantsville	1.....248	McDonough	6.....290	Preston	19.....288	*Towsom	6.....3,508
Greensboro	19.....609	Madison	21.....350	*Princess Anne	23.....1,006	Trappe	18.....273
Guliford	10.....590	Manchester	5.....523	Principio Fur-	.....	Tunis Mills	18.....200
H		Merdelia .....	.....	nace	8.....506	Tyaskin	22.....290
Habnab	23.....206	Springs	22.....396	Q		U	
*Hagerstown	3.....16,507	Marion Station	23.....275	Quantico	22.....290	Union Bridge	5.....804
Halethorp	6.....390	Maydel	19.....366	Queen Anne	15.....209	Union Mills	5.....250
Hamilton Sta-	.....	Maugansville	3.....220	Queenstown	15.....279	Uniontown	5.....309
tion	6.....1,506	Mayo	13.....290	R		Unionville	4.....250
Hampstead	5.....555	Meadows	12.....309	Raspeburg	6.....509	Upper Fair-	.....
Hancock	3.....263	Mechanicsville	20.....562	Reisterstown	6.....1,066	mount	23.....590
Harmos	13.....390	Millington	14.....399	Relay	6.....2,066	Upper Falls	6.....475
Harrisonville	6.....462	Monie	23.....290	Rhodes Point	23.....250	*Upper Marl-	.....
Havre de Grace	7.....4,212	Monkton	6.....366	Rider	19.....496	boro	12.....361
Hereford	6.....380	Motters	4.....290	Ridgely	19.....943	Urbana	4.....309
Hillsdale	6.....804	Mountain Lake	.....	Ringgold	3.....390	V	
Hillsboro	19.....209	Park	1.....335	Rising Sun	8.....416	Vale Summit	2.....366
Hollywood	20.....250	Mount Airy	5.....622	Riverdale	12.....1,099	Vienna	21.....332
Homestead	6.....890	Mount Ranier	12.....1,242	Rock Hall	14.....781	W	
Hoopersville	21.....369	Mount Savage	2.....3,590	Rock Point	16.....306	Walkersville	4.....532
Howardsville	6.....390	Junction	2.....200	*Rockville	9.....1,181	Wallman	1.....226
Howardsville	16.....250	Mount Vernon	11.....598	Rosedale	6.....300	Walsy	15.....1,220
Hurlock	21.....516	Mount Wash-	.....	Roxsville	6.....606	Warren	6.....678
Hurry	20.....360	ington	6.....1,590	Ruxton	6.....350	Warwick	8.....287
Hursley	24.....252	Mount Winans	6.....1,599	S		Waverly	6.....2,099
Hyattsville	12.....1,917	Myersville	4.....280	Sabillasville	4.....206	Wenona	23.....290
I		N		Saint Inigo	20.....390	Western Port	2.....2,702
Ingleside	15.....290	Nanticoke	22.....360	Saint Michaels	18.....1,517	*Westminster	5.....3,295
J		Neavitt	18.....309	*Salisbury	22.....6,690	Westport	6.....1,060
James	21.....250	Newark	24.....290	Sandy Hook	3.....309	Wetpinquin	22.....306
Jefferson	4.....350	New Market	4.....320	Savage	10.....1,099	Whaleysville	24.....325
Jesterville	22.....359	New Windsor	5.....416	Secretary	21.....409	Whiteford	7.....200
K		North Beach	17.....262	Security	3.....366	White Hall	6.....522
Keedysville	3.....367	Northbranch	6.....290	Selbyport	1.....220	White Marsh	6.....390
Keep Tryst	3.....360	North East	8.....974	Sharpsburg	22.....960	Willards	22.....209
Kennedysville	14.....290	O		Sharptown	22.....722	Williamsport	3.....1,571
Kensington	9.....680	*Oakland	1.....1,366	Sherwood	6.....490	Wingate	24.....250
Keymar	6.....209	Oakland	5.....490	Smithsburg	3.....481	Wingate	24.....250
Kingsville	5.....210	Ocean	2.....1,306	*Snow Hill	24.....1,844	Winthrop	16.....208
Kitzmiller	1.....865	Ocean City	24.....476	Solomons	17.....313	Woodberry	11.....13,062
Knoxville	4.....350	Oella	6.....516	South Balti-	.....	Woodbrook	6.....390
L		Orangeville	6.....1,506	more	13.....2,506	Woodlawn	8.....250
Lakeland	12.....290	Oriole	23.....406	Sparrows Point	6.....4,066	Woodsboro	4.....690
Lansdowne	6.....690	Owings Mills	6.....212	State Sana-	.....	Woodstock	10.....208
		Oxford	18.....1,191	torium	4.....250	Wynne	20.....206

DISTRICT OF COLUMBIA

A 64 Square Mile Area, Named in Honor of Columbus, Located in Maryland, on the Banks of the Potomac River.

District of Columbia Cities and Villages with 1910 Populations

Towns	Pop.	Towns	Pop.	Towns	Pop.	Towns	Pop.
Anacostia	2,158	Brookland	1,500	Kenilworth	200	Tennallytown	964
Benning	630	Congress Heights	2,260	Langdon	560	Uniontown	2,158
Brightwood	246	Good Hope	2,186	Takoma Park	1,250	Washington	331,069

The District of Columbia is seen on the left side of the map of Maryland near and to the left of the number 12. The District is noteworthy principally as being the location whereon stands the United States Government buildings at Washington.

Washington, D. C. The District of Columbia, the Federal Territory of the Nation, originally contained 100 square miles, but part of the grounds were afterward surrendered to Virginia; its present size is 64 square miles. Washington City is $\frac{1}{2}$ miles long by $\frac{3}{4}$ miles at its greatest breadth. Its location is on the eastern bank of the Potomac River, $1\frac{1}{2}$ miles from its mouth, and $18\frac{1}{4}$ miles from the sea. The transfer of the government from Philadelphia to Washington was made in October, 1800. The

officials then numbered only a few persons. The great city was a mere hamlet, and most of its houses were small huts. But it soon began to increase in population at the rate of 800 souls a year. August 24, 1814, the British invaded the capital, burned all the government buildings and destroyed a large number of the public records, inflicting a loss estimated at \$1,000,000. During Monroe's administration the city took upon it a new growth, and many important improvements were made. The reconstruction of the Capital was begun in 1815, and finished in 1827. The total cost of the Capital—new and old—was nearly \$13,000,000. The Capitol grounds contain 43 acres.

Opportunities in Agriculture and Varied Enterprises

MARYLAND

An Oyster and Fish Center. Warm, Sandy Soil, Favorable for Vegetable and Fruit Growing. Near Markets.

Should the reader enquire as to what the land seeker could find to do for himself and family in the State of Maryland, he may be referred to statistics for a reply. Investigation will show that there is a very dense population of people here, and these people all have to be fed.

In a study of climate it is found that the average annual temperature for the State is from 54 to 64 degrees, and that the mercury seldom falls below zero. January weather average 34 above at Baltimore and July stands at 78. The annual rainfall is 43.8 inches.

A SUPERIOR REGION FOR PEACHES.

The soil in the eastern part of the state is a sandy loam, easily made highly productive by fertilization, and in this portion of the state peaches grow in great abundance. The same is true of all garden products. In the valleys of the central and northern parts of the state the soil is exceedingly fertile, producing large crops of tobacco, wheat and corn. Other staples are hops, flax, maple sugar, honey, wine and sorghum molasses.

From the recent annual report of the Department of Agriculture it is seen that in Maryland the yield of oats was very great, and the same of wheat and corn.

GENERAL ADVANTAGE IN CHEAP TRANSPORTATION.

And so, through all the list of agricultural productions, the agriculturist finds soil and climate ready to assist in the production of any cereal, vegetable or fruit adapted to the climate. To this is added superior facilities for getting to the markets. The Chesapeake and Ohio Canal, constructed at a cost of \$11,375,000, runs by the side of the Potomac river westward, from Georgetown and Washington, to Cumberland. This canal, with its 74 locks, a width of surface of 52 to 60 feet and a depth of 6 feet, is in readiness to carry all the various productions of the extreme western part of Maryland to the Potomac River at a very cheap rate, while the Potomac and Patuxent rivers, assisted by the Chesapeake Bay, easily carry all the production of Central Maryland out to the ocean, whence they go to New York and its immense market, two hundred miles away, in a few hours.

OYSTER, FISH-CANNING, FRUIT AND VEGETABLES.

The soil, the climate and the markets are right here in Maryland if the land seeker wants to engage in agriculture. But possibly he prefers the fishing business. If so, here is the oyster industry on Chesapeake Bay and adjoining waters, giving employment to over 32,000 persons. In this enterprise there are over \$7,000,000 invested, the annual oyster yield being 10,000,000 bushels.

If the applicant for work dislikes the water, he can turn to one of the 500 canning establishments, to one of the 800 tobacco factories, or any one of the 8,000 factories in which are employed over 94,000 workmen.

GENERAL MANUFACTURING GOING FORWARD.

If the seeker for employment has a trade he has simply to look over the general list of industries going forward in Maryland.

The Coal Area in this state is 550 square miles, and from the mines in this territory there were

taken out in one of the recent years, 6,312,706 tons, worth \$1.30 per ton at the mine.

The list of general manufacturing includes flour, fertilizers, cotton goods, foundry and machine shop products, malt liquors, planing mill products, chewing and smoking tobacco, iron and steel, distilled liquors, furniture, patent medicines, brass goods, ships, confectionery, boots and shoes, and brick and tile.

CONDENSED IMPORTANT FACTS RELATING TO MARYLAND.

Altitude.—Highest, Great Backbone Mountain, in Garrett County, 3,400 feet high.

Climate.—Annual average January temperature at Baltimore, 34 above; July, 78. Extremes, 104 and 7 below. Average annual rainfall, 43.8 inches.

Dimensions.—Extreme length of State, north and south, 120 miles; extreme width, east and west, 200 miles.

History.—Charter issued to Lord Baltimore in 1632. First permanent settlement made at St. Marys City, St. Mary County, 1634. Annapolis founded by Puritan refugees, 1649. Baltimore settled 1730. Admitted to the Union 1788. One of the 13 original States.

Legislature.—First governor of the State, John E. Howard, 1789.

Agricultural and Mechanical College, at College Park, Prince George County.

ONLY TWO MONTHS OF WINTER.

The State of Maryland glories in an exceptionally fine, healthful climate, its mildness being due chiefly to the vicinity of the Atlantic Ocean and the Gulf Stream. The winter lasts only two months, January and February. Spring is short and pleasant, and is followed by a long summer, with warm days and cool nights. The heat of the summer is moderated by the constant cool breeze from the Atlantic.

FARM WORK ALL YEAR ROUND.

No fear need be felt of blighting frosts, and the farm work can proceed almost all the year round. In Maryland suitable soil, if properly cultivated, will produce 40 bushels of wheat to the acre.

Under highly improved cultivation, the yield of corn is 80 bushels per acre.

Land properly cultivated will yield 4,000 quarts of strawberries to an acre.

TOMATOES THE GREAT RELIABLE CROP.

The tomato crop is also very profitable. The young plants are set out in the spring; many do this with a machine, but two persons can easily plant seven acres in a day by hand. The plants should be placed the same distance apart as in the case of corn, and cultivated in the same manner. The canning factories pay on an average \$8.00 per ton for tomatoes, and an acre will produce from 6 to 18 tons, according to the quality of the soil.

On a farm of from 40 to 60 acres a settler can, by industry and economy, live comfortably and attain to easy circumstances, if he and his family cultivate their own land. He can dispose of his products with little expense, as railroad and steamboat lines run in all directions, and freight rates are low. A farmer who lives along the water can have his own sailboat and take his products to market himself.

ANNAPOLIS, MD.

Our map of Maryland shows the location of one prominent well known city, namely, Annapolis.

ANNAPOLIS, MD. This city was formerly noted as a seat of wealth, refinement and extensive trade. The naval academy was established in 1845 by the Hon. George Bancroft, Secretary of the Navy, the regulations requiring that the students each remain four years, under strict discipline and instruction in all the branches of the naval profession.

The town was settled in 1640 by Puritan refugees from Virginia and was first called Providence. The next year a commission, appointed by Lord Balti-

more, organized the county and named it Anne Arundel Town, in honor of Lady Baltimore. In 1694 the town was regularly laid out and called Annapolis after Queen Anne who gave it some valuable presents. At the close of the revolution Maryland offered to cede Annapolis to the general government as the federal capital. During negotiations for a permanent capital Congress assembled here and at this session Washington surrendered his commission as commander-in-chief December 23, 1783.

Opportunities in Agriculture and Varied Enterprises

Prices of Small Farms in Maryland

The following list of advertisements describing land in the various parts of Maryland will give a fairly accurate idea as to the value placed upon land in that state by owners:

POSTOFFICE AND STORE.

30 acres \$4500

On this property there is a store 32x45, carrying a stock of \$2,500; postoffice in store; 8-room, 2-story house, nearly new; stable 32x38, built 5 years ago. Two tenant houses, one four-room, the other three. Advanced age of owner forces sale. He has made money here, and you can do the same. Only 120 miles from Baltimore, 6 hours by boat. Eighteen acres in fertile fields which cut 2½ tons hay per acre; 8 acres in wheat, abundance of fruit, 5 acres in strawberries. One-half cash, and easy terms. Princess Anne, Md.

HOME IN GOOD REPAIR.

16 3-8 acres \$1300

Twenty minutes' drive from Princess Anne; 13 acres is garden land, balance wood land; red clay, and sand mixed clay subsoil; a lot of fine fruit trees of different varieties; strawberries, etc. Two-story house of 5 rooms, 2 porches; barn and stables for the farm; a nice little home and in good repair; a fine place to raise poultry. If farm is not large enough, there is land close by that can be bought very low. Owner has another farm, reason for selling. Only \$1,300; \$1,000 cash, reasonable time on balance. Princess Anne, Md.

FARM WITH ALL CONVENIENCES.

73 acres \$1000

Located 6 miles from Princess Anne; 55 acres tillable, balance wood land; in good neighborhood; schools and churches close by; a 2-story dwelling of 9 rooms and hall; stable and outbuildings; plenty of fruit. Advanced age of owner cause of sale. \$700 down; time on balance. Princess Anne, Md.

FARM CLOSE TO CHURCH AND SCHOOL.

175 acres \$1300

Twenty-two acres cultivated, balance in young timber, pine, oak and gum; 6 miles to R. R. station; good neighborhood; close to church and school; dwelling of 8 rooms, 3 porches, painted; pump house, corn house, new with loft above; 2 small barns; grapes, apples, peaches; also a 5-room tenant house. One-half cash and easy terms. Princess Anne, Md.

IN AN EXCELLENT NEIGHBORHOOD.

69 acres \$2500

Water front for 80 rods; 5 miles from county seat; 45 acres under cultivation, balance in woodland and pasture; red clay soil; fruit trees of all kinds; splendid land for all farm crops; 13 acres of wheat, a few acres of winter oats, all looking fine. Two-story, 4-room house; barn 18x28, poultry house, corn crib, etc. A lot of wealthy farmers all around in this section; one of the best neighborhoods in Maryland. One-half cash and easy terms. Princess Anne, Md.

FARM WITH IMPROVEMENTS \$10 AN ACRE.

100 acres \$1000

Located 5 miles from county seat on main county road, in good neighborhood. Two-story house of 5 rooms, and some outbuildings; 40 acres cleared, balance in woodland. Terms cash. Orchard set out. Princess Anne, Md.

LARGE IMPROVED FARM AT \$25 AN ACRE.

200 acres \$5000

There are 5 acres of strawberries in fine condition; abundance wood and timber; owner has re-

fused \$1,500 for the saw timber; it is estimated to be worth \$2,500; 8-room, 2-story house; fine shade; convenient stable, poultry house, tenant house, etc., in good order; advanced age cause of sale; only 1½ miles out from R. R. village, on main road four miles from county seat. \$3,000 down and easy terms. Princess Anne.

These properties, offered for sale in Maryland, are samples of many homes and farms for sale in Eastern States. In a majority of cases the properties are in good order but the younger members of the household being gone, the old people, or those in charge of the estate, are willing to sell at a sacrifice.

Great numbers of people in the western and middle states, knowing the value and advantages of the old homes, are emigrating into the eastern states. Write to the Secretary of State for lists of real estate agents.

ADVANCED AGE OF OWNER CAUSE OF SELLING.

157 acres \$4500

On main road between two large villages, only 6 miles from Pocomoke City; 120 acres in cleared fields; balance wood and timber; 100 apple trees just coming into bearing; 4 acres in strawberries; 1,700 bushels of corn grown last year without fertilizer; 7-room house; barn 30x40, stable for horses. Buildings are very good and are insured for \$1,500. Stock and tools at low price. Advanced age of owner cause of sale. One-half cash; balance easy terms. Princess Anne, Md.

POSTOFFICE NEXT DOOR.

12 acres \$1200

Located 9 miles from Princess Anne, in a little village. A dwelling of 6 rooms, hall and porch, painted; carriage house, stable and outbuildings; school and churches close; postoffice next door; country thickly settled; 60 acres of oyster ground can go with the farm; plenty of fruit. \$1,000 cash; balance on time. Princess Anne.

THRIVING VILLAGE AND NEAR SCHOOLS.

100 acres \$1600

Seven miles from county seat, on a fine level road; close to good, thriving little village; good school and churches; 60 acres cleared, balance in wood and timber. Soil is red clay and a good quality; raises fine crops. The dwelling was burned down; some small buildings are left; in a fine neighborhood; some northern neighbors close by; ½ mile to river, with right of way. \$1,000 cash, time on balance. Princess Anne, Md.

OWNER HAS NO USE FOR FARM.

28 acres \$1100

A pleasant little home in a good neighborhood, close to churches and school; 3 stores close by; 22 acres of good tillable land; a carload of lime used on the farm last year. A 2-story, 4-room house and 2 porches; new barn, 16x32; 4 stalls, carriage house, wagon shed, corn crib, poultry house; a fine place for poultry; 2½ miles from R. R. station; mail delivered; 7 miles from Princess Anne on a nice level road. \$700 down, time on balance. Owner has a store and has no use for the farm. Princess Anne, Md.

YOUNG ORCHARD—DIFFERENT KINDS OF FRUIT.

116 acres \$1500

Located 6 miles from Princess Anne, on county road; 1½ miles to store; 75 acres cleared, balance in wood land; a 5-room dwelling, and all necessary buildings for the farm. A young orchard of different kinds of fruit; fine shade; mail delivered, etc. \$1,000 cash; balance to suit the buyer. Princess Anne, Md.

STATE AND THE 14 COUNTIES OF MASSACHUSETTS

With Their Boundaries

Massachusetts Cities and Villages with 1910 Populations

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
A											
Abington	11	5,455	Belmont	6	5,542	Charlton City	5	550	*Dedham	9	9,284
Acton	6	239	Berlin	5	706	Charlton Depot	5	406	Deerfield	2	1,094
Acton	6	260	Bernardston	2	769	Charlton	10	892	Dennis	12	306
Acushnet	10	1,063	Beverly	7	18,650	Chatham	12	1,000	Dennis Port	12	608
Adams	1	13,026	Billerica	6	2,789	Chelmsford	6	5,010	Dighton	10	950
Adamsdale	10	206	Blackinton	5	872	Chelsea	8	32,452	Dodge	5	250
Agawam	4	3,501	Blackstone	5	5,648	Cherry Valley	5	1,254	Dorchester	10	250
Allard	1	275	Blanford	4	553	Cheshire	1	1,281	Douglass	5	602
Allerton	11	360	Bolton	5	762	Chester	4	1,307	Dover	9	536
Amesbury	7	9,894	Bondsville	4	1,601	Chesterfield	3	421	Dracut	6	3,461
Amherst	3	5,112	Boston (capital)	8	670,585	Chicopee	4	25,401	Dudley	5	4,267
Andover	7	7,301	Bourne	12	450	Chicopee Falls	4	8,350	Dunstable	6	412
Annisquam	7	506	Boxford	7	469	Chilmark	13	322	Duxbury	11	906
Arlington	6	11,187	Bradstreet	3	249	Chiltonville	11	565			
Arlington Hgts	6	1,908	Brantree	9	8,066	Clarendon Hills	9	389	E		
Ashburnham	5	801	Brant Rock	11	336	Clarksburg	1	491	East Acton	6	280
Ashby	6	865	Brewster	12	360	Clarksdale	7	3,500	E. Blackstone	5	290
Ashfield	2	593	Bridgewater	11	7,688	Clinton	5	13,075	E. Braintree	9	1,206
Ashland	6	1,597	Briggsville	1	404	Cochesett	11	795	E. Bridgewater	11	3,363
Assinippi	11	362	Brimfield	4	731	Cochituate	6	1,303	E. Brookfield	5	730
Assonet	10	1,194	Brocton	11	56,878	Cohasset	9	2,585	E. Dedham	9	3,674
Attol	5	8,536	Brookfield	5	1,658	Cold Brook	5	260	E. Dennis	12	250
Attleboro	10	16,215	Brookline	9	27,792	Coldbrook			E. Douglass	5	1,500
Attleboro Falls	10	2,062	Brookville	9	209	Springs	5	214	E. Falmouth	12	250
Auburn	5	2,006	Bryantville	11	306	Colerain	2	1,209	E. Freetown	10	200
Auburndale	6	2,163	Buckland	2	1,550	Collinsville	6	1,327	E. Hadley	3	321
Avon	9	1,901	Burlington	6	588	Concord	6	6,421	Easthampton	3	8,524
Ayer	6	2,797	Buzzards Bay	12	400	Concord Junction	6	1,839	E. Harwich	12	250
			Byfield	7	880	Conway	2	1,340	E. Lee	1	574
B			C			D			E		
Baldwinstown	5	1,994	Cambridge	6	104,839	Cordaville	5	250	E. Lexington	6	831
Ballard Vale	7	532	Canton	9	4,797	Cotuit	12	606	E. Long Meadow	4	1,327
Bancroft	3	232	Canton Junction	9	560	Crescent Beach	8	18,219	E. Mansfield	10	260
*Barnstable	12	4,676	Carlsile	6	523	Cummington	3	744	E. Milton	9	1,678
Barre	5	2,957	Carver	11	406				E. Northfield	2	781
Bay State	3	447	Caryville	9	573				Easton	10	5,139
Bay View	7	206	Centerville	12	450				Eastonville	10	373
Becket	1	784	Central Valley	10	250	Dalton	1	3,568	E. Orleans	12	275
Bedford	6	1,158	Charlemont	2	845	Dana	5	230	E. Pepperell	6	2,509
Belchertown	3	2,088	Charlton	5	481	Danvers	7	9,407	E. Princeton	5	260
Bellingham	9	579				Danversport	7	1,000	E. Saugus	7	953
						Dartmouth	10	4,378	E. Taunton	10	1,000
						Davis	2	205	E. Templeton	5	750

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Massachusetts Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Loca.	County	Pop.	Towns	Loca.	Pop.
E. Walpole.....9.....763			*Lawrence.....7.....85,892			Norfolk.....9.....760			Rehoboth.....10.....1,540		
E. Wareham.....11.....350			Lakeville.....11.....912			N. Abington.....11.....2,292			Revere.....8.....18,219		
E. Weymouth.....9.....3,540			Lee.....1.....4,106			N. Adams.....1.....22,019			Richmond.....1.....415		
*Edgartown.....13.....1,175			Leeds.....3.....1,151			N. Amherst.....3.....1,195			Riverside.....2.....315		
Enfield.....3.....832			Leicester.....5.....3,237			*Northampton.....3.....19,431			Rockdale.....5.....560		
Erving.....2.....1,094			Lenox.....1.....3,060			N. Andover.....7.....5,529			Rochester.....11.....986		
Essex.....7.....1,067			Lenox Dale.....1.....512			N. Attleboro.....10.....9,562			Rock.....11.....460		
Everett.....6.....33,484			Leominster.....5.....17,580			N. Bellingham.....9.....482			Rockland.....11.....6,928		
F			Leverett.....2.....406			N. Billerica.....6.....625			Rockport.....7.....4,211		
Fairhaven.....10.....5,122			Lexington.....6.....4,918			Northboro.....5.....1,747			Rockville.....9.....332		
Fairview.....4.....213			Leyden.....2.....286			Northbridge.....5.....8,807			Rowe.....2.....527		
*Fall River.....10.....119,295			Lincoln.....6.....558			Center.....5.....200			Royalston.....5.....383		
Falmouth.....12.....3,144			Lincoln Station.....6.....364			N. Brookfield.....5.....3,075			Royalston Sta.....5.....628		
Farley.....2.....328			Linwood.....5.....1,364			N. Carver.....11.....508			Russell.....4.....630		
Farmington.....3.....510			Littleton.....6.....819			N. Chelmsford.....6.....1,605			Rutland.....5.....1,206		
Fayville.....5.....450			Littleton Com- mon.....6.....405			N. Dana.....5.....587			S		
Feeding Hills.....4.....1,365			Long Meadow.....4.....964			N. Dartmouth.....10.....1,500			Sagamore.....12.....368		
Fisherville.....5.....820			Long Plain.....10.....221			N. Dighton.....10.....1,020			Salem.....7.....43,697		
Fiskdale.....5.....1,160			*Lowell.....6.....106,294			N. Eastham.....12.....200			Salisbury.....7.....840		
*Fitchburg.....5.....37,826			Ludlow.....4.....4,948			N. Easton.....10.....3,099			Salisbury Beach.....7.....624		
Florence.....3.....1,930			Ludlow Center.....4.....559			N. Falmouth.....12.....250			Sandisfield.....1.....281		
Forge Village.....6.....206			Lynn.....7.....89,336			N. Falmouth.....12.....250			Sandwich.....12.....1,158		
Foxboro.....9.....3,863			Lynnfield.....7.....445			Northfield.....2.....775			Saugus.....7.....8,041		
Framingham.....6.....12,948			Lynnfield Center.....7.....457			Northfield Farms.....2.....214			Saundersville.....5.....720		
Franklin.....9.....5,614			Lyonsville.....2.....256			N. Grafton.....5.....1,720			Savoy.....1.....257		
Furnace.....5.....280			M			N. Hadley.....3.....245			Saxsonville.....6.....2,000		
G			Magnolia.....7.....865			N. Hanover.....11.....360			Scituate.....11.....1,177		
Gardner.....5.....14,699			Malden.....6.....44,404			N. Hanson.....11.....200			Scotland.....11.....1,060		
Georgetown.....7.....1,900			Manchaug.....5.....1,520			N. Harwich.....12.....208			Seaside.....10.....1,917		
Gilbertville.....5.....2,100			Manchester.....7.....2,673			N. Leominster.....5.....1,209			Seekonk.....10.....9,285		
Gill.....2.....708			Manomet.....11.....590			N. Middleboro.....11.....360			Sharon.....1.....1,627		
Gleasondale.....6.....705			Marshfield.....10.....5,183			N. Orange.....2.....281			Shelburne Falls.....2.....1,341		
Globe Village.....5.....2,975			Marblehead.....7.....7,338			N. Oxford.....5.....705			Shelborn.....6.....983		
GloUCEster.....7.....24,398			Marion.....11.....1,029			N. Plymouth.....11.....1,000			Shirley.....6.....1,492		
Goshen.....3.....218			Marlboro.....6.....14,579			N. Raynham.....10.....562			Shirley Center.....6.....200		
Grafton.....5.....5,705			Marshfield Hills.....11.....506			N. Reading.....6.....993			Shrewsbury.....5.....1,866		
Granby.....3.....747			Marshfield Hills.....11.....506			N. Scituate.....11.....1,000			Shutesbury.....2.....374		
Graniteville.....6.....1,100			Massapee.....12.....303			N. Stoughton.....9.....272			Siliconet.....14.....258		
Granville.....4.....735			Matfield.....11.....317			N. Truro.....12.....336			Silver Lake.....11.....235		
Great Barring- ton.....1.....5,926			Mattapoisett.....11.....1,080			N. Uxbridge.....6.....552			Sixteen Acres.....4.....250		
Greenbush.....11.....206			Maynard.....6.....6,390			N. Westport.....10.....506			Somerset.....6.....7,738		
*Greenfield.....2.....10,421			Medfield.....9.....3,466			N. Weymouth.....9.....908			Somerville.....6.....77,236		
Greenwich.....3.....364			Medford.....6.....23,150			N. Wilbraham.....4.....568			South Acton.....6.....809		
Greenwood.....6.....466			Medway.....9.....2,696			N. Wilmington.....6.....360			Southampton.....3.....927		
Groton.....6.....1,852			Melrose.....6.....15,715			Norton.....10.....2,544			S. Ashburnham.....5.....1,062		
Groveland.....7.....2,086			Melrose High- lands.....6.....4,000			Norwell.....11.....934			S. Ashfield.....2.....263		
H			Mendon.....5.....922			Norwood.....9.....8,014			S. Attleboro.....10.....530		
Hadley.....3.....1,651			Merrick.....5.....1,277			O			S. Barre.....5.....450		
Halifax.....11.....494			Merrimac.....7.....1,706			Oak Bluffs.....13.....1,138			S. Berlin.....5.....200		
Hamilton.....7.....732			Methuen.....7.....11,448			Oakdale.....5.....1,099			Southboro.....5.....1,031		
Hampton.....4.....561			Middleboro.....11.....8,214			Oakham.....5.....305			S. Braintree.....9.....3,109		
Hancock.....1.....434			Middlefield Sta.....3.....232			Old Furnace.....5.....268			Southbridge.....5.....12,392		
Hanover.....11.....862			Middleton.....7.....929			Onset.....11.....1,560			S. Carver.....11.....385		
Hanson.....11.....605			Milford.....5.....13,055			Orange.....12.....5,282			S. Chatham.....12.....285		
Hartwick.....5.....3,524			Millbury.....5.....4,740			Orleans.....12.....677			S. Chelmsford.....6.....395		
Harvard.....5.....843			Millers Falls.....2.....469			Osterville.....12.....505			S. Dartmouth.....10.....1,218		
Harwich.....6.....691			Millington.....2.....252			Otis.....1.....329			S. Deerfield.....2.....927		
Harwich Port.....12.....550			Millis.....9.....750			Otter River.....5.....550			S. Dennis.....12.....265		
Hatfield.....3.....1,269			Mill River.....5.....203			Oxford.....5.....3,361			S. Dukesbury.....11.....468		
Haverhill.....7.....44,115			Millville.....5.....1,935			P			S. Easton.....10.....706		
Hawley.....2.....359			Milton.....9.....7,924			Palmer.....4.....8,610			S. Egremont.....1.....542		
Haydenville.....3.....1,096			Mittineague.....4.....2,931			Paxton.....5.....444			S. Essex.....7.....723		
Heath.....2.....243			Monson.....4.....4,758			Pelham.....3.....460			S. Framingham.....6.....7,248		
Hebronville.....10.....806			Montague.....2.....6,866			Pemberton.....11.....561			S. Groveland.....7.....376		
Hingham.....11.....4,965			Montague City.....2.....465			Pepperell.....6.....2,953			S. Hadley.....3.....4,894		
Hingham Center.....11.....760			Monterey.....1.....444			Pepperell Sta.....6.....2,500			S. Hamilton.....7.....811		
Hinsdale.....1.....1,452			Montgomery.....4.....259			Peru.....1.....268			S. Hanover.....11.....622		
Holbrook.....9.....2,816			Monument.....12.....250			Petersham.....5.....605			S. Hanson.....11.....655		
Holden.....5.....1,450			Beach.....13.....253			Phillipston.....5.....271			S. Harwich.....12.....360		
Holliston.....6.....2,711			Mount Tom.....3.....253			Pigeon Cove.....7.....955			S. Hingham.....11.....700		
Holyoke.....4.....57,730			Mundale.....10.....649			*Pittsfield.....1.....32,121			S. Lancaster.....5.....1,080		
Hopedale.....5.....2,048			N			Plainfield.....3.....332			S. Lee.....1.....382		
Hopkinton.....6.....2,185			Nahant.....7.....972			Plainville.....9.....1,282			S. Lincoln.....6.....564		
Hortonville.....10.....506			Nantasque.....7.....1,060			*Plymouth.....11.....12,141			S. Middleboro.....11.....460		
Housatonic.....1.....2,361			Nantasket.....9.....1,060			Plympton.....11.....514			S. Natick.....6.....609		
Hubbardston.....5.....1,010			Nantucket.....14.....2,962			Pocasset.....12.....325			S. Rehoboth.....10.....287		
Hudson.....6.....6,743			Natick.....6.....9,866			Ponkapog.....9.....365			S. Royalston.....5.....628		
Hull.....11.....650			Needham.....9.....5,026			Pottersville.....10.....341			S. Sherborn.....6.....408		
Huntington.....3.....1,306			Needham Heights.....9.....1,506			Pratts Junction.....5.....220			S. Sudbury.....6.....708		
Hyannis.....12.....1,264			*New Bedford.....10.....96,652			Prescott.....5.....1,056			Southville.....5.....280		
Hyde Park.....9.....15,507			New Braintree.....5.....477			Prescott.....5.....1,056			S. Walpole.....9.....300		
I			Newbury.....7.....551			Princeton.....5.....607			S. Wareham.....11.....266		
Indian Orchard.....4.....6,153			*Newburyport.....7.....14,949			Provincetown.....12.....4,369			S. Westport.....10.....200		
Ipswich.....7.....5,777			New Lenox.....1.....299			Q			S. Wymouth.....9.....3,500		
J			New Marlboro.....1.....692			Quinapoxet.....5.....414			Southwick.....4.....1,048		
Jefferson.....5.....1,176			New Salem.....2.....271			Quincy Adams.....9.....32,642			S. Yarmouth.....2.....590		
K			Newton.....6.....39,806			Quissett.....12.....200			Spencer.....5.....6,740		
Kendal Green.....6.....591			Newton Center.....6.....6,066			R			*Springfield.....4.....88,922		
Kingston.....11.....1,950			Newton High- lands.....6.....3,990			Randolph.....9.....4,301			Sterling.....5.....850		
Lancaster.....5.....1,400			Newton Lower Falls.....6.....2,955			Raynham.....10.....1,106			Sterling Jct.....5.....245		
Lanesboro.....1.....751			Newton Upper Falls.....6.....3,506			Raynham Sta.....10.....562			Still River.....5.....259		
Lanesville.....7.....1,606			Newtonville.....6.....5,505			Reading.....6.....5,818			Stockbridge.....1.....1,833		
			Nobscot.....6.....302			Readville.....9.....1,562			Stoneham.....6.....7,090		

Massachusetts Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Sudbury	6.	309	Wales	4.	645	W. Cummington	3.	225	W. Wareham	11.	350
Sunderland	2.	910	Walpole	9.	4,892	W. Dennis	12.	666	W. Warren	5.	1,193
Sutton	5.	3,073	Waltham	6.	27,834	W. Dudley	5.	1,263	W. Whately	2.	366
Swampscott	7.	6,204	Wamesit	6.	300	W. Duxbury	11.	450	Westwood	9.	927
Swansea	10.	550	Waquoit	12.	460	W. Falmouth	12.	275	Weymouth	9.	12,895
Swansea Center	10.	564	Ward Hill	7.	400	Westfield	4.	16,044	Whately	2.	350
T			Ware	3.	8,774	Westford	6.	2,851	White Valley	5.	208
			Wareham	11.	4,402	W. Groton	6.	460	Whitins	5.	1,364
*Taunton	10.	34,259	Warren	5.	4,188	Westhampton	3.	466	Whitinsville	5.	4,309
Tempest Knob	12.	350	Warwick	2.	527	W. Hanover	11.	554	Whitman	11.	7,292
Templeton	5.	3,756	Washington	1.	339	W. Mansfield	10.	508	Wilbraham	4.	1,140
Tewksbury	6.	3,750	Watertown	6.	12,875	W. Medford	6.	4,300	Wilkinsonville	5.	460
Thorndike	4.	1,373	Waterville	5.	632	W. Medway	9.	1,250	Williamsburg	3.	847
Three Rivers	4.	1,191	Waverly	6.	1,531	W. Millbury	5.	521	Williamstown	1.	3,708
Tolland	4.	274	Wayland	6.	917	Westminster	5.	998	Williamstown		
Topshfield	7.	1,095	Webster	5.	11,509	Westminster			Station	1.	76
Townsend	6.	968	Wellesley	9.	5,413	Depot	5.	350	Williamstown	4.	1,451
Townsend Har-			Wellesley Hills	9.	2,464	W. Newbury	7.	1,405	Wilmington	6.	1,370
bor	6.	304	Wellfleet	12.	858	W. Newton	6.	7,000	Winchendon	5.	5,678
Tremont	11.	350	Wendell	2.	228	W. Orange	6.	1,500	Winchendon		
Truro	12.	340	Wendell Depot	2.	201	W. Peabody	7.	308	Springs	5.	1,660
Turners Falls	2.	5,115	Wenham	7.	814	W. Pittsfield	1.	460	Winchester	6.	9,309
Tyngsboro	6.	768	West Acton	6.	720	Westport	10.	2,928	Windsor	1.	457
Tyringham	1.	314	W. Auburn	5.	265	Westport Point	10.	305	Winthrop Center	8.	10,132
U			W. Barnstable	12.	308	West Rutland	5.	490	Woburn	6.	15,303
Upton	5.	877	W. Berlin	5.	220	W. Springfield	4.	9,224	Woods Hole	12.	408
Uxbridge	5.	4,671	W. Westboro	5.	5,446	W. Stockbridge	1.	955	Woodville	6.	360
V			W. Boylston	5.	571	W. Stoughton	9.	406	*Worcester	5.	6,145,986
Vineyard Haven	13.	1,108	W. Brewster	12.	200	W. Sutton	5.	200	Worono	4.	423
W			W. Bridgewater	11.	1,211	W. Taunton	13.	357	Worthington	3.	341
Wakefield	6.	11,404	W. Brookfield	5.	1,584	W. Tisbury	13.	357	Wrentham	9.	1,203
			W. Chatham	12.	250	W. Townsend	6.	500	Y		
			W. Chelmsford	6.	560	W. Upton	5.	1,147	Yarmouth Port	12.	665

MASSACHUSETTS

A GREAT MANUFACTURING REGION AND HIGH CLASS OF PEOPLE.

One purpose of this volume is to give information to people living in cities and others who wish to change their place of residence, and particularly to where land may be obtained to good advantage.

In our presentation of opportunities for families in getting support we are absolutely impartial. We have not the slightest pecuniary interest in any region of the country we describe. We are governed therefore by no bias in favor of any particular locality. Our mission is simply to present the merits of all states, tell the extremes of climate, describe each locality spoken of truthfully and leave readers to be their own judge as to where they had better go. Then, before buying go and see the property.

We aim to give the general geography of every state, the location of every county, and with this, location of every government land office, agricultural college, capital of the state and public institution, where further information may be obtained by correspondence with superintendents of these institutions.

We have made a specialty in this work of giving the location and population of every county in the United States, that the land seeker, might, besides corresponding with the Secretary of State, write to County authorities and get the facts about any particular locality.

We will say here, what we repeat elsewhere, to get a prompt answer the enquirer should always enclose a prepaid envelope, with name and address on same.

When leaving a city, as we said of another manufacturing State, the family is not always desirous of leaving for the sake of going upon a farm. They may wish to change abode for the purpose of surrounding the children with different associations. They may wish to change the home to get employment in some kind of manufacturing industry or other employment. Besides agricultural possibilities we speak generally of the industrial conditions of a State.

This brings us to a consideration of the opportunities for new settlers in the State of Massachusetts. In the beginning it may be said that this is not an agricultural but a manufacturing state. And yet people wishing to get themselves beautiful homes amid picturesque New England scenes will find many chances for profitable investment in every county in the state. If desirous of owning many acres or a small tract of land, in any county, open correspondence with one or more real estate agents, get descriptions and photographs of various prop-

erties in the market for sale, and after seeing them determine if any of them is what you want.

There are numerous highly fertile valleys in the State in which market gardening can be carried forward with profit. A two or three weeks' visit to this region would reveal all that.

But possibly the land seeker is principally intent upon finding, with a rural home, the opportunity for employment in some manufacturing industry. If so this is a superior region for that purpose. In proportion to its size Massachusetts is far ahead of any State in the Union in factory production, as shown in the fact that there are in this State about 400,000 wage earners, employed in factories.

THE MANY RAPID FLOWING RIVERS.

There are various reasons for this being a great factory center. In the first place the maps enumerate 190 rivers in this small state. Many of these are branches of larger rivers, yet all of them are so rapid in flow as to give power. Second, with over 300 miles of sea coast, providing numerous harbors for incoming raw material and outgoing manufactured product to the great markets of the world, there is superior chance to get the raw material in and the manufactured product out, to the world. Third, accessibility to the millions of people on the Atlantic coast that have to buy goods; and fourth, long years of experience in getting factories established and finding avenues of trade.

ALWAYS FIND OPPORTUNITY BY SEARCHING.

It is reasonable to suppose that with the immense call for population to go West, the ranks of these 400,000 workers in factories will be often broken, and there will be ample opportunity to find factory employment in this State at any time of the year.

A brief enumeration of goods made in Massachusetts includes the finest of carpets, silks, woolsens, cottons, paper, shoes, matches, cutlery, agricultural implements, tools, silverware, bronzes, whips, drugs, chemicals, clocks and other goods much too numerous to mention.

Attracted by the high culture of the people, by the many educational advantages, by the opportunity for making of beautiful homes in the midst of charming scenery, great numbers of people, who have been well over the world, are going to the rural, picturesque uplands and pleasant valleys of Massachusetts to spend the last years of life.

PRICES OF REAL ESTATE IN MASSACHUSETTS.

We give elsewhere a list of some properties for sale in Massachusetts, which may be considered an average of hundreds of properties in the market.

Massachusetts Opportunities in Agriculture and Varied Enterprises

New England Properties for Sale

Altitude. Highest in the State, Mt. Greylock, in the extreme northwest part of the State, in Berkshire Co., 3,400 feet high.

Climate. Average annual January temperature at Boston 26 above. Average July 71. Extremes, 103 above and 13 below. Average annual rainfall, 45 inches.

Dimensions. Extreme length of State, 110 miles; extreme width, 190 miles.

Agricultural College. Amherst.

History. First permanent settlements made by the Pilgrims at Plymouth, 1620; by the Puritans at Salem, 1628; at Boston, 1630. King Phillip's war, 1675. Witchcraft trials at Salem, 1692, twenty persons executed. First newspaper, "Public Occurrences" in Boston, 1690. "Boston News Letter" founded 1704. Published till 1776. Boston massacre, 1770. Boston Tea Party, 1773; value tea destroyed, \$100,000. Battles of Lexington, Concord and Bunker Hill, 1775.

PRICES OF SMALL FARMS AND VILLAGE PROPERTIES IN MASSACHUSETTS.

Although this state is densely populated, it is seen, from these items, which we cut from a real estate advertising sheet, that homes can be obtained here at reasonable prices. For values on farm properties write to Secretary of States for list of real estate dealers in Massachusetts.

NORFOLK COUNTY, MASS.

West Medway is located on the Woonsocket division of the New York, New Haven and Hartford Railroad, only 27 miles from Boston; commutation \$26 per quarter. Take train leaving South Station, Boston, or River Street Station, Woonsocket, R. I.

West Medway is a town of about 1,600 people. It has good graded grammar and high schools, electric lights, trolley cars, woolen mill, shoe, straw and box factories. It is surrounded by prosperous manufacturing and farming towns, and as prices are steadily advancing, it is one of the most desirable localities in which to purchase property.

West Medway—15 Acres—\$4,200.

This is a beautiful country home, as you can readily see by glancing at the above picture. The house is well worth \$5,000, but the owner is in ill health and must sell at once, therefore he offers it at a bargain. Located $\frac{3}{4}$ of a mile from stores, postoffice, depot, etc. The land is nicely adapted to gardening and fruit raising; there is now a fine lot of plums, pears, grapes, blackberries and strawberries in bearing; 25 to 50 apple trees. The house contains 11 rooms, is heated by furnace; the rooms are light and airy, and surroundings are pleasant. Price only \$4,200; \$1,000 can remain on mortgage.

West Medway—2 Acres—\$2,500.

Three minutes' walk to depot and electric cars; 50 minutes' ride to Boston; fine 2-story house, 11 rooms, with a chance to finish 3 more; heated by furnace; nice wide piazza (see cut); small stable; all in perfect repair; very pretty elm and maple shade; 10 minutes' walk from the Charles River; 3 apple trees, 1 cherry, 2 pear, 1 quince; fine large garden. Only \$2,500; $\frac{1}{2}$ down, balance on mortgage at 5 per cent.

West Medford—40 Acres—\$2,100.

Productive farm, and very attractive set of buildings; 15 acres in smooth level fields; 10 acres in pasture; 15 acres in wood; some pine timber; 100 barrels of apples in season; raspberries, blackberries, good asparagus bed. The house is 1 $\frac{1}{2}$ stories, contains 7 rooms, and sets well back from the street, with fine shady lawn; barn 30x40, with basement and tie-up for 5 cows; wood shed; 2 poultry houses, that will accommodate 100 hens; within 1 $\frac{1}{4}$ miles of village; mail delivery; few steps to neighbors. You can manage money here keeping poultry and raising vegetables. Only \$2,100; \$600 down.

West Medway—3 $\frac{1}{2}$ Acres—\$2,000.

Fine large house arranged for 2 families; upper part can always be rented if desired (see cut). The rooms are large and light; house contains 10 rooms; water supply by wells; poultry house 13x16; in wide-awake village, where there is a ready market for poultry, berries, vegetables, etc. You can keep several hundred hens, and raise 2 or 3 acres of garden truck each year. There are 12 apple and 6 pear trees; plenty of cherries, grapes, peaches, cur-

rants, etc., for home use. To make a quick sale price has been reduced to only \$2,000; $\frac{1}{2}$ cash. Possession in 15 days.

West Medway—2 $\frac{1}{2}$ Acres—\$1,800.

This is one of those nice, clean, comfortable looking homes that you have often wished you owned. Very pleasant surroundings; level lawn; nice walk, and on a good street. House contains 12 rooms, with bath; well with force pump, that forces water to tank in attic; barn 20x12, clapboarded walls; 2 poultry houses; brooder house, very warm. House is finished in natural wood; rooms are well papered and painted; located right in the village and few steps to everything. The owner has business elsewhere and to insure immediate sale has reduced his price to \$1,800; only \$900 down, the balance on easy terms.

West Medway— $\frac{1}{2}$ Acre—\$1,800.

Large house with store on one side (see cut); located in prosperous village. There is a fine chance to sell building lots, as the land fronts on the street for many rods; 15 rooms, besides store, any number of which can be rented; wood shed and hen house; elm shade; few minutes' walk from depot and trolley cars. This is an exceptionally good opportunity to secure a good home and small store. Price only \$1,800; \$600 down, balance on easy payments.

West Medway—4 Acres—\$1,700.

One of the nicest little homes that you could desire; located right in the village on main street, just the place for a carpenter or mechanic; house contains 5 rooms and is supplied with well water by a pump in the kitchen; barn 22x30; poultry house 10x40, where the present owner has been making money keeping fowls; the land is level and easily worked; abundance of apples, pears, plums, peaches and raspberries in good bearing condition. Only \$1,700; \$300 down, balance on mortgage. Now is your opportunity before some wideawake fellow gets this before you. Such places sell quickly.

West Medway—3 Acres—\$1,300.

Productive small farm on main street; trolleys pass it; $\frac{1}{2}$ mile to stores, schools, churches, etc.; same distance to factory and the best of markets. The house is well built and contains 5 rooms. There are 2 poultry houses and a good chance to build more; apple, plums, pears and grapes for home use; the land is level and excellent for raising all garden crops. Plenty of employment to be had in the village.

West Medway—2 Acres—\$1,100.

A good poultry farm is a small gold mine. Here is one of them. This house is 2 stories, 10 rooms, with piazza; water supply by well; barn 15x20, clapboard walls; poultry house 50 feet long; 2 acres good garden land; 12 apple trees, 2 pears, 2 cherries; raspberries; located in village, few steps to railroad station and trolley cars. This is a house that would cost \$2,000 to build and with the exception of needing a little paint and paper it is in good condition. The owner is very anxious to sell, and has reduced the price to \$1,100; only \$300 down, and the balance, payable in installments of \$50 a year, with interest.

MASSACHUSETTS HEALTH AND PLEASURE RESORTS

Swampscott, Mass.—This favorite resort of Bostonians is 1 mile beyond the village of Lynn. It has three sea-beaches, and picturesque headlands, its elegant villas, safe and excellent bathing, and is everywhere indicative of wealth and fashion. In a business point of view it has a large trade in fresh fish—principally cod and haddock—caught in the vicinity by residents, and forwarded to market.

Oak Bluffs (Martha's Vineyard) Mass.—This religious summer resort is controlled by Baptists, whose tabernacle will seat 5,000 persons. The surrounding grounds have been attractively improved, and it is estimated that 25,000 visitors arrive and depart during the season. Martha's Vineyard is an island 21 miles long by 6 miles wide, between which and the mainland flows Vineyard Sound, 4 miles wide.

STATE AND THE 83 COUNTIES OF MICHIGAN

With Their Boundaries

Location and Population of MICHIGAN COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1	Gogebic	23,333
2	Ontonagon	8,659
3	Houghton	88,098
4	Keweenaw	7,156
5	Baraga	6,127
6	Iron	15,161
7	Dickinson	20,524
8	Marquette	16,739
9	Menominee	25,648
10	Alger	7,675
11	Delta	30,408
12	Schoolcraft	8,681
13	Luce	4,004
14	Mackinac	9,249
15	Chippewa	24,472
16	Emmett	18,561
17	Cheboygan	17,272
18	Presque Isle	11,249
19	Charlevoix	19,157
20	Antrim	15,692
21	Otsego	6,552
22	Montmorency	3,755
23	Alpena	19,065
24	Leelanau	10,608
25	Benzie	10,638
26	Grand Traverse	23,784
27	Kalkaska	8,097
28	Crawford	3,934
29	Oscoda	17,889

Towns	Loca.	Pop.
30	Alcona	5,703
31	Manistee	26,688
32	Wexford	20,769
33	Missaukee	10,606
34	Roscommon	2,274
35	Ogemaw	8,907
36	Iosco	9,753
37	Mason	21,832
38	Lake	4,939
39	Oscoda	17,889
40	Clare	9,249
41	Gladwin	8,413
42	Arenac	9,640
43	Oceana	18,379
44	Newaygo	19,220
45	Mecosta	19,466
46	Isabella	23,029
47	Midland	14,005
48	Bay	68,238
49	Huron	34,758
50	Muskegon	40,577
51	Ottawa	45,301
52	Kent	159,145
53	Montcalm	32,069
54	Gratiot	28,820
55	Saginaw	89,290
56	Tuscola	34,913
57	Sanilac	33,930
58	Ionia	33,550
59	Clinton	23,159
60	Shiawassee	33,246
61	Gemee	61,555
62	La Peer	26,033
63	St. Clair	52,341
64	Allegan	39,819
65	Barry	22,633
66	Eaton	30,499
67	Ingham	53,310

Towns	Loca.	Pop.
68	Livingston	17,736
69	Oakland	49,576
70	Macomb	32,606
71	Van Buren	35,185
72	Kalamazoo	69,427
73	Calhoun	56,638
74	Jackson	53,426
75	Washtenaw	44,714
76	Wayne	531,590

Towns	Loca.	Pop.
77	Berrien	56,622
78	Cass	29,624
79	St. Joseph	25,499
80	Branch	25,605
81	Hillsdale	26,673
82	Lenawee	47,907
83	Monroe	32,917
Total		2,810,173

Michigan Cities and Villages with 1910 Populations.

Towns	Loca.	Pop.
A		
Ada	52	390
Adair	63	214
Addison	82	474
*Adrian	82	10,763
Ahmeek	4	766
Akron	56	475
Alabaster	36	619
Alanson	16	473
Alaska	52	344
Alba	20	692
Albion	73	5,833
Alden	20	628
Alger	42	250
Algonac	63	1,204
*Allegan	64	3,419
Allen	81	550
Allendale	51	208
Allonez	4	1,103

Towns	Loca.	Pop.
Alma	54	3,757
Almont	62	675
*Alpena	23	12,706
Alston	3	1,092
Alto	52	359
Amasa	63	418
Anchorville	6	420
Anderson	68	209
*Ann Arbor	75	14,817
Arcadia	31	403
Armada	70	748
Ashland	44	1,523
Ashley	54	513
Ashton	39	209
Athens	73	631
*Atlanta	22	250
Atlantic Mine	3	2,023
Attica	62	499
Auburn	48	309

Towns	Loca.	Pop.
Au Gres	42	252
Augusta	72	461
Au Sable	36	646
Averill	63	316
Avoca	33	250
Axin	32	516
B		
Bad Axe	49	1,559
Bailey	50	350
Bainbridge	77	1,590
*Baldwin	38	502
Baltic	3	2,500
Bancroft	60	543
Bangor	71	1,158
Bannister	54	481
Baraga	5	1,071
Barker Creek	27	280
Bark River	11	709
Baroda	77	249

Towns	Loca.	Pop.
Barryton	45	411
Bath	59	317
Battle Creek	73	25,267
*Bay City	48	45,166
Bay Mills	15	290
Bayshore	19	300
Bayside	48	300
Beacon	8	1,078
Bear Lake	31	504
Beavertown	41	418
Bedford	73	225
Beach	76	241
Belding	58	4,118
*Bellair	20	1,050
Bellville	76	486
Bellvue	66	930
Bennington	60	265
Benton Harbor	77	9,185
Benzonla	25	563

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Michigan Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Bergland	2	211	*Coldwater	80	5,941	Fair Haven	63	362	Herman	5	300
Berlin	51	304	Coleman	47	909	Fargo	63	390	Hermansville	9	1,200
Berrien Center	77	209	Coloma	77	701	Farmington	63	564	*Hersey	39	310
Berrien Springs	77	880	Colon	79	853	Farwell	40	522	Hesperia	13	462
*Bessmer	1	4,583	Columbiaville	62	369	Fennville	64	533	Hessel	14	260
Beulah	25	420	Commerce	69	250	Fenton	61	2,331	Highland	69	398
Big Bay	8	308	Comstock	72	206	Ferrysburg	51	450	Highland Park	76	4,120
Big Beaver	69	209	Comstock Pk.	52	309	Fife Lake	26	340	*Hillsdale	81	5,001
*Big Rapids	45	4,519	Concord	71	543	Filter City	31	592	Hiittop	77	225
Bingham	24	811	Conklin	51	200	Flat Rock	76	650	Holland	51	10,190
Birch	8	600	Constantine	79	1,244	*Flint	61	38,550	Holly	69	1,537
Birmingham	46	1,607	Cooks	72	820	Flushing	61	938	Holt	67	350
Blanchard	46	219	Cooper	72	257	Ford City	76	1,689	Holton	50	300
Blaney	12	250	Coopersville	51	814	Forestville	11	793	Homer	73	1,008
Bliss	16	232	Copemish	51	490	Foster City	57	396	Homestead	25	1,009
Blissfield	82	1,474	Coral	53	509	Foster	56	408	Honk	25	509
Bloomington	71	501	*Corrinne	14	250	Fountain	37	250	Hopkins	64	400
Boardman	27	524	Covett	71	325	Fowler	59	476	Horton	74	379
Boon	32	304	Cross Village	16	506	Fowlerville	68	905	*Houghton	3	5,413
Borland	45	506	Crosswell	57	1,820	Frankenlust	48	208	Howard City	53	1,046
Boyer City	19	5,218	Crump	48	350	Frankenmuth	55	693	*Howell	68	2,338
Breckenridge	54	595	Crystal	53	326	Frankfort	25	1,555	Hubbard Lake	23	290
Bridgville	71	219	*Crystal Falls	6	3,775	Fraser	70	220	Hubbardston	58	450
Bridgeport	55	365	Culver	27	290	Frederic	3	500	Hubbell	3	1,059
Bridgeton	77	667	Custer	37	277	Freeland	28	400	Hudson	82	2,178
Bridgman	77	250				Freeport	55	450	Hudsonville	51	362
Brighton	68	781	Daggett	9	238	Free Soil	65	463	Humboldt	8	263
Brimley	15	500	Dausville	67	349	Fremont	44	2,009			
Britton	82	370	Davis	70	209	Frontier	81	225	I		
Bronson	89	1,020	Davisburg	69	306	Fruitport	50	330	Ida	83	223
Brooklyn	74	602	Davison	67	673	Fulton	72	350	Imlay City	62	1,174
Brown City	57	690	Dearborn	76	911				Indian River	17	350
Buchanan	77	1,831	Decatur	71	1,286	Gagetown	56	358	Ingalls	9	524
Buckley	32	461	Decker	57	628	Gaines	61	238	Inkster	76	206
Burlington	73	237	Deerfield	82	413	Galesburg	72	656	Interlochen	26	509
Burnips			Defiance	11	200	Gallen	77	405	*Ionia	58	5,030
Corners	64	206	Deford	56	260	Garden	11	497	*Iron Mountain	7	9,216
Burr Oak	79	752	Delaware Mine	4	269	Garnet	14	250	Iron River	6	2,450
Burt	75	206	Delhi Mills	75	200	Gasterville	15	890	Ironwood	3	12,821
Butternut	53	250	Delta	66	275	*Gaylord	21	1,538	Isabella	11	200
Buttersville	37	300	Delton	65	308	Germfask	12	210	Ishpeming	8	12,443
Byron	60	427	Demmon	3	209	Gert	83	226	*Ithaca	54	1,876
Byron Center	52	406	*Detroit	76	465,766	Gilead	80	808			
			Dewar	59	396	Giram	80	250	J		
C			De Witt	59	450	Gladstone	13	421	*Jackson	74	31,433
Cadillac	32	8,375	Dexter	75	726	*Gladwin	41	988	Jacobsville	3	800
Caledonia	52	422	Dighton	39	460	Glen Arbor	24	390	Jamestown	51	300
California	80	209	Dimondale	66	341	Glen	64	362	Jasper	82	250
Calumet	3	32,845	Diorite	8	460	Gobleville	71	537	Jenison	51	309
Cambria	81	350	Dollar Bay	3	1,809	Graafschap	64	209	Jennings	33	1,200
Camden	81	392	Dollarville	13	460	Grand Blanc	61	363	Johannesburg	21	762
Cape	63	761	Dorr	64	392	Grand Haven	51	5,856	Jones	78	200
Carlton	83	506	Douglas	64	485	Grand Ledge	66	2,893	Jonesville	81	1,396
Carlton Center	65	1,390	Dowagiac	78	5,088	Grand Marias	10	2,509	Joyfield	25	328
Carney	9	410	Drayton Plains	69	320	*Grand Rapids	52	112,571	K		
*Caro	76	2,272	Drenthe	51	662	Granville	52	680	*Kalamazoo	72	39,437
Carrollton	55	2,208	Drummond	15	306	Grant	44	423	*Kalamaska	27	1,415
Carson City	53	808	Dryden	62	371	Grant Lake	71	769	Kaukas	48	250
Carsonville	57	401	Dundee	83	1,070	Grattan	56	1,200	Karsarge	51	869
Cascade	52	1,209	Durand	60	2,315	Grawn	56	250	Kent City	52	467
Caseville	19	442	Eagle Harbor	4	576	*Graying	38	1,735	Kenton	3	509
Casnovia	50	308	East Grand	52	893	Greengarden	28	1,250	Kinde	49	360
Cass City	56	1,120	East Jordan	19	2,516	Greenland	2	1,509	Kingsley	26	499
*Cassopolis	78	1,358	Eastlake	31	8,062	Greenville	53	4,045	Kingston	56	302
Cedar	24	496	East Lansing	67	306	Gregory	68	250	Kipling	11	480
Cedar Lake	53	206	Eastport	20	209	Grind Stone			Kretan	15	200
Cedar River	9	509	East Sauga-			City	49	462	L		
Cedar Run	25	503	tuck	64	362	Groscap	14	225	Laingsburg	60	703
Cedar Springs	52	947	East Tawas	36	1,452	Grosse Isle	76	700	Lake	40	293
Cement City	82	509	Eaton Rapids	66	2,094	Grosse Pointe	76	830	*Lake City	33	740
*Centerville	79	613	Eau Claire	17	307	Grosse Point			Lake Linden	3	2,235
Central Lake	20	813	*Ecorse	76	1,063	Farms	76	862	Lake Odessa	58	1,222
Ceresco	73	350	Edmore	53	752	Grosspoint Pk.	76	290	Lakeview	53	954
Champion	8	2,500	Edwardsburg	73	509	Gwinn	8	1,092	Lake Wood	16	296
Channing	7	506	Elk Rapids	20	1,672	H			Lamb	65	292
*Charlevoix	19	2,420	Elkton	49	553	Hadley	62	325	Lamont	51	409
*Charlotte	66	4,886	Ellsworth	20	375	Haff	15	250	*L'Anse	5	708
Chase	38	209	Elm Hall	54	362	Halfway	70	706	Lansing		
Chassell	3	750	Elmira	21	590	Hamburg	68	250	(capitol)	67	31,229
Chatham	10	750	Eloise	76	792	Hamilton	64	275	*La Peer	62	3,046
*Chelboygan	17	6,859	Elsie	59	592	Hamtramck	76	3,559	Laramie	15	570
Chelsea	52	1,764	Emmett	63	292	Hancock	3	8,981	La Rocque	18	209
Chesaning	55	1,363	Empire	24	578	Harbor Beach	49	1,556	Laurium	3	8,537
Chippewa	45	309	Erie	83	350	Harbor Springs	16	1,805	Lawrence	71	663
Chippewa Lake	45	309	*Escanaba	11	13,194	Harriette	32	336	Lawton	71	1,042
Clare	40	1,350	Essexville	48	1,477	Harris	9	290	Legrand	17	250
Claron	19	200	Eureka	59	208	*Harrison	40	543	*Leland	24	406
Clarkston	69	345	Ewart	39	1,386	*Harrisville	30	441	Lenox	70	350
Clarksville	58	375	Ewen	2	350	*Hart	43	1,555	Leonard	69	313
Clawson	69	206	Fairfax	79	280	Hartford	71	1,268	Leonidas	79	390
Claybanks	43	712	Fairfield	82	350	Hartland	68	215	Le Roy	39	331
Clayton	82	372	Fairgrove	56	437	Haslett	67	200	Leslie	67	1,032
Clearwater	27	542				*Hastings	65	4,383	Levering	16	350
Clifford	62	308				Hemlock	55	250	Lewiston	22	550
Climax	72	425				Henrietta	74	292	Lexington	57	519
Clinton	61	1,041							Liberty	74	206
Clio	61	810							Linden	61	550
Clyde	69	209							Linwood	48	293
Coalwood	10	280							Litchfield	81	660

Michigan Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Long Rapids..	23.	223	*Newberry.....	13.	1,182	Posen.....	18.	263	Smyrna.....	58.	236
Loomis.....	46.	392	New Boston.....	76.	218	Petterville.....	66.	430	Somerseset.....	81.	1,237
Loretto.....	7.	660	New Buffalo.....	77.	538	Powers.....	9.	511	Somerseset.....	81.	200
Lott.....	30.	362	New Era.....	48.	225	Prairieville.....	65.	350	South Blenden.....	51.	1,680
Lowell.....	52.	1,561	New Haven.....	70.	478	Prattville.....	81.	308	S. Boardman.....	27.	660
Lucas.....	37.	250	New Lothrop.....	60.	305	Prescott.....	35.	609	S. Frankfort.....	25.	681
*Ludington.....	37.	9,132	Newport.....	83.	450	Princeton.....	8.	1,809	South Haven.....	71.	3,577
Lum.....	62.	250	New Troy.....	77.	392	Prosper.....	33.	206	South Lyon.....	69.	615
Luther.....	38.	626	Niles.....	77.	5,156	Provemont.....	24.	250	South Range.....	3.	1,097
Lyons.....	58.	611	North Adams.....	81.	440	Pulaski.....	74.	259	S. Rockwood.....	83.	316
M			North Branch.....	62.	717	Q			Spalding.....	9.	500
McBain.....	33.	546	North Detroit.....	76.	250	Quincy.....	80.	1,347	Sparta.....	52.	1,203
McBrides.....	53.	236	North.....			R			Spencer.....	27.	269
McMillan.....	13.	290	Kearsarge.....	3.	800	Ransom.....	81.	206	Spring Arbor.....	74.	250
Mackinac.....			North.....			Rapid City.....	27.	406	Spring Lake.....	51.	802
Island.....	14.	714	Muskegon.....	50.	350	Rapid River.....	11.	609	Springport.....	74.	584
Mackinaw.....	17.	697	Northport.....	24.	524	Ravenna.....	50.	508	Spring Wells.....	76.	1,590
Macomb.....	70.	292	Northstar.....	54.	300	Reading.....	81.	1,102	Spruce.....	30.	333
Macon.....	82.	237	Northville.....	76.	1,665	Ready.....	55.	580	Stambaugh.....	6.	1,322
Manacelona.....	39.	1,299	Norway.....	7.	4,974	Redford.....	76.	328	*Standish.....	42.	828
Manchester.....	75.	1,047	Nottawa.....	79.	384	Red Jacket.....	3.	4,311	*Stanton.....	53.	1,012
*Manistee.....	31.	12,381	Novi.....	69.	309	Redridge.....	3.	409	Stephenson.....	9.	527
*Manistique.....	12.	4,722	Nunica.....	51.	402	Reed City.....	39.	1,690	Stevensville.....	77.	243
Manton.....	32.	1,069	O			Reeman.....	44.	259	Stittsville.....	33.	296
Maple City.....	24.	268	Oak Grove.....	68.	274	Remus.....	45.	459	Stockbridge.....	67.	663
Maple Rapids.....	59.	529	Oak Hill.....	31.	314	Republic.....	8.	2,314	Stonington.....	11.	440
Marcellus.....	78.	1,016	Oakley.....	55.	237	Rexton.....	14.	309	Stronach.....	31.	354
Marenisco.....	1.	250	Oakwood.....	76.	781	Richland.....	72.	278	Sturgis.....	79.	3,635
Marine City.....	63.	3,770	Ogontz.....	11.	273	Richmond.....	70.	1,277	Sumner.....	54.	392
Marion.....	39.	767	Ojibway.....	4.	240	Richmondville.....	57.	280	Sunfield.....	66.	385
Marquette.....	57.	1,062	Old Mission.....	26.	243	Richville.....	56.	250	Suttons Bay.....	24.	402
*Marquette.....	8.	11,503	Olivet.....	66.	627	Ridgeway.....	82.	306			
*Marshall.....	73.	4,236	Omer.....	42.	367	Riga.....	82.	213	T		
Martin.....	61.	450	Onaway.....	18.	2,502	Riggsville.....	17.	306	*Tawas City.....	36.	1,061
Marysville.....	63.	270	Onckenaga.....	31.	324	Riley Center.....	63.	209	Tecumseh.....	82.	2,332
*Mason.....	67.	1,742	Onondaga.....	67.	406	Riverdale.....	54.	473	Tekonsha.....	73.	573
Mass.....	2.	1,060	Onsted.....	82.	398	River Rouge.....	76.	1,163	Temperance.....	83.	292
Matherton.....	58.	309	*Opotunagon.....	2.	1,964	Roxes Junction.....	74.	208	Temple.....	40.	282
Mattawan.....	71.	309	Opechee.....	3.	1,413	Rochester.....	69.	1,516	Thayer.....	69.	402
Maybee.....	83.	310	Orion.....	69.	717	Rockford.....	52.	843	Thomas.....	69.	406
Mayville.....	56.	687	Ortonville.....	69.	377	Rockland.....	2.	1,090	Thompson.....	12.	250
Mears.....	43.	450	Osceola.....	36.	864	Rockwood.....	76.	500	Thompsonville.....	25.	815
Meosta.....	45.	352	Osseo.....	81.	385	Rockwood Sta.....	83.	316	Thornice.....	15.	209
Melvin.....	22.	242	Otisco.....	58.	206	Rodney.....	45.	290	Thornville.....	62.	250
Memphis.....	70.	557	Otisville.....	61.	312	*Rogers.....	18.	705	Three Oaks.....	77.	1,175
Mendon.....	79.	768	Otsego.....	61.	2,812	Romeo.....	70.	1,787	Three Rivers.....	79.	5,072
Menominee.....	9.	10,570	Ottawa Lake.....	83.	201	Rose.....	34.	425	Tower.....	17.	542
Meridian.....	67.	290	Otter Lake.....	62.	273	Rosebush.....	46.	296	*Traverse City.....	26.	12,115
Merrill.....	55.	505	Overslet.....	64.	202	Rose City.....	35.	506	Trenton.....	76.	1,234
Mesick.....	32.	510	Ovid.....	59.	1,078	Roseville.....	70.	509	Trimountain.....	3.	50
Metamora.....	62.	276	Owendale.....	49.	285	Rothbury.....	43.	206	Trout Creek.....	2.	597
Metropolitan.....	7.	580	Owosso.....	60.	9,639	Royal Oak.....	69.	1,071	Trufant.....	53.	350
Michiganville.....	8.	962	Oxford.....	69.	1,191	Royalton.....	77.	1,164	Turner.....	42.	509
Middleton.....	54.	452	P			Rumeley.....	10.	286	Tuscola.....	56.	255
Middleville.....	65.	804	Paavola.....	3.	350	S			Tustin.....	39.	371
*Midland.....	47.	2,527	Paines.....	55.	203	Saganing.....	42.	396	Twining.....	42.	267
Milan.....	75.	1,355	Painesdale.....	3.	1,250	*Saginaw.....	55.	50,510	Twin Lake.....	50.	209
Milford.....	69.	973	Palmer.....	8.	799	Sagola.....	7.	360	U		
Milbrook.....	45.	402	Palms.....	57.	308	Saint Charles.....	55.	1,451	Uby.....	49.	442
Millsburg.....	18.	519	Palmyra.....	82.	225	Saint Clair.....	63.	2,638	Union City.....	80.	1,340
Millett.....	66.	208	Palo.....	58.	327	Saint Clair Heights.....	76.	1,252	Unionville.....	56.	456
Millington.....	56.	623	Paris.....	45.	350	Saint Ignace.....	11.	2,118	Utica.....	70.	496
Minden City.....	57.	332	Parkdale.....	35.	250	Saint Jacques.....	11.	360	V		
*Mio.....	29.	209	Parma.....	4.	509	Saint James.....	19.	589	Van.....	16.	298
Moddersville.....	33.	208	Parshallville.....	68.	406	Saint Johns.....	59.	3,154	Vandalia.....	78.	371
Mohawk.....	4.	1,060	*Paw Paw.....	71.	1,643	*Saint Joseph.....	77.	5,936	Vanderbilt.....	21.	523
*Monroe.....	62.	6,893	Paye.....	76.	306	Saint Louis.....	54.	1,940	Vans Harbor.....	11.	262
Montague.....	50.	942	Pearl Beach.....	63.	202	Sand Lake.....	75.	816	Vassar.....	56.	1,659
Monterey.....	64.	1,415	Peck.....	57.	274	Sands.....	8.	240	Vermontville.....	66.	650
Montgomery.....	81.	362	Pellston.....	16.	1,089	Sandusky.....	57.	993	Vernon.....	60.	450
Montrose.....	61.	443	Pentoga.....	6.	309	Saranac.....	58.	845	Vestaburg.....	53.	438
Morenci.....	82.	1,515	Pentwater.....	43.	1,129	Saugateau.....	64.	621	Vicksburg.....	72.	1,624
Morley.....	45.	337	Pequaming.....	5.	309	*Sault Ste. Marie.....	15.	12,615	Victoria.....	2.	460
Morrice.....	60.	470	Perkins.....	11.	406	Sawyer.....	77.	396	Viola.....	14.	250
Moscow.....	81.	209	Perrinton.....	54.	288	Schaffer.....	11.	206	Viresland.....	51.	250
Mosherville.....	81.	505	Perry.....	60.	720	Schoolcraft.....	72.	816	Vulcan.....	7.	1,500
*Mt. Clemens.....	70.	7,707	Petersburg.....	83.	490	Schofield.....	83.	225	W		
Mount Morris.....	61.	513	*Petoskey.....	16.	4,778	Scott.....	72.	350	Wakefield.....	1.	714
*Mt. Pleasant.....	46.	3,722	Pewano.....	58.	289	Scottville.....	37.	891	Waldenburg.....	70.	350
Muir.....	58.	463	Pickford.....	15.	406	Sears.....	39.	200	Waldron.....	81.	435
Mulliken.....	66.	312	Pigeon.....	49.	687	Sebawa.....	58.	280	Walkers Point.....	14.	290
Munger.....	48.	202	Pikepspeak.....	76.	201	Sebewaing.....	49.	1,347	Walkerville.....	43.	371
*Munising.....	10.	2,952	Pinckney.....	68.	477	Shafterburg.....	60.	360	Walloon Lake.....	19.	306
Munith.....	74.	208	Pinconning.....	48.	677	Shelby.....	43.	1,260	Walton.....	26.	250
*Muskegon.....	50.	24,062	Pinneborg.....	49.	209	Shepherd.....	46.	835	Walworthville.....	77.	728
Muskegon Heights.....	50.	1,690	Pittsford.....	81.	250	Sheridan.....	53.	436	Watonsville.....	56.	244
N			Plainfield.....	68.	209	Sherman.....	32.	260	Watson.....	64.	1,117
Nadeau.....	9.	1,000	Plainwell.....	64.	1,493	Sherwood.....	80.	346	Wauchah.....	7.	250
Nahma.....	11.	700	Plymouth.....	76.	1,671	Silverwood.....	56.	286	Wayland.....	64.	725
Napoleon.....	74.	334	Point Mills.....	3.	208	Simons.....	20.	250	Wayne.....	76.	1,263
Nashville.....	65.	1,346	Pokagon.....	78.	302	Six Lakes.....	53.	275	Webberville.....	67.	349
National Mine.....	8.	700	Pomona.....	31.	203	Skaneec.....	5.	266			
Nauburnway.....	14.	250	*Pontiac.....	69.	14,532	Siocum.....	50.	696			
Navarre.....	76.	474	Port Austin.....	49.	533						
Negaunee.....	8.	8,460	Port Hope.....	49.	344						
*Newaunee.....	44.	1,207	*Port Huron.....	63.	8,863						
New Baltimore.....	70.	920	Portland.....	58.	1,832						
			Port Sanilac.....	57.	216						

Michigan Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Weidman	46	569	Wheelerton	74	250	Winters	10	290			
Wells	11	1,500	White Cloud	44	618	Wixom	69	220	Yale		Y
*West Branch	35	1,276	Whitehall	50	1,437	Wolverine	17	794	Yankee Spring	65	1,223
Weston	82	254	White Pigeon	79	667	Woodland	65	304	Yatton	14	250
Westphalia	59	366	Whitmore Lake	75	362	Woodstock	82	599	Ypsilanti	75	6,230
West Windsor	66	251	Whitmore	36	218	Wyandotte	44	250			Z
Westmore	10	360	Williamsburg	26	300	Wright	54	1,609	Zeeland	51	1,982
Wetzell	20	250	Williamston	67	1,042	Wyandotte	76	8,287	Zilwaukee	55	914
Wexford	32	250	Wilson	9	506	Wyman	53	200			
Wheeler	54	250	Winn	46	250						

Michigan Opportunities in Agriculture and Varied Enterprises

History. The finding of remains of ancient mines and mining implements indicate the settlement and civilization of the State in very early times.

Why two parts of the State? Why are fifteen counties of Michigan, comprising an area of over 16,000 square miles, a space twice as large as Massachusetts, situated away by themselves on the south side of Lake Superior? The reason is this:

Following the ceding of the territory west of Lake Michigan, by the Indians to the United States, the territory of Michigan, in 1818, included also the territory now occupied by the State of Wisconsin.

In dividing the territory between Michigan and Ohio by the government two surveys were made. The first placed Toledo in the State of Michigan. The last survey, however, so changed the boundary lines as to bring Toledo into the State of Ohio. The result was a hotly contested dispute that came near bloodshed by the rival States.

The United States Government finally proposed, in 1836, as the territory of Michigan had applied for admission to the Union, to grant the request on condition that Michigan would relinquish the disputed territory to Ohio and take, as compensation, the 16,000 square miles of territory comprising the present 15 counties lying adjoining and south of Lake Superior. The proposition, at first rejected, was finally accepted, and so, of the 83 counties of Michigan, 15 of these counties are scattered away to the northward of Wisconsin and Lake Michigan. The final development of iron and copper mines on this upper peninsula made the relinquishment of the small tract of disputed land to Ohio a very fortunate exchange for Michigan.

These two irregular parts of Michigan are separated by the Strait of Mackinaw, connecting Lake Michigan and Lake Huron. The lower and larger peninsula embraces the whole territory between these lakes, though the upper peninsula contains more than one-third of the land surface of Michigan. In proportion to its area, Michigan has a longer coast line than any other State.

The Porcupine Range of mountains is the watershed in the upper peninsula between the streams flowing into Lake Superior and those flowing into Lake Michigan. This range at its highest point is 1,400 feet above Lake Superior—2,000 feet above the sea.

AGRICULTURAL CONDITIONS ON UPPER PENINSULA.

The surface on the mountain sides present considerable variety of soil. There are numerous lakes and marshes and great forests where pine and soft woods are the prevailing growths, though fine groves of sugar maples are found in some places. A good deal of government land is yet to be found in each of the upper peninsula counties.

Mining and Lumbering. Though this region of the State is quite cold in the winter, many prosperous towns are found throughout this territory, the lumber interest and mining giving employment to great numbers of workmen.

The yield of iron and copper places Michigan in the front rank of mining States. The iron mines here are in four districts—Marquette, Menominee, Gogebic and Vermilion—and the annual yield generally gives the State first place in this industry. The copper region at the northwest end of the upper peninsula, extending for 35 miles in length and from 1 to 6 miles in width, is situated mostly in the counties of Ontonagon, Houghton and Keweenaw. The annual product of Michigan copper, and that mostly from this immediate region, is about one-third of that of the whole country.

Notwithstanding the large output of lumber and mineral wealth, agriculture is nevertheless the leading industry. Indian corn will not ripen on the upper peninsula, but wheat, rye, oats and barley

are grown there. Apples, pears, quinces, plums, cherries and all the small fruits grow there to perfection.

Dimensions. Upper peninsula, greatest length from east to west, 320 miles; greatest breadth, 130 miles. Lower peninsula, greatest length, 280 miles from north to south; greatest width, from east to west, 200 miles.

Altitude. Highest in the State, Porcupine Mountain, in Ontonagon County, 2,020 feet high.

Climate. Average annual January temperature at Marquette, 16 above. At Port Huron, St. Clair county, it is 21. Average annual July temperature at Marquette is 65; at Port Huron, 69. Extremes, 108 above at Marquette, 27 below; at Port Huron, 99 above and 25 below. Rainfall, 32.4 inches at Marquette; 31.6 at Port Huron.

Possibly the landseeker contemplates the purchase of real estate on the lower peninsula. In this quest he cannot go amiss. For a region so well situated as the lower part of Michigan, there is a small showing for density of population in a State so well located as Michigan.

On the great highway between the East and the West, with great growing cities and markets on either side, with a highly fertile soil, why should Michigan be only about one-third as densely populated as Ohio?

It is simply because the attention of people has been occupied with clearing the land of its lumber supply. New settlers are just beginning to pour in. With every natural facility for sustaining a dense population, it is clearly evident that this State will be very thickly settled and land values will greatly advance over present prices, which are from \$6 to \$12 per acre unimproved.

The climate in that portion of Michigan located between Lakes Michigan and Huron is tempered by the prevailing breeze from one direction or another. It is cooler in the summer, from the lake breeze, and it is warmer in the winter. All the counties bordering upon Lake Michigan are found to have a soil and climate especially favorable to the growing of peaches, strawberries, grapes and other fruits, and hundreds of small tracts of land known as "fruit farms" have been developed in the past few years.

Besides a fertile soil and favorable climate, Michigan ranks usually first or second among States in the production of salt, while on the Lake Huron shore there are rock formations which yield excellent grindstone, lime, building stone and slate.

It should be remembered that for a generation Michigan has been almost purely a lumber State. It is comparatively recently that the raising of grain has begun to occupy attention.

BECOMES A MANUFACTURING STATE.

An interesting feature about this State is the rapid advances made in manufacturing. Among articles made here are lumber, in its numerous market forms, flour and gristmill products, machine and foundry materials, furniture, tobacco in its various forms, iron and steel, men's clothing, shipbuilding, agricultural implements, chemicals and paper.

Important manufacturing cities are Grand Rapids with its superior water power, Saginaw, Battle Creek, Adrian, Albion, Muskegon, famous for its toys, woodenware and pianos; Traverse City, Lansing and Detroit, the latter city being the most noted of any city for making automobiles.

Shipbuilding is carried on at Port Huron, Wyandotte and Detroit; silk manufacturing at Belding.

Mackinac Island, now a National Park, is located at the northern end of the Peninsula of Michigan, in the Straits of Mackinac, and is accessible from all points by rail or vessel. The island is now a national park, reserved for the benefit of tourists and visitors, and offers, during the warm seasons, a cool and pleasant retreat from sultry air and crowded thoroughfares. It contains an area of 3,850 acres, or 3 miles long by 2 miles wide, with an elevation above the straits varying from 200 to 320 feet.

STATE AND THE 86 COUNTIES OF MINNESOTA

With Their Boundaries

LOCATION AND 1910 POPULATION OF MINNESOTA COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
MINNESOTA COUNTIES											
1.....	Kittson..	9,669	10....	Pennington..	15,878	20.....	Wilkin..	9,063	30.....	Morrison..	24,053
2.....	Roseau..	11,338	11.....	Red Lake..	15,940	21.....	Ottertail..	46,046	31.....	Millelacs..	10,705
3.....	Marshall..	16,338	12.....	Norman..	13,446	22.....	Wadena..	8,652	32.....	Kanabec..	6,461
4.....	Beltrami..	19,337	13.....	Mah'nome..	3,249	23.....	Crow Wing..	16,861	33.....	Pine..	15,878
5.....	Koochiching..	6,431	14.....	Clearwater..	6,870	24.....	Aitkin..	10,374	34.....	Bigstone..	9,367
6.....	St. Louis..	163,274	15.....	Itaska..	17,208	25.....	Carlton..	17,559	35.....	Stevens..	8,293
7.....	Lake..	8,011	16.....	Clay..	6,870	26.....	Traverse..	8,049	36.....	Pope..	12,746
8.....	Cook..	1,336	17.....	Becker..	18,840	27.....	Grant..	9,114	37.....	Stearns..	47,733
9.....	Polk..	36,001	18.....	Hubbard..	9,831	28.....	Douglas..	17,669	38.....	Benton..	11,615
			19.....	Cass..	11,620	29.....	Todd..	23,407	39.....	Sherburne..	8,136

Minnesota Counties—Continued

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
40.....	Isanti	9,114	52 Yellow	Medicine	15,403	64.....	Lesueur	18,609	76.....	Olmsted	22,197
41.....	Chisago	13,537	53.....	Renville	23,123	65.....	Rice	25,911	77.....	Winona	33,398
42.....	Swift	12,949	54.....	McLeod	18,691	66.....	Goodhue	31,637	78.....	Rock	10,222
43.....	Kandiyohi	18,969	55.....	Carver	17,455	67.....	Wabasha	18,551	79.....	Nobles	15,210
44.....	Meeker	17,022	56.....	Sibley	15,540	68.....	Pipestone	9,553	80.....	Jackson	14,491
45.....	Wright	28,840	57.....	Scott	14,888	69.....	Murray	11,755	81.....	Martin	17,518
46.....	Hennepin	333,840	58.....	Dakota	25,171	70.....	Cottonwood	12,651	82.....	Faribault	19,949
47.....	Anoka	12,492	59.....	Lincoln	9,874	71.....	Watonwan	11,382	83.....	Freeborn	22,282
48.....	Ramsey	223,675	60.....	Lyons	15,732	72.....	Blue Earth	29,337	84.....	Mower	22,640
49.....	Washington	26,013	61.....	Redwood	18,425	73.....	Waseca	13,466	85.....	Fillmore	25,680
50.....	Lac Qui Parle	15,435	62.....	Brown	20,134	74.....	Steele	16,146	86.....	Houston	14,297
51.....	Chippewa	13,458	63.....	Nicollet	14,125	75.....	Dodge	12,094	Total.....		2,075,708

Minnesota Cities and Villages with 1910 Populations.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			C			E			H		
*Ada.....	12	1,432	Brown Valley	26	1,058	Donnelly.....	35	276	*Grand Rapids	15	2,239
Adams.....	84	576	Bruno.....	32	229	Dover.....	76	233	*Granite Falls	52	1,451
Adrian.....	79	1,112	*Buffalo.....	45	1,227	*Duluth.....	6	78,466	Gravellyville	30	987
Afton.....	49	308	Buffalo Lake	53	371	Dundas.....	65	357	Greenbush.....	2	274
*Aitkin.....	24	1,638	Buhl.....	6	1,005				Green Isle.....	56	256
*Akely.....	18	1,635	Burtrum.....	29	217				Grey Eagle.....	29	378
Albany.....	37	657	Butterfield	71	377				Grove City.....	44	351
*Albert Lea	33	6,192	Byron.....	76	272				I		
Albertville.....	15	250				Eagle Bend.....	29	551	*Halloway	42	215
Alden.....	83	544	C			Eagle Lake.....	72	231	Halstad.....	12	494
*Alexandria	28	3,001	*Caledonia	86	1,372	E. Grand Forks	9	2,533	Hamilton.....	85	271
Alpha.....	80	223	Callaway.....	17	276	Easton.....	82	262	Hammond.....	67	241
Altura.....	77	200	Calumet.....	15	245	East St. Cloud	38	666	Hancock.....	35	524
Amboy.....	72	435	*Cambridge	40	966	Echo.....	52	430	Hanley Falls	52	275
Anandale.....	45	624	Campbell.....	20	303	Eden Valley.....	44	740	Hanover.....	45	267
*Anoka.....	47	3,972	Canby.....	52	1,528	Edgerton.....	68	381	Hanska.....	62	310
Appleton.....	42	1,214	Cannon Falls	66	1,385	Edina Mills.....	46	1,191	Hardwick.....	78	292
Arago.....	18	210	Canosia.....	6	235	Elitzen.....	86	209	Harmony.....	85	655
Akeley.....	3	744	Canton.....	85	345	*Elbow Lake	27	771	Harris.....	41	673
Arlington.....	56	733	*Carlton.....	25	597	Elgin.....	67	324	Hartland.....	83	227
Arnold.....	6	396	Carver.....	55	571	*Elk River.....	39	859	*Hastings	58	3,983
Ashby.....	27	334	Cass Lake.....	19	911	Ellendale.....	74	261	Hawley.....	16	860
Atkinson.....	25	311	*Center City	41	252	Ellsworth.....	79	536	Hayfield.....	75	586
Atwater.....	43	660	Centerville.....	47	260	Ely.....	6	3,572	Hector.....	53	866
Audubon.....	17	308	Ceylon.....	81	330	Elysian.....	61	345	*Henderson	56	753
Aurora.....	6	1,919	Champlin.....	46	350	Emmons.....	83	225	Hendricks.....	59	406
*Austin.....	84	6,960	*Chaska.....	55	2,050	Erskine.....	9	321	Hendrum.....	12	355
Avoca.....	69	212	Chatfield.....	85	1,228	Eslarn.....	37	208	Henning.....	21	603
Avon.....	37	277	Chicago City	41	276	Evansville.....	28	389	Herman.....	27	694
B			Chisholm.....	6	7,684	Evaleth.....	6	7,036	Hernon Lake	80	803
Badger.....	2	395	Chokio.....	35	328	Excelsior.....	46	1,015	Hewitt.....	29	322
*Bagley.....	14	801	Clara City.....	51	587	Eyota.....	76	423	Hibbing.....	6	8,832
*Balaton.....	60	364	Claremont.....	75	255	F			Hill City.....	24	220
Barnesville	16	1,353	Clarissa.....	29	364	Fairfax.....	53	815	Hills.....	78	398
Barnum.....	25	262	Clarkfield.....	52	603	Fairmont.....	81	2,958	Hinckley.....	27	673
Barrett.....	27	278	Clear Lake.....	39	263	Fall Lake.....	6	126	Hoffman.....	27	391
Bath.....	83	852	Clear Water.....	45	311	*Fairbault	65	9,001	Hokah.....	86	406
Battle Lake	21	567	Cleveland.....	64	212	Farmington.....	58	1,024	Holding.....	37	276
Baudette.....	4	897	Climax.....	9	269	Feeley.....	15	300	Holdingford	37	350
Beardsley.....	34	481	Clinton.....	34	384	*Fergus Falls	21	6,887	Holdridge.....	46	275
Beaver Bay.....	7	209	Cloquet.....	25	7,031	Fertile.....	9	614	Holland.....	68	293
Becker.....	39	210	Cochasset.....	15	521	Fisher.....	9	328	Holloway.....	42	215
Belgrade.....	37	418	Cokato.....	45	718	Floodwood.....	6	481	Hopkins.....	46	3,066
Belleplaine	57	204	Cold Spring	37	594	*Foley.....	38	710	Houston.....	86	760
Bellingham	59	259	Coleraine.....	35	1,213	Fond du Lac	6	309	Hovland.....	8	111
Belview.....	61	290	Collegeville	37	240	Forest Lake.....	49	540	Howard Lake	18	626
*Bemidji.....	4	5,099	Cologne.....	55	390	Foreston.....	31	204	Hubbard.....	18	306
*Benson.....	42	1,677	Columbia Hgts.	47	590	Fort Snelling	4	800	Hugo.....	49	264
Bertha.....	29	296	Comfrey.....	62	238	Fosston.....	9	1,075	Hutchinson	54	2,368
Bethel.....	47	221	Comstock.....	16	202	Fountain.....	85	321	I		
Big Falls.....	5	325	Cort.....	15	360	Foxhome.....	20	206	Falls.....	5	1,487
Big Lake.....	39	229	Costin.....	6	231	Franklin.....	53	439	Invergrove	58	260
Bingham Lake	70	285	Cotton.....	6	238	Frazee.....	17	1,645	Iona.....	69	308
Bird Island.....	53	931	Cottonwood	60	770	Freeport.....	37	450	Isanti.....	40	316
Biwabik.....	6	1,696	Courtland.....	63	208	Fridley.....	47	200	*Ivanhoe	59	484
Blackduck.....	4	942	Crookston.....	9	7,559	Frontenac.....	66	275	J		
Blackley.....	57	225	Culver.....	69	216	Fulda.....	69	743	*Jackson	80	1,907
Bloomington	74	854	Cyrus.....	36	272	G			Janesville.....	73	1,173
*Blue Earth	82	2,319	D			Garden City.....	72	263	Jasper.....	64	504
Bovey.....	15	1,377	Danube.....	53	217	Gary.....	12	214	Jeffers.....	70	227
Boyd.....	50	431	Danvers.....	42	215	Gaylord.....	56	610	K		
Braham.....	40	406	Dassel.....	44	643	Ghent.....	60	210	Kalavala.....	25	450
*Brainerd.....	23	8,526	Dawson.....	50	1,318	Gibbon.....	56	533	Kasota.....	64	760
Brandon.....	28	276	Dayton.....	46	343	Gilbert.....	6	1,700	Kasson.....	75	932
*Breckenridge	20	1,840	Deephaven.....	46	234	Gladstone.....	48	560	Keewatin.....	15	695
Brewster.....	79	311	Deer Creek.....	21	313	*Glencoe.....	54	1,788	Kellier.....	4	294
Bryceland.....	82	369	Deer River.....	15	908	Glenville.....	83	368	Kellogg.....	67	372
Brighton.....	63	260	Deer Wood.....	23	586	Glenwood.....	36	2,161	Kennedy.....	1	232
Brookpark.....	33	208	De Graft.....	42	215	Gloster.....	48	500	Kensington.....	58	244
Brooklyn.....	37	562	Delano.....	45	1,024	Glynda.....	16	295	Kent.....	20	258
Browerville.....	29	633	Delavan.....	82	284	Goodhue.....	66	408	Kerkhoven.....	42	132
Brownsdale	84	264	Dent.....	21	244	Good Thunder	72	419	Kiester.....	82	258
Brownsville	86	361	*Detroit.....	17	2,807	Graceville.....	34	987	Kilkenny.....	64	208
Brownston	54	509	Dexter.....	84	281	Granada.....	81	333			
			Dilworth.....	16	500	*Grand Marais	8	355			
			Dodge Center	75	957	Grand Meadow	84	552			
						Grand Portage	8	362			

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in front of Name Indicates County Seat.

Minnesota Cities and Villages with 1910 Populations.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Kimball	37	312	Morton	53	761	Richmond	37	563	Tenstrike	4	250
Kingston	44	250	Motley	30	428	Richville	21	255	*Thief River		
Kinney	6	809	Mound	46	300	Robbinsdale	46	765	Falls	10	3,714
Knife River	7	491	Mount Iron	6	1,343	*Rochester	76	7,814	Tintah	26	217
L			Murdock	42	288	Rockford	45	287	Tofte	8	249
La Crescent	86	372	N			Rolling Stone	77	205	Tower	6	1,111
Lake Benton	59	844	Nashua	20	271	Roosevelt	2	252	Tracy	60	1,340
Lake City	67	3,142	Nashauk	15	2,080	*Roseau	2	644	Triumph	81	243
Lake Crystal	72	1,055	Nassau	50	213	Rose Creek	84	202	Truman	81	451
Lakefield	80	924	Nerstrand	65	292	Rosemount	58	238	Twin Valley	12	543
Lakeland	49	343	Nevis	18	238	Rothsay	20	343	*Two Harbors	7	4,990
Lake Park	17	740	New Auburn	56	261	Round Lake	79	287	Tyler	59	614
Lakeville	58	385	New Brighton	48	375	Royalton	30	676	U		
Lake Wilson	69	219	New Duluth	6	808	Rush City	31	964	Ulen	16	438
Lamberton	61	652	Newfolden	3	286	Rushford	35	1,011	V		
Lancaster	1	204	New Germany	55	210	Rushmore	85	686	Vasa	66	200
Lanesboro	85	987	New London	43	418	Rushmore	79	237	Vergas	21	237
Le Roy	84	702	Newmarket	57	901	Russell	60	262	Verndale	22	538
Lester Prairie	54	420	Newport	49	370	Ruthton	68	290	Vernon Center	72	289
Le Sueur	64	1,755	New Prague	64	1,554	S			Veseli	65	300
*Le Sueur			New Richland	73	685	Sabin	16	302	Vesta	61	243
Center	61	741	*New Ulm	62	5,648	Sacred Heart	53	587	Viking	3	205
Lewiston	77	473	New York Mills	21	474	St. Bonifacius	46	275	Villard	36	260
Lewisville	71	218	Nicollet	63	368	St. Charles	77	1,159	Vining	21	212
Lindstrom	45	522	Nielsville	9	409	Saint Clair	22	323	Virginia	6	10,473
Lismore	79	268	North Branch	47	642	*Saint Cloud	37	10,608	W		
*Litchfield	44	2,333	Northfield	65	3,261	Saint Francis	47	364	*Wabasha	67	2,622
*Little Falls	30	6,078	North Mankato	63	1,210	Saint Hilaire	10	468	Wabasso	61	343
*Long Prairie	29	1,250	Northome	5	204	*Saint James	71	2,102	Waconia	55	817
Lonsdale	65	271	North St. Paul	18	1,104	Saint Joseph	37	706	*Wadena	22	1,820
Lowry	36	252	Norwood	55	522	St. Louis Park	46	1,743	Wahkon	31	260
*Luverne	78	2,540	Nymore	4	334	Saint Michael	45	401	Walte Park	37	406
Lyle	84	252	O			Saint Michael	45	223	*Walker	19	917
Lynd	60	509	Odessa	34	235	*Saint Paul			Walnut Grove	61	366
M			Ogilvie	32	270	(capital)	48	214,744	*Waren	3	1,613
Mabel	85	549	*Olivia	53	960	St. Paul Park	49	832	Warroad	4	927
McIntosh	9	634	Onamia	31	314	*Saint Peter	63	4,176	*Waseca	73	3,054
McKinley	6	411	*Ortonville	34	1,774	Saint Vincent	1	328	Watertown	55	465
Madella	71	1,273	Osakis	28	1,013	Sanborn	61	462	Waterville	64	1,273
*Madison	50	1,811	Oslo	3	344	Sandstone	33	1,818	Watkins	44	366
Madison Lake	72	335	Osseo	46	390	Sauk Center	37	2,154	Waubun	13	250
*Mahtomn	13	796	Ottawa	64	212	Sauk Rapids	38	1,745	Waverly	45	490
Mahtowa	25	383	*Owatonna	74	5,658	Sartell	37	2,40	Wayzata	46	492
*Mankato	72	10,365	P			Savage	57	330	Welcome	81	543
*Mantorville	75	410	Parkers Prairie	21	383	Sebeka	25	572	Wells	82	1,355
Maple Lake	45	522	*Park Rapids	18	1,801	*Shakopee	27	428	Wesely	65	335
Maple Plain	46	225	Paynesville	37	926	Sherburn	81	814	Westbrook	70	429
Mapleton	72	809	Pelican Rapids	21	1,019	Silver Lake	51	382	West Concord	75	581
Marble	15	887	Pequot	23	260	Skibo	6	200	W. Minneapolis	46	3,022
Marietta	50	338	Perham	21	1,376	*Slayton	69	850	West St. Paul	58	2,660
Marine Mills	49	491	Peterson	85	266	Sleepy Eye	62	2,217	Whalan	85	1,121
*Marshall	60	2,152	Petrell	6	250	South Bernidji	4	527	*Wheaton	26	1,300
Maynard	51	386	Pierz	30	545	South Haven	45	287	White Bear		
Mazeppa	67	471	Pike	6	305	South Park	58	600	Beach	48	1,724
Melrose	37	2,591	Pillager	19	216	South St. Paul	58	4,519	White Bear	48	1,505
Menahga	22	346	*Pine City	33	1,258	So. Stillwater	49	1,343	White Earth	17	350
Mendota	58	245	Pine Island	66	834	Spicer	43	228	*Willmar	43	1,135
Mentor	9	232	Pine River	19	339	Spoonerville	4	668	Willow River	33	212
Midway	6	379	*Pipestone	68	2,475	Springfield	62	1,482	Wilmont	79	258
Milaca	31	1,102	Plainview	67	1,175	Spring Grove	86	620	Wilton	4	215
Milan	51	468	Plato	54	238	Springlake	49	290	*Windom	70	1,749
*Minneapolis	46	301,048	Porter	52	253	Spring Valley	85	1,817	Winnebago	82	1,554
Minneiska	67	395	*Preston	85	1,193	Staples	29	2,556	*Winona	77	18,583
Minneota	60	819	*Princeton	31	1,555	Starbuck	36	497	Winsted	54	296
Minnesota City	77	211	Proctor	6	936	Stephen	3	412	Winthrop	56	1,043
Minnesota			Proctorvott	6	2,243	Stevenson	6	200	Woodlake	52	292
R			R			Stewart	51	460	Woodstock	68	226
Lake	82	445	Racine	84	202	Stewartville	76	794	*Worthington	79	2,385
*Montevideo	51	3,056	Raymond	43	334	*Stillwater	49	10,198	Wrenshall	25	690
Montgomery	64	1,267	*Red Lake			Sundahl	12	309	Wykoff	85	456
Monticello	45	858	Falls	11	1,757	Sundby	6	200	Wyoming	41	207
Montrose	45	284	*Red Wing	66	9,048	Swanville	30	397	Y		
*Moonhead	16	4,840	*Red Wood			T			Young America	55	303
Moose Lake	25	526	Falls	61	1,666	Taconite	15	549	Z		
*Mora	32	892	Reeds	67	279	Taunton	60	205	Zumbro Falls	67	208
Moranbrook	29	553	Renville	53	1,182	Tawney	85	454	Zumbrota	66	1,138
Morgan	61	553	Rice	38	262	Taylor Falls	41	454			
*Morris	35	1,685	Richfield	46	2,673						
Morristown	65	592									

Minnesota, the Bread and Butter State. History.

History. Visited by Duluth, at head of Lake Superior, 1679; visited by a party of fur traders and the falls of St. Anthony named by Louis Hennepin in 1680. Minnesota formed a part of extensive territory ceded by France to Great Britain in 1763. Explored by Jonathan Carver of Connecticut in 1766. Came into the possession of the United States in 1783. Lieut. Z. N. Pike obtained the Fort Snelling Reservation from the Dakota Indians in 1805. Fort Snelling established in 1819. Corner stone laid of Fort Snelling and Col. Josiah Snelling placed in command. Place thenceforth called Fort Snelling, 1820. Mill built at Falls of St. Anthony, 1822. First steamboat to Mendota, near Fort Snell-

ing, 1823. Settlement made near St. Paul by Swiss colonists, 1830, and at Stillwater, 1843. Territory of Minnesota organized in 1849, with Missouri River its western boundary. Admitted to the Union in 1858. Massacre of settlers on frontier settlements by Sioux Indians, killing 1,000 whites, 1862. Indian lands at head of the lakes ceded to the United States, 1855. First frame house in Duluth erected, 1856. First sawmill at Duluth, on Minnesota Point, erected in 1856-7. St. Paul & Duluth railroad completed, 1870.

This is one of the most rapidly growing States in the Union, in wealth and population.

Opportunities in Agriculture and Varied Enterprises

MINNESOTA.

One of the Northern Border States Rapidly Increasing in Population.

MISTAKEN IDEA ABOUT CLIMATE.

The impression formerly prevailed that the climate here was too cold to grow most agricultural products, whereas experience has proven that the State, in general, has not only a highly fertile soil but a healthy climate favorable for the growth of all the cereals and the most of the vegetables and fruits.

NOT SO VERY FAR NORTH

A study of the map shows that Minnesota is not so far north as people had supposed. Examination of a Canadian map shows Hudson Bay very conspicuously, and the idea might be entertained that the whole region is not habitable; but comparison with other parts of the globe, in geographical position, reveals that there are other parts of the world, even considerably farther North, that have long been settled and cultivated.

COMPARED WITH OTHER REGIONS

Crossing at the widest part of Hudson Bay is the Sixtieth Parallel of latitude. Tracing this parallel around the earth we find that living north of this are the people of St. Petersburg and Stockholm and the majority of the inhabitants of Sweden and Norway.

POPULATION EXPANDING NORTHWARD

The facts are, while the winters are long, the air is dry, the people do not feel the cold as is the case in warmer climates with more moisture in the air. The average spring temperature is 46, summer about 70, autumn 38; in winter about 17; giving an average annual of about 45. The eastern part of the State is subject to the heaviest rainfall, the annual average being from 24 to 36 inches.

The soil, especially in the northern part of the State, is exceedingly fertile, and is one of the best wheat producing regions in North America. The fertility of soil in the Red River Valley permits the growth of very large crops and farmers in that region rapidly acquire wealth. The greatest hindrance the farmers in some portions of the northern counties have had has been the swampy conditions of the land. There are hundreds of thousands of acres of government land in that region of the country yet unappropriated from that reason.

SWAMP LANDS TO BE RECLAIMED

For the purpose of reclaiming this land the Interior Department of the government, under the Reclamation Act, has in contemplation the running of a series of ditches that will drain about 400,000 acres of land in the vicinity of Thief River Falls. This will open great quantities of land to settlement and be but the beginning of improvements which will bring into thorough cultivation great quantities of land, now too wet.

The Chippewa lands, ceded under the Nelson Act of 1889, cover an area of over 5,000 square miles—3,200,000 acres. The first efforts at drainage will be just northeast of Thief River Falls. A tract of land has been selected including 600 square miles, 384,000 acres, which area will be extended as fast as lands are sold and appropriated.

WILL MAKE THE VERY BEST FARMS

When reclaimed by drainage these swamp lands will rank with the best farms in this region. The soil, which is a black sandy loam, is particularly suited to crops which grow in this latitude.

PLAN OF DRAINAGE

The plan of drainage recommended provides for two main ditches, from four to six miles apart, each about forty miles long, with laterals at right angles located about seven miles apart. Minor drainage ditches should reach each 160-acre lot. Such work would accomplish the drainage of 266,750 acres of government and private land and the improvement of 135,750 additional acres, making a total of 402,500 acres that would be benefited.

WEALTHY FARMERS IN SOUTHERN MINNESOTA

The southern and central parts of Minnesota are settled with a class of wealthy farmers whose lands have become worth \$50 per acre. The soil in this region is a rich loam from two to five feet deep and of great durability. Here the finest wheat in the world is grown and from it the best flour is made.

Buckwheat, rye, flaxseed and potatoes are also raised in abundance. The hay and potato crops are of great value. The quality of Minnesota potatoes has a widely extended reputation. There have been, in years past, standing signs in the Fulton Market, New York, bearing the words, "Minnesota Potatoes."

According to William E. Curtis, in the Chicago Record Herald, the value of Minnesota wheat crop in 1910 was \$88,435,000; oats, \$25,000,000; corn, \$25,000,000.

Butter, \$50,000,000, made in 803 creameries, the product of 1,125,000 cows. The first creamery in the state was established at Bath, Freeborn County, in 1890, followed by the state founding a dairy school in 1891, succeeded by the employment, in 1892, of an expert, to visit creameries of the state, inspect sanitary conditions and give instruction to dairymen. The result is that Minnesota usually carries away the first prize from nearly every agricultural exhibition where her dairy products are on exhibition. A byproduct, developed out of the dairy business, is hogs, the value of which, in 1910, was \$35,000,000, largely fed and fattened on skim milk.

WAITING FOR TIMBER TO BE CUT.

The agricultural interests of a large part of Minnesota have had to wait for the timber to be cleared away, lumbering on the lands adjoining the largest rivers of the State being the principal work of many thousands of men during the past twenty years.

The cultivated farms have demonstrated that the harder fruits, such as apples, pears, cherries, plums, grapes of the northern varieties, strawberries, raspberries, blackberries, currants, etc., yield abundantly. For peaches and the more tender kinds of grapes the seasons are too short. Of the wild fruits, the crab apple and plum are excellent and the native cranberry is a source of great profit. Of the native forage plants botanists claim 160 species.

To get a fairly comprehensive idea of the greatness of the State and its probable future the landseeker should spend a week in Minneapolis and St. Paul in a study of land values, manufacturing, and as wholesale points, for the distribution of products over the Northwest. Following the visit to the Twin Cities the tourist should see Duluth, a young but rapidly growing city, at the head of the lakes.

After going up to the iron mining districts northward from Duluth, contemplating the manufacturing possibilities, healthfulness of climate and the many inducements for living in the State, consider statistics for a little time. Is there any reason why this population should not be as dense here as in Rhode Island some time? Mind, we say some time. That is indefinite and perhaps a good way off, but when that time comes there will be many millions of people in this State. Saying nothing more about Rhode Island, let us consider Illinois. Is there any reason why Minnesota should not be as densely populated as the Prairie State? It is highly probable that it will be. What then? Minnesota had 22.1 persons to the square mile in the 1900 census and Illinois had 86.1. When Minnesota attains to the present density of Illinois' population, she will have four times more people in her borders than now. Will each of the 400 interior Minnesota villages and cities be four times larger than now? Will Minneapolis and St. Paul be four times larger? Will there be 300,000 people crowded onto the mountain side at Duluth and overflowing clear out to Lester Park and West Duluth? Yes, certainly. Why not? Duluth is at the head of the lakes. Chicago was at the head of Lake Michigan. People had to stop there, and goods on freight boats had to break bulk. Duluth is similar to Chicago in position. They have to break bulk there and all cities, where they have to break bulk, become large cities.

FUTURE LARGE POPULATION IN MINNESOTA.

Certainly all Minnesota cities that are fairly prosperous will be four times larger than now, and landseekers looking the State all over will find Minnesota a very safe State in which to settle and invest in real estate.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest in the State the Mesaba Range, with elevations 100 feet above the adjacent lands.

Cities.

Climate. Average January temperature at St. Paul, 11 above; July, 72; warmest, 104; coldest, 41 below; average annual precipitation of rain and snow, 27.5 inches.

Duluth: Average January temperature, 10; July, 66; highest, 99; lowest, 41; average annual rainfall, precipitation of rain and snow, 31.0 inches.

Dimensions. Length, north and south, 400 miles; width, east and west, 350 miles.

STATE AND THE 79 COUNTIES OF MISSISSIPPI

With Their Boundaries

Location and Population
of
MISSISSIPPI COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	De Soto.	23,130
2.....	Marshall.	26,796
3.....	Benton.	10,245
4.....	Tippah.	14,631
5.....	Alcorn.	18,159
6.....	Tishomingo.	13,057
7.....	Tunica.	18,646
8.....	Tate.	19,714
9.....	Coahoma.	34,217
10.....	Quitman.	11,593
11.....	Panola.	34,274
12.....	Lafayette.	21,883
13.....	Union.	18,997
14.....	Pontotock.	19,688
15.....	Lee.	28,894
16.....	Prentiss.	16,931
17.....	Itawamba.	14,526
18.....	Bolivar.	84,905
19.....	Sunflower.	28,787
20.....	Tallahatchie.	29,078
21.....	Yalobusha.	21,519
22.....	Calhoun.	17,726
23.....	Chickasaw.	22,846
24.....	Monroe.	35,178
25.....	Leflore.	36,290
26.....	Grenada.	15,727
27.....	Carroll.	23,139
28.....	Montgomery.	17,706
29.....	Webster.	14,853
30.....	Clay.	20,203
31.....	Washington.	48,933
32.....	Holmes.	39,088
33.....	Attala.	28,851
34.....	Choctaw.	14,857
35.....	Oktibbeha.	19,676
36.....	Lowndes.	30,703
37.....	Winston.	17,139
38.....	Noxubee.	28,503
39.....	Issaquena.	10,560
40.....	Sharkey.	15,694
41.....	Yazoo.	43,672
42.....	Madison.	33,505
43.....	Leake.	18,298
44.....	Neshoba.	17,980
45.....	Kemper.	20,348
46.....	Warren.	37,488
47.....	Hinds.	63,726
48.....	Rankin.	23,944
49.....	Scott.	16,723
50.....	Newton.	28,035
51.....	Lauderdale.	46,919
52.....	Claiborne.	17,403
53.....	Copiah.	35,914
54.....	Simpson.	17,201
55.....	Smith.	16,603
56.....	Jasper.	18,498
57.....	Clarke.	21,630
58.....	Jefferson.	18,221
59.....	Adams.	25,265
60.....	Franklin.	15,193
61.....	Lincoln.	28,597
62.....	Lawrence.	13,080
63.....	Jefferson Davis.	12,869
64.....	Covington.	16,909
65.....	Jones.	29,885
66.....	Wayne.	14,709
67.....	Wilkinson.	18,075
68.....	Amite.	22,954
69.....	Pike.	37,272
70.....	Marion.	15,599
71.....	Lamar.	11,741
72.....	Forrest.	20,722
73.....	Perry.	7,685
74.....	Greene.	10,650
75.....	Pearl River.	10,592
76.....	Hancock.	11,207
77.....	Harrison.	34,658
78.....	George.	6,599
79.....	Jackson.	15,459

Total.....1,797,114

MISSISSIPPI TOWNS WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Abbeville	A		Alcorn	52	690	Baldwyn	B	787
*Aberdeen	12	243	Alligator	18	260	Banks	7	309
Ackerman	34	3,708	Amory	21	2,122	Bassfield	63	344
Adair	31	1,398	Anguilla	40	500	*Batesville	11	774
Adair	27	250	Arbo	61	206	Baxterville	71	200
Agricultural			Arcadia	39	390	*Bay St. Louis	76	3,388
College	35	206	Arcola	31	512	Bay Springs	56	836
Airey	77	709	Arkabutla	8	217	Beaumont	73	250
Albertson	65	328	Artesia	36	535			

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Mississippi Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Beauregard	.53	240	Flora	.42	747	McLaurin	.72	506	Robinsonville	.7	308
Belden	.15	220	Florence	.48	260	McNair	.58	266	Rodney	.58	338
Belleprairie	.41	350	*Forest	.49	1,136	McNeill	.75	360	*Rolling Fork	.40	809
Belmont	.6	367	French Camps	.34	220	*Macon	.38	2,124	*Rosedale	.18	1,103
Belzoni	.31	1,059	*Friar Point	.9	875	Madison Station	.42	323	Rose Hill	.56	390
Benoit	.18	412	*Fulton	.17	206	Magee	.54	685	Roxie	.60	294
Benton	.41	200			*Magnolia	.69	1,823	Ruleville	.19	451	
Beulah	.18	369	G		Manteo	.29	222	Rural Hill	.37	250	
Biloxi	.77	8,049	Gandai	.64	232	Marathon	.31	368			
Binnsville	.45	590	Geeville	.16	290	Marie	.19	290	S		
Blue Lake	.20	220	Georgetown	.53	560	Marks	.10	670	Sallis	.33	247
Blue Mountain	.4	650	Gibson	.24	330	Matagorda	.29	560	Saltito	.15	306
Bogue Chitto	.6	841	Gillsburg	.68	266	Mathiston	.29	576	Sandersville	.65	600
Bolton	.77	632	Glen Allan	.31	250	*Mayersville	.39	269	Sanford	.60	390
Bonhomie	.77	536	Glendora	.20	207	*Meadville	.60	269	*Sardis	.11	1,406
*Booneville	.16	1,337	Gloster	.68	1,486	*Mendenhall	.54	606	Saucier	.77	250
Booth	.39	250	Golden	.6	209	*Meridian	.51	23,285	Schlater	.25	250
Boyd	.62	250	Good Hope	.32	292	Merrigold	.18	241	Scobba	.15	322
Boyle	.18	444	Goodman	.32	630	Merrill	.78	328	Seminary	.64	526
Brandon	.48	720	Grand Gulf	.52	266	Midnight	.41	208	*Senatobia	.8	1,278
Braxton	.54	286	Graysport	.26	1,409	Millard	.75	296	Shannon	.15	561
*Brookhaven	.61	5,293	Greengrove	.9	496	Mississippi City	.25	306	Shaw	.18	871
Brooklyn	.72	220	*Greenville	.31	9,610	Mize	.55	321	Shelby	.18	645
Brookville	.66	850	*Grenada	.26	8,814	*Monticello	.62	450	Sherman	.14	353
Buckner	.66	421	*Gulfport	.77	6,386	Montrose	.56	427	Shubuta	.57	1,168
Buena Vista	.23	231	Gunnison	.18	515	Moorhead	.19	505	Shuqualak	.65	636
Burnsville	.6	336	Guntown	.15	330	Morton	.49	374	Sidon	.25	391
Byhalia	.2	511			Moss Point	.79	3,054	Silver City	.41	341	
			H		Mound Bayou	.18	537	Silver Creek	.62	544	
Calhoun City	.22	477	Hamburg	.60	231	Mountain	.78	208	Silver Springs	.4	390
*Canton	.42	3,929	Handstboro	.77	907	Mountain	.78	208	Spanish Fort	.40	209
Carriere	.75	206	Hartston	.72	230	Mount Carmel	.63	290	Standing Pine	.43	266
*Carrollton	.27	608	*Hattiesburg	.72	11,331	Mount Olive	.61	1,077	*Starkville	.35	2,698
*Carrollton Sta.	.27	390	*Hazelhurst	.53	2,056	Muldon	.24	349	State Line	.66	363
Carthage	.43	315	Heidelberg	.56	477	Myrtle	.13	255	Stonewall	.57	1,069
Cedarbluff	.33	216	Hermanville	.52	369				Sturgis	.56	267
Cedarville	.67	865	*Hernando	.1	660				Summit	.69	1,471
Chancy	.19	250	Hickory	.50	666	Napanee	.31	362	*Sumner	.20	364
*Charleston	.29	1,834	Hickory Flat	.3	261	*Natchez	.59	11,791	Sumral	.71	2,064
Chrilton	.9	250	Highlandale	.25	298	Neshoba	.44	290	Sunflower	.19	200
Chunky	.50	280	Hiwannee	.66	217	*New Albany	.15	733	Sylvarena	.55	290
*Clarksdale	.9	4,079	Hollandale	.31	481	*New Augusta	.13	2,032			
*Cleveland	.18	1,001	Holly Springs	.2	2,192	New Houka	.23	639	T		
Clinton	.47	767	Hollywood	.7	360	Newton	.50	1,875	Taylorsville	.55	623
Cloverhill	.9	277	Horn Lake	.7	206	Nicholson	.75	348	Tchula	.32	478
Coahoma	.9	211	Houka	.23	389	Norfield	.61	889	Terry	.47	473
Coffeyville	.21	21	*Houston	.23	1,406	Northcarrollton	.27	302	Tishomingo	.6	212
Coldwater	.8	774	Howison	.77	490	N. Greenwood	.25	269	Tocopilla	.14	233
Collins	.64	2,581			Noxapater	.37	311	Toomsaba	.51	330	
*Columbia	.70	2,029	I					Trenton	.35	200	
*Columbus	.36	8,988	Inda	.77	369	Oakland	.21	351	*Tunica	.7	553
Como	.11	905	*Indianola	.19	1,098	Oak Vale	.62	296	*Tupelo	.15	3,881
*Corinth	.5	5,020	Iverness	.19	299	Ocean Springs	.79	1,472	Tuttwiler	.20	410
Courtland	.11	304	Isola	.31	178	*Okolona	.23	2,584	Tyler	.75	200
Craig	.41	506	Ittabena	.25	1,427	Olive Branch	.1	212	Tylertown	.69	797
Crawford	.36	396	*Iuka	.6	1,221	Ora	.64	462			
Creek	.57	360	J			Osyka	.69	824	U		
Crenshaw	.11	358	Jackson (cap-ital)	.47	21,262	Ovett	.65	382	Union	.50	693
Cross Roads	.78	358	Jacobs	.58	590	*Oxford	.12	2,044	Utica	.47	572
Crystal Springs	.53	1,343	Jonestown	.9	367				V		
			K			P					
D			Kilmichael	.28	380	*Pascagoula	.79	3,379	*Vaiden	.27	713
Darden	.13	260	Kipling	.45	269	Pass Christian	.77	2,458	Vardaman	.22	439
*Decatur	.50	283	Kirkville	.17	509	Pearlhaven	.61	3,499	Vernal	.74	200
De Kalb	.45	250	*Kosciusko	.33	2,385	Pearlington	.76	306	Vespa	.15	558
Derma	.22	383			Pelahatchee	.48	943	Vicksburg	.49	250	
De Soto	.57	236	L		Percy	.31	266	*Vicksburg	.56	20,814	
Dlo	.54	284	Lake	.49	429	Perkinston	.77	350	Vosburg	.56	209
Doddsville	.19	208	Lakeshore	.76	260	Perthshire	.18	496			
Drew	.19	278	Lambert	.10	573	Phela	.30	283	W		
Dry Grove	.47	500	Latonja	.79	260	Philadelphia	.44	1,209	Walls	.13	206
Duck Hill	.28	490	Lauderdale	.51	599	Phillip	.20	269	Walnut Grove	.43	208
Duncan	.18	484	Laurel	.65	8,465	Pickens	.75	846	Warrenton	.46	200
Durant	.32	1,881	*Leakesville	.50	208	Pineburch	.32	619	*Water Valley	.21	1,275
			Leland	.74	406	Pinola	.54	250	Waveland	.76	554
E			Lena	.43	200	*Pittsboro	.22	249	*Waynesboro	.66	625
Estabuchie	.65	460	Leota Landing	.31	369	Pleasant Hill	.1	2,065	Webb	.20	292
Eastside	.79	819	*Lexington	.32	2,128	*Pontotoc	.14	1,277	Weir	.34	230
Eceru	.14	475	*Liberty	.68	556	*Poplarville	.75	1,272	Weisson	.53	2,024
Eddiceton	.60	350	Little Springs	.60	290	*Port Gibson	.52	2,252	West	.32	276
Edinburg	.43	259	Long	.31	396	Potosi	.41	556	Pascagoula	.79	308
Edwards	.47	600	Long Beach	.77	1,026	Potts Camp	.2	312	*West Point	.30	1,864
Elarbee	.77	250	Longtown	.11	250	Prairie Point	.38	250	Whitesand	.58	390
*Ellisville	.65	2,445	Louisa	.55	266	*Prentiss	.63	640	Wiggins	.77	980
Elwood	.54	248	*Louisville	.56	523	Prick	.49	289	Winchester	.66	350
Endville	.14	450	*Lucedale	.77	1,181	*Purvis	.71	724	*Winona	.28	2,512
Enterprise	.57	877	Lumberton	.78	797				Wisdom	.77	226
Epps	.72	282	Lyon	.9	222				Wisner	.55	630
Estabuchie	.65	631	Lytal	.16	209	Q			*Woodville	.67	1,333
Ethel	.33	466			M						
Eupora	.29	896	Mabem	.35	539				Y		
			McComb	.69	6,237	R			Yazoo City	.41	6,796
F			McCool	.33	422	*Raleigh	.55	262	Z		
Fannin	.48	200	McHenry	.77	627	*Raymond	.47	570	Zilpha	.33	200
Farrell	.9	250	McLain	.74	250	Richburg	.71	266	Zion	.43	269
*Fayette	.58	775			Richton	.73	1,250	Zion Hill	.68	509	
Fenwick	.59	206			Rienzi	.5	434				
Fernwood	.69	209			*Ripley	.4	767				

Opportunities in Agriculture and Varied Enterprises

MISSISSIPPI

Having a Soil and Climate Especially Favorable for Growing Cotton.—Figures Showing Profits.

Should the land-seeker wish to engage in the production of one general crop there is probably none more sure than cotton in a region favorable for its growth. There are a few essentials necessary in the production of cotton, among them being a rich alluvial soil, a temperature favorable for growth and rainfall sufficient to supply the necessary moisture.

THE CLIMATE OF MISSISSIPPI.

The average annual temperature in Mississippi is 65.57. The highest of summer is 90 and the lowest of winter is 18 above zero. The average annual rainfall at Natchez is 53.55 inches; along the coast it is 64 inches.

The valley areas of the northern section, and the uplands of central Mississippi, are fertile, while those of other parts of the state are often inferior in quality. If the individual is going into the business of raising cotton and has selected Mississippi as the state in which to engage in that vocation, he will find that soil, climate and rainfall all combine here to make that crop a success; but it would be only safe for the person intending to purchase land for that purpose to visit this state, go among the cotton raisers and carefully investigate before investing any money in land for that purpose.

As a rule, cotton continues very uniform in price. While price fluctuates somewhat, it has averaged about 10 cents a pound during the past seven years. During 1906 the price varied from 9½ cents to 12¼ cents per pound.

A STATEMENT OF COST AND PROFITS.

Cost of Production. The following statement of the cost of production and the proceeds from a cotton crop in 1889-90 on a 70-acre farm of Col. J. M. Thornton, Talladega, Ala., is worthy of careful study of those who think of engaging in the business of cotton culture. Of course these figures would vary considerably, depending upon natural fertility of soil, cost of fertilizing material, expense of labor, accessibility to market, and other conditions, but this table gives something of an idea of cost of production in average years.

COST AND PROFIT OF RAISING COTTON

On 70 Acres, Yielding 28,116 Pounds of Lint Cotton which Sold at 9¼ Cents Per Pound.

Man and mule labor in preparing bedding and putting in fertilizers.....	\$150.50
3½ tons phosphate (as fertilizer).....	67.50
3½ tons cottonseed meal (as fertilizer).....	126.00
Man and mule labor plowing and cultivating.....	136.50
Hoeing.....	421.75
Picking.....	49.50
Logging and ties.....	134.86
Ginning (5 per cent of yield equals 1,458 pounds at 9¼ cents).....	21.00
Seed for planting (140 bushels at 15 cents per pound).....	15.00
Wear and tear of implements.....	50.00
Overseeing.....	650.18
One-fourth of cotton crop chargeable as rent.....	12.00
Hauling to market.....	

Total \$1,905.29

YIELD AND PROCEEDS OF COTTON CROP.

56 bales, weighing 28,116 pounds lint cotton, averaging 9¼ cents.....\$2,600.73
1,848 bushels seed at 15 cents per pound... 277.20

Total\$2,877.93
Cost of production.....\$1,905.29

Profit on 70 acres.....\$972.64

Dividing the \$972.64 by 70 gives \$13.89, the profit per acre on raising cotton at these prices. Thus the profit on a 100-acre tract would be \$1,389, and a 200-acre cotton farm would be \$2,778.

CENTER OF COTTON PRODUCTION IN RECENT YEARS.

The center of cotton production in the United States has been recently in Mississippi, about 20

miles northeast of Canton, in Madison County, and with the natural fertility of soil here, fitting it for cotton raising, it is probable that cotton can be raised in this state with greater profit than elsewhere, which will be determined by the land-seeker when he investigates cotton raising conditions in Mississippi.

Cotton is a field crop and, like wheat, oats or corn, must be classed with those field productions which require a good deal of space in order to yield large farm profit. There are certain valleys in the state, like the Yazoo, which is overflowed in very high water, and enriched by the alluvial deposits, that require but very little fertilization in the production of any crops thereon. These valleys are natural cotton lands, which land-seekers should examine.

IF COTTON WERE MADE THE PRINCIPAL CROP.

The crops of Mississippi are considerably diversified. Thus in one average recent year the oat crop was 1,671,919 bushels; wheat, 28,285 bushels, and corn, 30,027,569 bushels.

Of the cotton crops there were 1,275,000 bales. As there are 466 pounds in a bale of cotton, there were 594,150,000 pounds in that crop, which, multiplied by 9¼ cents, the lowest price per pound for cotton that year, would make the income to the State of Mississippi \$54,958,875 that year for her cotton crop.

As there is but a comparatively small population at present in this state, 12,000,000 acres yet covered with forests, we can imagine when the population is full up to the capacity of the state and the force of help is sufficient to cultivate all the soil, that the revenue from cotton in this state will be immense.

But while Mississippi is essentially an agricultural state it is giving a good deal of attention to manufacturing, as shown in the fact that in 1906, an average year, there were \$50,256,309 invested in manufactures, 38,690 wage earners were employed, to whom was paid \$14,819,034, the manufactured product of the state being worth \$57,451,445.

FRUIT, FISH AND OYSTERS.

The Gulf Coast of the State which extends for a distance of 90 miles on the borders of the Gulf of Mexico is attracting a great deal of attention for several reasons. First, here is a warm sandy loam soil, resting on a clay subsoil, in which all vegetables and fruits yield abundantly. Second, with warm climate and 62 inches of annual rainfall they can grow three crops a year on the same land. Thus planting Irish potatoes in January, the crop is off in time to plant corn in April and the corn is off in time to plant sweet potatoes in July, which are harvested in time to allow a crop of hay or cow peas to be grown, to plow in and fertilize the land for the next year.

The waters of the Gulf, along the Mississippi coast line, grow thousands of bushels of oysters. One cannery at Biloxi gives employment to 2,500 workmen nine months in the year canning oysters and other shell fish.

The fish canning and oyster industry on the Gulf coast is very great and steadily growing in importance.

DELIGHTFUL BREEZE FROM THE GULF.

A steady breeze blows in upon the land here making the days pleasant and the nights cool in summer. Thus the Gulf coast is growing in popularity as a summer resort. As a home for the winter months it is and has for many years attracted thousands of people from the north. Gulfport, Bay St. Louis, Pass Christian, Biloxi, Ocean Springs and other points are widely known as health and pleasure resorts.

Mississippi Opportunities in Agriculture and Varied Enterprises

A Region of Delightful Winter Resorts on the Gulf Coast.

Thousands of people are drifting down to this charming Gulf coast to make their homes in the delightful climate here, intending to spend their remaining years in the growing of fruit for profit and partly as a pastime.

Many testimonials are published of people who clear a profit on their crops here of \$250 per acre, their productions including early grown potatoes, sweet corn, strawberries, grapes, Satsuma oranges, soft shell pecans, sweet potatoes, sugar cane, melons, peaches and other fruits.

THE LUMBER BUSINESS A GREAT INDUSTRY.

This whole region adjoining the Gulf of Mexico has been, until recently, covered with a long leaved pine forest. The rapid advance in the price of lumber has caused the introduction of scores of sawmills. The land is being cleared of the forest, and the soil, a rich dark, sandy loam, resting on a clay subsoil, is found to be most admirably adapted to fruit raising.

Added to a warm soil in a warm climate, is an average of five inches of rain per month. This large amount of moisture prevents shortage of crops from drouth. While one crop of the season may be lessened by dry weather the other crops are not affected, and the average yield from the land is always about the same.

PRICE OF LAND IN SOUTHERN MISSISSIPPI.

Farm land along the Gulf coast is held at prices varying from \$25 to \$50 per acre, while back a little distance from the Coast the price ranges from \$15 to \$25.

TO SECURE EMPLOYMENT, GO SOUTH.

There is an intense cry continually going up from all the Gulf coast country for more help. More workmen are wanted in the fields, more in the lumber district and more in the canneries. The land seeker will do well to consider the advisability of getting a small farm on the Gulf Coast, applying thereon intensive cultivation, and while getting started assist other people who need help.

CONDENSED IMPORTANT FACTS RELATING TO MISSISSIPPI.

Altitude. Highest in the State at Forrest, in Marshall County.

Climate. Average annual January temperature at Vicksburg, 47 above; July, 82; highest, 101; lowest, 1 below. Annual rainfall, 55.7.

Dimensions. Extreme length of State, north and south, 340 miles; extreme width, east and west, 180 miles.

History. The Yazoo bottoms visited by De Soto, 1539; Joliet and Marquette, 1673; La Salle, 1682; settlement at Biloxi by Iberville, 1699; Natchez founded, 1716; ceded by France to England, 1763; Territory of Mississippi organized, 1798; territory including the five southern counties added to the State, 1811; admitted to the Union, 1817.

Between New Orleans and Mobile will be found a number of the most attractive winter resorts in the whole South. From Bay St. Louis, the first resort out of New Orleans, to Pascagoula, nearly fifty miles east, is an almost continuous string of white cottages, hotels and bungalows. The winter climate is delightfully invigorating and it would be difficult to select a locality better suited for rest or recreation. The population of Bay St. Louis is about 4,500, made up largely of people from New Orleans, who make daily trips to and from the city. The town, like other gulf coast resorts, has its long shell drive upon the waterfront, with magnificent live oaks and magnolias, while the pretty, substantial and gardened residences bespeak taste and prosperity for their owners. Boating, bathing and fishing facilities are unsurpassed.

PASS CHRISTIAN.

Pass Christian is the most pretentious, as well as the most popular, resort along the gulf coast. It is one of the very old towns of the United States and the second in population on the coast. With its seven miles of frontage on the gulf, and with immense pine forests behind it, it is an ideal place

for the man or woman seeking rest and recuperation. It is exclusively a resort town, and the hotels will be found far above the average in size and excellence. The shell roads here are exceptionally smooth and well kept and make driving or automobiling a pleasure. A nine-hole golf course is kept in excellent condition. Mississippi Sound furnishes the finest yachting course in the South and very good fishing can be had during the late winter and early spring months.

GULFPORT.

Gulfport is a new, but distinctly modern, town. It is the principal seaport for sea-going vessels of the State of Mississippi and is the second lumber-shipping port in the country. It has a fine harbor, deep and roomy enough to accommodate ocean shipping for years to come. Beside boating, fishing and hunting there are beautiful shell drives along the beach and automobiles can be hired at reasonable rates. There are tennis courts and an excellent golf course. The hotel accommodations are among the best on the coast.

Four miles east of Gulfport is the old town of Mississippi City. It is in the midst of a great fruit-producing region, where oranges, figs, peaches, pears and grapes can be grown with but little effort.

Biloxi, the oldest town on the coast, the third in age in the United States, was founded by the French in 1699. It is the largest town between New Orleans and Mobile and is a substantial and progressive little city. There are some fine residences and hotels and shell drives along the ten-mile beach. The waters of the sound here are alive with fish and during the winter season quantities of oysters are canned and shipped to Northern and Eastern markets. Four miles west of Biloxi is Beauvoir, where Jefferson Davis lived, and now the home of aged and intemperate Confederate veterans. Biloxi is a most delightful little city and an excellent place wherein to spend the winter season.

OCEAN SPRINGS.

Ocean Springs, so called from the mineral springs found in the town, is just across the bay from Biloxi. A fine shell drive extends the entire three miles of sound frontage. Nowhere on the coast can finer specimens of the famed live oaks be found. Under these, and with full sweep of sea view and salt breezes, nestle some attractive and tasteful homes and hotels.

Sixteen miles east of Ocean Springs are the towns of West Pascagoula and Pascagoula. This is one of the greatest lumber manufacturing districts of the South and in addition, one of the best fishing points on the coast.

THE NATIONAL CEMETERY IN MISSISSIPPI.

The National Cemetery at Vicksburg, fronting the river and blending in to the northern end of the Military Park, although not of it, was established in 1865. Its originally beautiful natural site having thus had the benefit of time in which to be developed and appropriately softened and beautified into harmony with its sacred purpose, it stands today one of the most park-like and pleasingly impressive of all the national cemeteries. With the possible exception of Arlington Heights, none can compare with it in general beauty. It certainly is one of the most magnificent cemeteries ever devoted to the interment of the dead soldiers of any nation, and it is also (except Arlington) the largest of the eighty-two established and maintained by the General Government in honor of its valorous defenders. It contains the graves of 16,822 Union soldiers who lost their lives in and around Vicksburg during the civil war, of which the appalling number of 12,719 are "unknown." The cemetery is a masterpiece of landscape engineering, with delightful walks and drives, with ravines, terraces and plateaus, and with long avenues of trees, mostly Spanish oaks, supplemented with tropical plants and picturesque parterres of flowers. The grounds occupy what was once the sides and crest of a forbidding bluff overlooking the river, but which is now a most charming series of terraces, encircling a beautiful plateau from which is had a magnificent view, grand in extent and variety, including the serpentine course of the glittering river, its opposite shore fringed with verdant forest.

STATE AND THE 115 COUNTIES OF MISSOURI

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF MISSOURI COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Atchison..	13,604	30.....	Ray.....	21,451	59.....	Gasconade..	12,847	88.....	Shannon..	11,443
2.....	Nodaway..	28,833	31.....	Carroll..	23,098	60.....	Franklin..	29,830	89.....	Reynolds..	9,592
3.....	Worth....	8,007	32.....	Charlton..	23,503	61.....	Warren....	9,123	90.....	Iron.....	8,563
4.....	Gentry...	16,820	33.....	Randolph..	26,182	62.....	St. Charles.	24,695	91.....	Madison..	11,273
5.....	Harrison..	20,466	34.....	Monroe...	18,304	63.....	St. Louis...	82,417	92.....	Genevieve..	11,273
6.....	Mercer....	12,385	35.....	Ralls.....	12,913	64.....	St. Louis City	687,029	93.....	Perry.....	14,898
7.....	Putnam...	14,308	36.....	Pike.....	22,556	65.....	Vernon....	28,827	94.....	Bollinger..	14,576
8.....	Sullivan..	18,598	37.....	Jackson...	28,522	66.....	St. Claire..	16,412	95.....	Newton...	27,136
9.....	Schuyler..	9,062	38.....	Lafayette..	30,151	67.....	Hickory....	8,741	96.....	McDonald..	13,539
10.....	Adair.....	22,700	39.....	Saline....	29,448	68.....	Camden....	11,582	97.....	Barry.....	23,869
11.....	Scotland..	11,869	40.....	Howard...	15,653	69.....	Pulaski....	11,483	98.....	Stone.....	11,559
12.....	Knox.....	14,403	41.....	Boone....	30,533	70.....	Phelps....	15,796	99.....	Christian..	15,832
13.....	Clark.....	12,811	42.....	Audrain...	21,687	71.....	Crawford..	13,576	100.....	Taney.....	9,134
14.....	Lewis.....	15,514	43.....	Montgomery	15,604	72.....	Washington.	13,378	101.....	Douglas..	16,664
15.....	Holt.....	14,539	44.....	Lincoln...	17,033	73.....	St. Francois.	36,748	102.....	Ozark.....	11,926
16.....	Andrew...	15,282	45.....	Cass.....	22,973	74.....	Jefferson..	27,878	103.....	Howell....	21,065
17.....	De Kalb..	12,531	46.....	Johnson..	26,297	75.....	Barton....	16,747	104.....	Oregon....	14,681
18.....	Davess...	17,605	47.....	Pettis....	33,919	76.....	Cedar.....	16,080	105.....	Carter....	5,504
19.....	Grundy...	16,741	48.....	Cooper....	20,311	77.....	Dallas....	13,181	106.....	Wayne....	15,181
20.....	Livingston	19,453	49.....	Moniteau..	14,375	78.....	Laclede...	17,363	107.....	Ripley....	13,099
21.....	Linn.....	25,253	50.....	Cole.....	21,957	79.....	Jasper....	89,673	108.....	Butler....	20,624
22.....	Macor....	30,868	51.....	Callaway..	24,400	80.....	Dade.....	15,613	109.....	Stoddard..	27,807
23.....	Shelby...	14,864	52.....	Bates....	25,869	81.....	Lawrence..	25,583	110.....	C. Girardeau	27,621
24.....	Marion...	30,572	53.....	Henry....	27,242	82.....	Greene....	63,831	111.....	Scott.....	22,372
25.....	Buchanan..	93,020	54.....	Benton...	14,881	83.....	Webster...	17,873	112.....	Mississippi.	14,557
26.....	Clinton..	15,297	55.....	Morgan...	12,863	84.....	Wright....	18,315	113.....	New Madrid.	19,488
27.....	Caldwell..	14,695	56.....	Miller....	16,717	85.....	Texas.....	21,485	114.....	Dunklin...	30,328
28.....	Platte....	14,429	57.....	Osage....	14,283	86.....	Dent.....	13,245	115.....	Pemiscot..	15,559
29.....	Clay.....	20,302	58.....	Maries...	10,088						
										Total.....	3,293,335

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Missouri Cities and Villages with 1910 Populations

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Missouri Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Joplin	80.	32,078	*Memphis	11.	1,984	Osage City	50.	220	*Sainte		
Josephville	62.	206	Mendon	32.	408	Osborn	17.	230	*Genevieve	92.	1,967
K			Mendota	7.	808	Osceola	66.	1,114	Saint Francois	73.	1,406
*Kahoka	13.	1,818	Merced	6.	522	Osgood	8.	204	Saint James	70.	1,100
*Kansas City	37.	248,381	Merchants	64.	333	Otterville	48.	453	*Saint Joseph	25.	77,403
Kearney	29.	631	Merwin	52.	209	Overland	63.	860	*Saint Louis	64.	687,029
*Kennett	114.	3,033	Meta	57.	399	Owensville	59.	677	Saint Marys	92.	702
Keota	22.	750	Metz	65.	240	Oxley	107.	209	Saint Paul	62.	200
*Keytesville	32.	963	*Mexico	42.	5,393	*Ozark	99.	813	Saint Peters	62.	269
Kidder	37.	306	Miami	39.	431	P			Salem	87.	1,796
Kimmswick	74.	235	Midland	43.	323	Pacific	60.	1,418	Salem	18.	349
*King City	27.	966	Midland	63.	306	*Palmyra	24.	2,168	Salisbury	32.	1,834
*Kingston	27.	535	*Milan	8.	2,191	Panama	65.	490	Salvage	80.	1,311
Kingsville	46.	238	Milford	75.	250	Paris	34.	1,474	*Savanna	16.	1,583
Kinloch	63.	350	Miller	82.	343	Parkville	28.	766	Savoy	72.	600
*Kirksville	10.	6,347	Mill Grove	6.	275	Parma	113.	903	Schell City	47.	1,822
Kirkwood	63.	4,171	Mill Spring	106.	225	Parnell	2.	433	*Sedalia	17.	563
Knob Lick	73.	209	Mindeaminers	75.	591	Pattonburg	18.	1,041	Seligman	97.	409
Knobnoster	46.	670	Mine La Motte	91.	408	Paynesville	36.	366	Senath	114.	1,026
Knobview	70.	265	Mineral Paint	72.	290	Peculiar	45.	205	Seneca	95.	981
Knox City	12.	395	Mirabile	27.	250	Perry	35.	895	Seymour	81.	590
Koeftztown	57.	250	Missouri City	29.	559	*Perryville	93.	1,708	Shelbina	23.	2,174
L			Moberly	33.	10,923	Phillipsburg	79.	266	Shelbyville	23.	685
La Belle	14.	1,017	Mokane	51.	646	Pickering	2.	261	Sherridan	65.	528
Laclede	21.	740	Monarch	63.	250	Piedmont	106.	1,151	Sibley	37.	200
Ladonia	61.	614	Monett	97.	4,177	Pilot City	82.	2,043	Sikeston	11.	3,327
La Due	53.	225	Monroe City	34.	1,945	Pilot Grove	48.	654	Silex	44.	743
La Grange	11.	1,360	Montgomery			Pine Lawn	63.	200	Skidmore	2.	562
*Lamar	75.	2,346	City	43.	1,789	*Pineville	96.	500	Slater	39.	3,238
Lamonte	17.	684	*Monticello	53.	283	*Platte City	28.	763	Sligo	87.	309
*Lancaster	9.	964	Montrose	53.	667	Platt City	28.	209	Smithfield	80.	509
La Plata	22.	1,606	Mooreville	20.	205	Plattsburg	18.	1,044	Smithville	47.	346
Laredo	19.	738	Morehouse	113.	1,636	Pleasant Hill	45.	2,065	South	29.	680
Larussell	80.	261	Morley	111.	495	Pocahontas	110.	239	South Gorin	11.	746
Latham	49.	246	Morrison	59.	257	Pollock	8.	292	Greenfield	81.	274
Lathrop	26.	1,138	Morrisville	77.	360	Polo	27.	526	City	96.	488
Lawson	73.	708	Mescow Mills	44.	395	Pomona	103.	232	Sparta	99.	271
Leewood	71.	200	Moundville	65.	247	Ponce de Leon	98.	250	Spickard	19.	638
Leasburg	71.	200	Mountain			*Poplar Bluff	108.	6,916	Spionerville	114.	241
*Lebanon	79.	2,439	Grove	85.	1,722	Portage Des			*Springfield	83.	35,201
Lecomma	87.	200	Mountain			Sioux	62.	218	Spurgeon	95.	250
Leeper	106.	590	View	103.	552	Portageville	113.	287	Stahl	10.	390
Lees Summit	37.	1,455	Mount			Portland	51.	275	Stanberry	4.	1,121
Leeton	46.	420	Leonard	39.	200	Poloski	72.	772	Steel	115.	506
Le May	63.	340	Mount Moriah	5.	350	Powerville	7.	562	*Steele	17.	743
Leslie	69.	208	Mount Pleasant	63.	500	*Princeton	80.	1,385	Stewartville	71.	743
Lesterville	89.	250	*Mount Vernon	82.	1,161	Prosperity	80.	1,062	*Stockton	76.	590
Lewis			N			Purcell	80.	994	Stotts City	82.	546
Station	52.	290	Naylor	107.	406	Purdin	21.	337	Stoutland	68.	250
Lewistown	14.	405	Neck	80.	528	Purdy	97.	459	Stoutsville	34.	315
*Lexington	38.	5,242	Neelyville	108.	241	Puxico	109.	814	Stover	55.	386
Junction	30.	380	Nelson	39.	480	Q			Strafford	83.	300
Liberal	75.	826	*Neosho	95.	3,661	Queen City	9.	701	Strasburg	45.	350
*Liberty	29.	2,980	Nettleton	27.	290	Quitman	2.	230	Stratmann	63.	600
Licking	86.	350	*Newada	65.	7,176	Quincy	108.	590	Sturges	41.	663
Libourne	113.	484	Newark	12.	217	R			Sugar Creek	37.	500
Lincoln	39.	336	New			Ravanna	6.	251	Sullivan	60.	934
Linden	29.	249	Bloomfield	51.	309	Ravenwood	2.	341	Sulphur		
*Linn	57.	482	Newburg	70.	932	Raymore	45.	218	Springs	74.	260
*Linn Creek	68.	435	New Cambria	22.	387	Rayville	30.	239	Summersville	86.	236
*Linneus	21.	882	New Florence	43.	421	Rea	16.	210	Summer	32.	394
Livonia	7.	250	New Franklin	39.	250	Readsville	51.	2,065	Sweet Springs	39.	1,122
Lock Spring	18.	225	New Frankfort	39.	250	Reeds	80.	298	Syenite	73.	206
Lockwood	81.	961	New Hampton	5.	456	Reeds Spring	98.	250	T		
Louisiana	36.	4,454	New Haven	60.	855	Reger	6.	250	Tarkio	1.	1,966
Lowry City	66.	462	*New London	35.	942	Rembert	85.	250	Tebbens	51.	260
Lucerne	7.	264	*New Madrid	113.	1,882	Renick	33.	213	Thayer	104.	1,613
Ludlow	20.	306	New Melle	62.	250	Republic	83.	884	Tina	31.	304
Lutesville	94.	551	New			Reynolds	89.	250	Tipton	49.	1,273
M			Offenburg	92.	350	Richards	65.	303	*Trenton	19.	5,656
McFall	4.	385	Newtonia	95.	293	Rich Hill	52.	2,755	Trimble	26.	222
*Macon	32.	3,581	Newtown	8.	261	Richland	69.	884	Triplott	32.	473
Madison	34.	634	Niangua	84.	250	*Richmond	30.	3,664	Troy	44.	1,120
Maitland	15.	736	Nichols	83.	202	Ridgeway	5.	841	Tuxton	44.	275
Malden	114.	2,116	Nixa	99.	276	Ritchie	95.	250	Tumacy	26.	212
Malta Bend	39.	399	Noel	96.	320	Rochester	41.	434	*Tuscumbia	56.	285
Manchester	63.	509	Norborne	31.	1,241	Rochester	16.	200	Tuxedo	63.	860
Mansfield	85.	477	Norway	63.	200	*Rockport	1.	1,053	U		
Maplewood	63.	4,976	Norwold	85.	250	Rockville	52.	566	Union Star	17.	388
*Marble Hill	94.	313	Novelty	22.	232	Rocky Comfort	96.	406	*Unionville	7.	2,115
Marceline	21.	3,920	Novinger	10.	1,711	Rogersville	84.	650	University	61.	2,417
Marionville	91.	339	O			*Rolla	70.	2,261	Urich	53.	487
Marquand	39.	1,232	Oak Grove	37.	641	Rombauer	108.	299	Utica	20.	511
*Marshall	39.	1,869	Oak Ridge	110.	256	Roschard	59.	296	V		
*Marshfield	84.	1,193	Oakville	63.	509	Rosedale	16.	359	Valley Park	63.	1,490
Marston	113.	258	Odessa	24.	466	Rothville	32.	243	*Van Buren	105.	411
Marthasville	61.	360	O'Fallon	62.	2,534	Rushville	25.	566	Vandalia	42.	1,595
Martinsburg	42.	436	Old Mines	72.	406	Russellville	50.	335	Vanduser	11.	388
*Maryville	2.	4,762	Old Monroe	41.	251	Rutledge	11.	418	Verona	83.	415
Marzolf	36.	262	Old Orchard	63.	2,500	S			*Versailles	55.	1,593
Mascot	83.	200	Olean	56.	214	Saint Clair	60.	397	Viehy	58.	216
*Mathews	113.	237	Olivette	63.	390	*Saint Charles	62.	9,437	*Vienna	58.	312
*Mayview	7.	1,051	Oran	111.	1,023	S					
Maywood	38.	398	*Oregon	15.	1,002						
Meadville	21.	580	Oranogo	80.	1,912						
Mehlville	63.	340	Orrick	30.	435						

Missouri Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
W			Wayne	97	384	Westphalia	57	321	Spring	103	1,411
Wakenda	31	279	*Waynesville	69	257	*Westplains	103	2,914	Windsor	53	2,241
Walker	65	364	Weaubleau	67	347	Wheatland	67	399	Winfield	44	432
Walnut Grove	83	599	Webb City	80	11,817	Whiteoak	114	251	Winona	88	444
Warren	24	299	Webster Groves	64	7,081	Whitesville	16	225	Winston	18	257
*Warrensburg	46	4,689	Wellington	38	558	Whitewater	110	251	Worthington	7	290
*Warrenton	61	795	Wellston	63	7,312	Whitham	32	250	Wright City	61	377
*Warsaw	54	824	Wellsville	43	1,164	Whiting	112	242	Wyaconda	13	481
Washburn	97	219	Wentzville	62	539	Wilby	108	200	Wylie	96	200
Washington	60	3,671	Westalton	62	299	Williamstown	14	214	Z		
Watson	1	245	Westboro	1	333	Williamsville	106	477	Zalma	94	208
Wayham	55	777	Weston	28	1,119	Willow			Zincite	80	799

MISSOURI

Took Greatest Number of Prizes for Agricultural Production at the St. Louis Exposition in 1904.

A large amount of Missouri unimproved land is yet in the market at \$2, \$4 and \$8 per acre. From our map and list of Missouri towns the reader can judge as to accessibility to markets and pretty nearly what land ought to be worth if good soil.

WON A GREAT NUMBER OF PRIZES.

That this is a superior State for the agriculturist is shown in the fact that at the World's Louisiana Purchase Exposition, in St. Louis, in 1904, Missouri was awarded, by international juries, a greater number of prizes for agriculture, horticulture, live stock and poultry products, than any other state in the nation. In agriculture were received 298 prizes, in horticulture, 372; in dairying, 2; in live stock, 790; in poultry, 617.

From Henry County in 1904, of surplus products, there were shipped 54 different agricultural, horticultural, live stock, lumbering, poultry and other products, at an estimated value of \$4,193,987.

And that was only one average County. The State, which is over seven times larger than Massachusetts, has 115 Counties.

MISSOURI CLIMATE.

In examination of our maps the favorable location of this State is seen. Not only is it in nearly the exact center of the United States, but the climate is especially favorable for the growth of every agricultural product which can be grown in this latitude.

The average annual temperature is 55 degrees. The winter is 33 degrees, and summer is 76 degrees. While in winter the thermometer sometimes gets below zero, and in the summer up among the highest figures, these extremes are of short duration, not lasting long enough to occasion any inconvenience or discomfort in any direction.

The winter as a whole is moderate and mild, with very little snow and no storm-locked periods, when it is with difficulty that the farmer can keep up communication with dwelling and stables, and much less with the outside world. On the contrary, cattle require very little stabling and only a moderate amount of feeding, in comparison with the amount of care necessary on a Northern farm. The summers are no hotter than in the more northern States. The heated periods are of longer duration, perhaps, but are a source of very little inconvenience, and no loss to the farmer, like the long winters at the North.

DISTRIBUTION OF RAINFALL.

Another element of a desirable climate for agricultural purposes to be taken into consideration is the amount of rainfall and its distribution throughout the different seasons. The average rainfall for the State is 41 inches. It is least in winter and highest in summer. This avoids the drouths at the growing periods of crops.

Though this large amount of rainfall would seem to make an overabundance of moisture, the climate is a dry one, the heavy rains falling in a short space of time, leaving the sunshine almost continuously free to distribute heat. The universal reign of sunshine is one of the marked features of the Missouri climate which greatly affects the well-being of its inhabitants.

In facilities for carrying goods from the Missouri farms to markets this State is exceptionally favored. In addition to over 8,000 miles of railways are several navigable rivers, among them being the two great streams, the Mississippi, which borders the State for 470 miles, and the Missouri, which forms a part of the western boundary for nearly 200 miles, from the Iowa line to Kansas City, at which point it turns eastward, flowing across the State in a tortuous course for more than 250 miles to the Mississippi. These great streams are navigable at all times, except when obstructed by ice. The Osage, one of the affluents of the Mis-

souri, is navigable for small boats half the year. Several others are navigable for small boats in the early summer.

See these streams either land their cargoes at Kansas City or St. Louis, two of the grandest central distributing points in the United States.

St. Louis of itself has a vast commerce. Over 900 steamboats leave here annually for the Lower Mississippi, 800 for the Upper Mississippi, 200 for the Missouri, and 200 for the eastern branches of the Mississippi.

GREAT DISTRIBUTING POINT.

By virtue of central location, making it the natural distributing point for the great Southwest, St. Louis is one of the few greatest markets in the world. While out of the Central Cotton belt it ships annually over 600,000 bales of this staple, and handles yearly over \$2,000,000 worth of furs. We mention these two articles because if it does so large a business in cotton and furs it is easy to see that its traffic in agricultural productions, native to this state and the immediate region, must be immense.

A FEW MISSOURI STATISTICS.

It should be remembered that Missouri is a young State; not a half of its resources are yet developed.

We could dilate upon various other resources and easily make a large volume relating to this State, but space does not permit. We advise the land-seekers to carefully investigate the claims of Missouri. Its coal beds, which extend under one-half of the State, its iron, lead and zinc mines; wool, live stock, dairy, lumber and other interests.

1854. "St. Louis was a squalid border town."

We quote the above from Ingalls because of historical mention. "St. Louis, a squalid town" at that period. No sleeping cars and no dining cars in those days; the "American Desert" was a fact at that time and the railroad ended at Jefferson City.

What wonderful changes have taken place since Ingalls made his journey into the West, and how short the time! Men in middle years recollect that period distinctly. Will this State go forward as rapidly in the future as in the past? Why not? When Ingalls crossed Missouri at that time there were only 680,000 people in the State; less than the population today of St. Louis.

PROBABLE FUTURE OF MISSOURI.

It is no great stretch of imagination to suppose that Missouri will have a population, not far away in the future, as dense as Ohio, which will give her a vastly increased population over the present.

With a doubling of population there will be a great increase in land values throughout the State. The average price of improved land today is \$25 per acre; unimproved is \$10. Much improved is higher in price, while much is only \$10, \$15 and \$20 per acre.

CONDENSED IMPORTANT FACTS RELATING TO MISSOURI.

Altitude. Highest in the State, Cedargap, Wright County, 1,683 feet high.

Climate. St. Louis: Average annual January temperature, 30; average annual July temperature, 79; highest temperature, 106; lowest temperature, 22 below zero. Average annual rainfall, 41.1 inches.

Dimensions. Extreme breadth, east to west, 300 miles; extreme length, north to south, 280 miles.

History. Lead mines attracted attention, 1720. Settlement at St. Genevieve, 1735. Territory ceded by France to Spain, 1762; retroceded by Spain to France, 1800; sold by France to the United States, 1803.

Montana Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
K			N			S					
*Kalispell .....2.....5,549			Neihart .....10.....268			Saco .....5.....260			Twin Bridges .21....491		
Kendall .....11.....1,280						Saint Peter .....10.....302			Twodot .....19.....290		
			P			Saint Regis .....7.....350			V		
L			Paradise .....6.....250			Saltese .....10.....980			Victor .....13.....374		
Laurel .....26.....806			Park City .....26.....460			Sandcoulee .....10.....980			*Virginia City .21....467		
*Lewistown .....11.....2,992			Philbrook .....11.....208			Shelby .....3.....206			W		
*Libby .....1.....630			*Philipsburg .14.....1,109			Sheridan .....2.....399			Walkerville ...16.....2,491		
Lima .....20.....385			Plains .....6.....481			Sidney .....12.....362			Washoe .....25.....320		
*Livingston .....23.....5,359			Polson .....2.....369			Smith .....25.....382			Wataga .....24.....360		
Lothrop .....7.....250			Pony .....21.....369			Somers .....2.....750			Wayne .....10.....250		
M			Poplar .....5.....260			Stanford .....11.....240			Westbutte .....4.....362		
Malta .....5.....433			Prickly Pear			Stevensville ..13.....796			West End.....22.....406		
Manhattan .....22.....460			Junction .....9.....1,208			Stockett .....10.....1,404			Whately .....5.....508		
Marysville .....9.....1,506			Princeton .....14.....302			Sun River .....10.....448			Whitefish .....2.....1,479		
Meaderville .....16.....1,838						Sweetgrass .....3.....290			Whitehall .....17.....417		
Melrose .....16.....208			R						*White Sulphur		
Melstone .....11.....262			Radersburg ...18.....364			T			Springs .....19.....417		
*Miles City .....28.....4,697			*Red Lodge .....25.....4,860			Terry .....28.....706			Wibaux .....12.....487		
*Missoula .....7.....12,869			Rosebud .....27.....250			*Thompson .....6.....325			Wickes .....17.....202		
Monarch .....10.....385			Roundup .....11.....1,513			Three Forks ..22.....674			Willow Creek .22.....208		
Monda .....5.....350			Ruby .....21.....260			*Townsend .....18.....759			Wisdom .....20.....250		
Moore .....11.....573						Trail Creek .....23.....562			Z		
						Troy .....1.....208			Zortman .....4.....350		

MONTANA

A Great State, Great in Cattle Raising, Great in Mining and Great in Opportunities for Irrigation.

This is a great State. Great in size. Great in mountains and wild scenery. Great in its sheep and cattle "on a thousand hills." Great in its inexhaustible mineral resources, great in its output of gold, silver and copper; great in its millions of acres of government land yet unappropriated. Great in stupendous mining operations and great in its possibilities for land seekers who will settle in the irrigated valleys and raise ripe, fresh agricultural and horticultural food products to feed the miners who get good pay and are willing to pay a liberal price for good things to eat.

EARLY EXPLORERS

In a search for furs a Frenchman and his sons wandered through these mountain fastnesses, as early as 1742. Lewis and Clarke, in 1805, marveled at the great water falls, climbed over the Rocky Mountains and went westward to the Pacific Coast. Following came a trading post on the Yellowstone River in 1809, and a fur station up in the valley country in 1827, erected Fort Union at the junction of the Milk River with the Missouri River.

Five years went by when the denizens at the fort were surprised one day, in 1832, by the arrival of a small steamer called the Yellowstone. Fort Buford was constructed at the junction of the Yellowstone River with the Missouri and the steamer Assiniboine got up to that point in 1835.

In 1846, close up to Great Falls, Fort Benton was built in Choteau county and the steamer Chippewa reached that point on the Missouri River in 1860, and established that as the head of navigation. For 23 years the Missouri River was the great thoroughfare for getting into the interior of Montana and not until the Northern Pacific Railroad reached Helena, in 1883, did the Missouri River traffic die out.

TWO GREAT DIVISIONS.

There are two great divisions of the State in topography. The western, one-third of the State, is mountainous; the eastern, two-thirds, a vast undulating, rolling expanse of prairie, gradually rising from the east to the Rocky Mountains, broken only by river valleys and occasional groups of mountains.

The prairie counties are Valley, Dawson, Custer, Rosebud, Yellowstone, Carbon, Sweet Grass, Fergus and Choteau, and a larger part of the Teton and Cascade counties. The other counties are mountainous, include the mineral regions and fertile agricultural valleys aided by irrigation and the continuous sunshine.

A COLD AND DRY CLIMATE

The climate of the State is dry and bracing, the winters are at times very cold, but as thorough preparation is made for cold weather and the sun is nearly always shining in the daytime, the winters are pleasant seasons. Formerly stockmen lost heavily of their sheep and cattle from the cold, but having learned the peculiarities of winters, and the necessity of having feed and shelter in severe weather, the loss by snowstorms and sudden cold no longer continues as formerly.

LENGTH OF OUTDOOR SEASONS.

The length of the warmest outdoor season may be judged by the opening of the tourist season in Yellowstone Park, June 1, and ending September 1, but one month may be added to that in the spring and two delightful months in the fall, while many people claim that with the continually clear air and wealth of sunshine all seasons, especially in the valleys and on the low lands, are delightful.

WHERE TO INVESTIGATE CONDITIONS.

The land seeker coming into Montana to procure acres and cultivate the soil, after going to the centrally located land offices, easily found from our table of county seats, and list of government land offices, which we publish elsewhere, will find it advantageous to consult mine owners as to where they get food supplies and the cost. Groccerymen are also well informed, hotel keepers know where they get the best of vegetables and fruits, market gardeners know what can be produced in this climate to best advantage, men in charge of irrigation works know where other well located fruit and vegetable land is located, and real estate dealers are conversant with prices. They are also well informed about lands and probably are best authority that can be consulted as to agricultural possibilities in the region.

The buyer of land should go slow enough and deliberate enough to get well situated on a small tract of ground near a flourishing mining town. We say small because that will mean less expense, better cultivation and greater profit. We are alluding now to the market gardener and the horticulturist. If the investor desires to engage in stock raising that is another matter. The government land offices and stock dealers can give required information to the land seeker.

Montana Opportunities in Agriculture and Varied Enterprises

The following brief outline of counties may aid a little in selection, but it is wisdom to **only buy** real estate after seeing the land and carefully investigating all the conditions, relating to title, cost of cultivation, distance to markets, market prices, etc.

LARGELY DEPENDING ON IRRIGATION.

This is a dry climate, where agriculture is largely depending, in fruit and vegetable culture, on irrigation, and among the first propositions will be investigation relating to **water supply**, though it may be understood that 40 per cent of the tilled lands of the state are now producing **without the aid of irrigation**. By the provisions of the new irrigation bill the **United States** government will irrigate the land and give the settler ten years to pay the cost. Thus if it costs \$20 an acre, the farmer will pay \$2 a year for 10 years and the cost is paid. If to put in the irrigation works costs \$10 an acre, one dollar a year, without interest, will remunerate the government, and the debt be paid in 10 years.

Several irrigation enterprises are going forward in Montana and various plans are pursued in paying for first putting the works in. Some irrigation companies obtain a large tract of land, build canals leading water to these lands, and sell, with irrigation, for a small weekly or monthly payment. Since the new irrigation law has come into force, which gives the settler a chance to make a small annual payment, without interest, thousands of farmers are buying irrigated land, preferring to pay for absolute assurance that they can raise crops, independent of rainfall. The whole situation relating to irrigation is soon learned when the land seeker arrives in the region where he proposes to settle. See our description of Government Irrigation elsewhere.

GREAT OPPORTUNITIES FOR IRRIGATING.

Because of the uneven surface of the entire state and so many streams coming from the highlands, it is believed to be a conservative statement that **one-fourth** of all the land in the state is susceptible to irrigation. This applies particularly to the agricultural land in the mountainous regions of the western parts of the state where water from the mountain sides can be easily conveyed to the lands in the valleys.

This also applies to a large portion of the eastern counties. Thus Valley county, now principally devoted to stock raising, can have 300 square miles successfully irrigated. Our table of government lands shows a good deal of government land yet left in this county.

In favor of irrigation it may be said that average lands worth \$2.50 per acre can have a value of \$50 and \$100 per acre placed on them after they receive water.

Choteau County has seventy rich valleys with some irrigated land where the farmers are highly prosperous. The most of the land is yet unoccupied and new settlers will be welcomed here. It costs about \$3 an acre to put water on this land, which can be paid for with the first crop.

In Teton County an irrigation company has reclaimed some 40,000 acres, have sold a good deal of their land, but a large amount yet remains unsold. The price of land, with water, is \$15 per acre up.

WAITING FOR NEW SETTLERS.

Flathead County, in the beautiful Flathead valley, thirty-five by eighteen miles in area, with tens of thousands of acres of forest lands on the higher

elevations adjoining, waiting for the incoming homesteaders. The Chinook winds, from the Pacific, flow in here and the **winter climate is mild**, so mild the thermometer very seldom reaches down to zero.

Dawson County is adapted to, and is at present utilized for stock raising. It has rich valleys which could easily be irrigated.

Fergus County has varied resources: timber covered mountains and valley lands with different soils, mining lands and coal beds.

Cascade County has numerous resources, among them great water power, coal, iron and a rich soil for growing agricultural products.

Lewis and Clarke County is one of the most prolific producers of precious metals of any county in the state, has a large area of farming land easily irrigated and persons interested in searching for gold should investigate the mineral opportunities of this county.

VALUES ADDED BY IRRIGATION.

The last United States Government Report of agriculture, mining and irrigation in Montana gives the following as the increased value of lands in each county, the result of irrigation:

Counties—	Average Value per Acre Exclusive of Buildings.	Average Cost for Water per Acre.	Annual Maintenance.
Beaver Head	\$3.38.....	\$13.24.....	\$.20
Broadwater	5.43.....	16.74.....	.16
Carbon	3.20.....	19.69.....	.26
Cascade	4.09.....	15.04.....	.31
Choteau	2.25.....	13.88.....	.27
Custer	2.32.....	20.47.....	.79
Dawson	2.04.....	12.19.....	.39
Deer Lodge	4.70.....	20.48.....	.23
Fergus	2.10.....	12.70.....	.21
Flathead	11.58.....	32.46.....	.52
Gallatin	10.74.....	31.22.....	.13
Granite	5.20.....	14.99.....	.27
Jefferson	2.59.....	22.31.....	.14
Lewis and Clarke.....	5.26.....	14.00.....	.20
Madison	6.18.....	17.70.....	.23
Meagher	1.25.....	12.49.....	.14
Missoula	8.46.....	55.91.....	.33
Park	4.75.....	15.73.....	.33
Ravalli	6.44.....	27.46.....	.12
Silver Bow	5.54.....	23.77.....	.17
Sweet Grass	2.32.....	21.31.....	.68
Teton	4.22.....	14.82.....	.32
Valley	3.52.....	18.47.....	.15
Yellowstone	1.37.....	32.15.....	.49

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest, Emigrant Peak, in Park Co., 10,969 feet.

Climate. Mild but bracing. Summers warm and dry, nights cool. Winters short and tempered by Chinook winds. Autumn most delightful season. Severest cold after Christmas. Rainfall light.

Average annual temperature, state, 46°. Highest 103, lowest 42 below. Average annual rainfall at Helena, 13 inches.

Dimensions. Length of state north and south, 315 miles; breadth, east and west, 580 miles.

History. Explored by Lewis and Clarke, 1804-6. Trading post established on Yellowstone River, 1809. Fort Union, in Dawson Co., built in 1827. Fort Benton, in Choteau Co., on Missouri River, erected 1846. Territory organized 1864, admitted to the Union 1889.

MEN GET HOMES—WOMEN GET HUSBANDS AT CHINOOK, MONTANA.

Chinook, Mont.

Max Bass, Dear Sir:—In my sixteen years' experience in the Milk river valley I have never felt more optimistic over the prospects for the valley than at the present time.

The government, under the beneficent "Irrigation Act," is already at work on the St. Mary's Milk River Project that will reclaim at least a quarter of million acres more of our rich, but arid, valley lands.

Our extensive public ranges bearing the world-renowned bunch and blue joint grass, and our short mild winters will make this one of the greatest stock producing centers of the west.

Our present need is for more help on our ranches. Farm hands have been getting \$40 per month for nine months of the year for the past four years. Girls for housework get from \$18 to \$25 per month,

and have many advantages not accorded to the domestics employed in the older settled sections of the United States. Men who come here to work soon get themselves a piece of land and the girls soon get a man, thus instead of increasing the supply, they increase the demand for more laborers. Work can almost always be secured here in the winter, though, of course, at somewhat lower wages.

The shortage of labor has depreciated the price of land and it is said by competent authority that land is cheaper here in proportion to its productivity, than almost anywhere in the United States. Irrigated lands can be purchased here now for \$25 per acre that can be made to yield a handsome interest on three times that price. There are also undoubtedly many acres of vacant public land, open to homestead and desert entry, that will some day be irrigated.

Yours respectfully,

W. B. Sands.

Montana—General Information About Irrigation

METHODS OF IRRIGATION.

The Twentieth Century Farmer Gives Herewith Directions and Important Suggestions On How to Irrigate Properly.

Since the practice of irrigation is coming into general use over a continually increasing area, a discussion of the methods of conducting and the advantages that come from such a system may not be entirely inappropriate.

WHERE TO GET WATER.

When farming under irrigation, in addition to buying a farm, water must also be procured. This may come from two sources. Either from the natural mountain streams or by the melting snows that have accumulated on the mountain sides and in the canyons during the winter months, or from storage reservoirs in the foothills where the water from snows and rains may be retained until liberated for irrigation.

BUYING LAND WITH WATER RIGHT.

When valley land is first taken up the farmers file a claim for so many miners' inches, as that is the basis for measuring irrigation water, in the nearest mountain stream, with the state government, and these "prior rights" are recognized. After all the water has been taken in this way the usual method is to buy a certain portion from an early settler or by building large storage dams across the canyons increase the amount of water available during the irrigation season. Most of the Montana valley lands at present are covered by a water right, and these have been adjusted for some time, so that when a farm is purchased the water right is included.

WATER COMMISSIONER'S DUTY.

As the water rights frequently include land several miles from the main stream, canals are built through the farms that are watered from the stream. Headgates are provided and the amount of water to which each farm is entitled may be taken out. The adjusting of these is usually done by a "water commissioner," a man named by the local judge to apportion the water out as it has been filed upon.

LAND MUST BE MADE LEVEL.

The first essential to the proper irrigation of a field is that it must be as near level as possible. This is usually brought about by going over the field just before seeding the crop with a large leveler. This is usually made by firmly bracing several 2x6 12-foot boards, usually four, about three feet apart, and going over the field, over each way, with this implement. This removes the small irregularities, filling the low places and smoothing off the higher places.

MAIN DITCHES, LATERALS AND DAMS.

When the crop is up several inches the main and lateral ditches have to be made. The main ditch comes from the canal and runs across the farm on the highest ground. The laterals radiate from the main, starting out every 60 to 100 feet, according to the contour of the field. They are run to grade, giving them a fall of about one-tenth of a foot in the 100 feet. If greater fall than this is allowed there is danger of great annoyance from

the washing and cutting of ditches. These are usually about four inches deep and are run with a double mold board plow. If the lateral ditches are plowed before the grain is up great annoyance comes from the grain growing up through the sides. As soon as the side ditches are plowed dams every twenty feet are constructed. This is usually done by means of a dammer, which consists of a flat board face fastened to the frame of an ordinary plow. This is drawn along the bottom of the ditch and when sufficient earth is collected in front it is simply raised and the small dam remains. These settle and by irrigating time are effective dams.

WHEN TO IRRIGATE.

It is unwise to irrigate before the crop is up so as to fully shade the ground. If done before this time, the baking of the soil which comes as a result of the rays of hot sun makes undesirable crop conditions. A crop of grain such as oats or wheat about April 15, will be fit to irrigate July 1.

AFTER WATER IS TURNED ON.

When the water is turned in the main ditches it is allowed to run past about four laterals and then is dammed. This forces it into the laterals. As it flows down these and comes in contact with the previously constructed dams it spreads and is held here until the space between the laterals is entirely flooded. The first dams are then cut out and it moves on to the next, where it is stopped and spreads again.

WHAT MAN CAN DO IN IRRIGATING.

A good active man can attend to water for about four or five laterals and will get over from three to five acres in twenty-four hours. Not that he will remain in the field all this time, but by regulating the water so that it will spread considerable land may be covered during the night.

RESULT OF IRRIGATION.

An irrigation system affords control of one more of the essential factors in growth than is afforded under ordinary humid conditions, viz.: the moisture supply. This can be added or withheld according as the needs of the growing crops dictate and the effect is shown in the yields obtained. In Montana, where irrigation has reached a high state of perfection, a yield of 140 bushels of oats per acre is not uncommon. On the Montana Experiment Station farm, a yield of 146½ bushels of oats to the acre was harvested this last season.

CROPS THAT ARE HIGHLY BENEFITED.

While all the cereal crops do exceptionally well under irrigation, one crop that gives phenomenal returns is sugar beets. It is recognized that late rains which induce late growth in sugar beets cause a marked reduction in the sugar content. When the moisture can be controlled this does not occur and very high sugar content and high purity results. Under this condition 22 per cent sugar is not uncommon. Alfalfa grows splendidly under irrigation and the perfect curing that is possible gives a feed of the highest quality. In all the many hours of sunshine as a result of the cloudless days, coupled with "water only when best," makes conditions for maximum production.

WHAT FARMERS THINK OF MONTANA.

CHANCES BETTER IN MONTANA.

Mr. Max Bass.

Great Falls, Mont.

Dear Sir: Have lived in Montana twenty-four years. In 1884 I engaged in stockraising and farming near Milligan, Mont. I believe that a farmer's chances of success are better in this part of Montana than in any of the eastern states. His income in proportion to the amount of his investment is many times greater; the markets are good; his income is sure, and the value of his holdings is constantly increasing. Have been successful myself and believe that others coming here now can do as well.

J. W. Milligan.

Mr. Max Bass.

Houskin, Mont.

Dear Sir: I have been farming five years. The first year I had a fine crop. My wheat went thirty-seven bushels per acre that year, oats averaged sixty bushels, barley fifty bushels, potatoes 200 bushels, timothy hay two tons per acre. The second year the oats went forty bushels, barley thirty-five bushels, potatoes 100 bushels per acre. The third year my wheat averaged seventeen bushels to the acre, oats twenty bushels, barley twenty bushels, potatoes about seventy-five bushels to the acre. My potato crop was poor that year, because I planted on too wet ground. Hay about

one ton to the acre. The fourth year wheat went ten bushels to the acre, barley thirty bushels, potatoes 250 bushels per acre, hay one and one-half tons to the acre. Last year wheat averaged fifteen bushels per acre, barley fifty bushels, potatoes 150 bushels, hay one ton per acre.

The years 1904 and 1905 were said to be the driest during the last fifteen years. The climate is very good and my stock is looking fine.

Yours truly,

Fred Gustafson.

Mr. Max Bass.

Houskin, Mont.

Dear Sir: I came here from South Dakota seventeen years ago and I think Montana the best state for a poor man who is willing to work that I have ever seen. I have grown good crops for the past 16 years. Wheat will average twenty-five to thirty bushels per acre, oats forty-five to fifty bushels, barley forty to fifty bushels, potatoes 125 sacks, averaging fully 100 pounds to the sack, and good crops of timothy and alfalfa. All without irrigation.

This is a fine country for stock. Climate is very good and we have fine spring water.

Yours truly,

John J. Tofte.

STATE AND THE 92 COUNTIES OF NEBRASKA

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF NEBRASKA COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Sioux.....	8,254	25.....	Garden.....	3,538	49.....	Lincoln.....	15,684	73.....	Kearney.....	9,106
2.....	Dawes.....	8,254	26.....	Grant.....	1,097	50.....	Dawson.....	15,961	74.....	Adams.....	20,900
3.....	Box Butte.....	5,599	27.....	Hooker.....	981	51.....	Sherman.....	8,278	75.....	Clay.....	15,729
4.....	Sheridan.....	7,328	28.....	Thomas.....	1,191	52.....	Howard.....	10,783	76.....	Fillmore.....	14,674
5.....	Cherry.....	10,114	29.....	Blaine.....	1,672	53.....	Nance.....	8,926	77.....	Saline.....	17,866
6.....	Keypaha.....	3,152	30.....	Loup.....	2,188	54.....	Merrick.....	10,379	78.....	Gage.....	30,325
7.....	Boyd.....	8,836	31.....	Garfield.....	3,417	55.....	Polk.....	10,531	79.....	Johnson.....	10,187
8.....	Brown.....	6,083	32.....	Wheeler.....	2,592	56.....	Butler.....	15,403	80.....	Nemaha.....	13,095
9.....	Rock.....	3,627	33.....	Banner.....	1,444	57.....	Saunders.....	21,179	81.....	Dundy.....	4,098
10.....	Holt.....	15,545	34.....	Kimball.....	1,912	58.....	Douglas.....	168,546	82.....	Hitchcock.....	5,415
11.....	Knox.....	18,358	35.....	Cheyenne.....	4,551	59.....	Sarpy.....	9,274	83.....	Red Willow.....	11,056
12.....	Cedar.....	15,191	36.....	Deuel.....	1,786	60.....	Buffalo.....	21,907	84.....	Furnas.....	12,083
13.....	Dixon.....	11,477	37.....	McPherson.....	2,470	61.....	Hall.....	20,361	85.....	Harlan.....	9,578
14.....	Dakota.....	6,564	38.....	Logan.....	1,521	62.....	Hamilton.....	13,459	86.....	Franklin.....	10,303
15.....	Antelope.....	14,003	39.....	Custer.....	25,668	63.....	York.....	18,721	87.....	Webster.....	12,008
16.....	Pierce.....	10,122	40.....	Valley.....	9,480	64.....	Seward.....	15,895	88.....	Nuckolls.....	13,019
17.....	Wayne.....	10,397	41.....	Greeley.....	8,047	65.....	Lancaster.....	73,793	89.....	Thayer.....	13,019
18.....	Thurston.....	8,704	42.....	Boone.....	13,145	66.....	Cass.....	19,786	90.....	Jefferson.....	16,852
19.....	Madison.....	19,101	43.....	Platte.....	19,006	67.....	Otoe.....	19,323	91.....	Pawnee.....	10,582
20.....	Stanton.....	7,542	44.....	Colfax.....	11,610	68.....	Chase.....	3,613	92.....	Richardson.....	17,448
21.....	Cuming.....	13,782	45.....	Dodge.....	22,145	69.....	Hayes.....	3,011			
22.....	Burt.....	12,726	46.....	Washington.....	12,783	70.....	Frontier.....	8,572			
23.....	Scotts Bluff.....	8,355	47.....	Keith.....	3,692	71.....	Gosper.....	4,933			
24.....	Morrill.....	4,584	48.....	Perkins.....	2,570	72.....	Phelps.....	10,451			
									Total.....	1,192,214	

Nebraska Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			Arlington	46	645	Barnston	78	228	Belvidere	89	475
Abie	56	219	Arnold	39	231	Bartley	83	511	Benedict	63	336
Adams	78	647	Ashland	57	1,379	*Bassett	9	383	*Benkelman	81	538
*Ainsworth	8	1,045	Ashton	51	404	Battle Creek	19	597	Bennet	65	457
*Albion	42	1,584	Asylum	65	601	Bayard	24	261	Bennington	58	276
Alexandria	89	447	Atkinson	10	811	*Beatrice	78	9,356	Benson	58	3,170
Allen	13	317	Atlanta	72	251	*Beaver City	84	975	Bertrand	72	643
*Alliance	3	3,105	*Auburn	80	2,729	Beaver Cross-			Bethany	65	948
*Alma	85	1,066	Auburn Station	80	2,630	ing	61	542	Bladen	87	491
Alvo	66	225	*Aurora	62	2,430	Bee	61	207	*Blair	46	2,584
Amherst	60	256	Avoca	66	219	Beemer	21	494	Bloomfield	11	1,261
Anselmo	39	351	Axtell	73	394	Beiden	12	247	*Bloomington	86	507
Ansley	39	701				Belgrade	53	401	Blue Hill	87	761
Arapahoe	84	901				Bellevue	59	596	Blue Hill Jct.	87	712
Arcadia	40	618	Bancroft	21	742	Bellwood	56	397	Bradshaw	63	359

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Nebraska Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Brady	49	328	Farnam	50	462				*Rushville	4	633
Bradford	56	465	Firth	65	543				Ruskin	88	339
Brewster	29	225	Florence	58	1,526						
*Bridgeport	24	541	Fort Calhoun	46	324				St. Edward	42	814
Brock	80	434	Fort Crook	59	203				*St. Paul	52	1,336
*Broken Bow	39	3,261	Fort Robinson	2	201				Sargent	39	651
Brownville	80	457	Franklin	86	949				*Schuyler	44	2,152
Brule	47	481	*Fremont	45	8,718				Scotia	41	328
Bruning	89	245	*Friend	77	1,261				Scottsbluff	23	1,746
Bruno	56	225	*Fullerton	53	1,638				Scranton	45	891
Brunswick	15	278							*Seward	61	2,106
Burchard	91	805							Shelby	55	503
Burke	61	401							Shelton	60	1,005
*Burwell	31	915							Shickley	76	421
*Butte	7	551							Shubert	92	314
									*Sidney	35	1,181
									Silver Creek	54	379
Calro	61	364							Sioux	14	1,003
Calhoun	46	346							Snyder	45	314
Callaway	39	765							South Auburn	80	801
Cambridge	84	1,029							South Omaha	58	26,259
Campbell	86	573							So. Sioux City	14	1,196
Carleton	89	393							Spalding	41	637
Carroll	17	382							Spencer	7	671
Cedar Bluffs	57	501							Springfield	59	463
Cedar Rapids	42	576							*Springview	6	216
*Central City	54	2,428							Stamford	85	301
Ceresco	57	296							*Stanton	20	1,342
*Chadron	2	2,687							Staplehurst	64	228
Chapman	54	266							Steel City	90	302
*Chappell	36	329							Steinauer	91	248
Chester	39	564							Stella	92	431
Clarks	54	695							Sterling	79	714
Clarkson	41	647							Stockham	62	601
Clatonia	78	233							*Stockville	70	232
*Clay Center	75	1,065							Strang	76	238
Clearwater	15	414							Stratton	82	367
Coleridge	12	525							Stromsburg	55	1,355
Collegeview	65	1,508							Stuart	50	321
*Columbus	43	5,014							Summer	50	321
Comstock	39	323							Superior	88	2,106
Cook	79	387							Surprise	56	323
Cordova	64	201							Sutherland	49	447
Cortland	78	264							Sutton	75	1,702
Cozad	50	1,096							Swanton	77	285
Crab Orchard	79	279							Syracuse	67	842
Craig	22	338									
Crawford	2	1,323									
Creighton	11	1,373									
Creston	43	338									
Crete	77	2,404									
Crofton	11	611									
Culbertson	82	581									

Opportunities in Agriculture and Varied Enterprises

NEBRASKA

ONE OF THE GREAT YOUNG WESTERN STATES WITH NUMEROUS IMPORTANT INDUSTRIES BEING DEVELOPED.

Nebraska is one of the largest states, having an area of 76,855 square miles, being more than six times as large as the state of Massachusetts.

ALL RIVERS SLOPE TO THE MISSISSIPPI RIVER.

It occupies an elevated plateau, the lowest portion being in the southeastern part of the State, where the elevation is 880 feet. The eastern half of the State has an average elevation of 1,400 feet and the whole State averages 2,312 feet above the sea.

The principal rivers are the Missouri, along the eastern boundary, and the Platte, Niobrara and the Republican, all flowing east. There are few swamps and marshes, but quite a number of small lakes.

ATMOSPHERE DRY AND INVIGORATING.

Though great extremes of heat and cold are experienced in this State sometimes, they are not usual. The mean temperature is about 51, ranging from 94 above to 17 below zero. The mean temperature of the North Platte is 46. The annual rainfall is about 22 inches.

Though the climate is mild and dry, growth rarely damages the crops, for the soil is such that it withstands extreme and prolonged heat. The mean temperature during the winter months ranges from 22 to 30 degrees, that of the spring from 47 to 49 degrees, of the summer from 70 to 74 degrees, and of the autumn from 49 to 51 degrees.

HEAT TEMPERED BY PRAIRIE WINDS.

The heat of the summer is tempered by the prairie winds, and the nights are usually cool. The greatest amount of rain falls in May and June. The average annual temperature for 15 years at Kearney was 47.53; at Omaha it is about 48. The average annual rainfall at Kearney is 25.25 inches. In parts of the west and southwest it is 17 to 19 inches.

AGRICULTURE AND AGRICULTURAL POSSIBILITIES.

Give to a good climate a strong rich soil and thereon will be ultimately a prosperous, wealthy population. As all wealth comes from the soil, we can largely estimate the future of a region by its fertility.

The Soil in the eastern part of this State is a rich black vegetable mold from 2 to 10 feet deep, slightly impregnated with lime, free from stones or gravel, easily plowed and underlaid by a yellow clay in most places.

Up to the present time the cultivation of the soil and stock raising are the principal industries of the State. Of the 49,177,600 acres, the grazing sections comprise about 23,000,000 acres, or about one-half of the State. This entire region for the most part is well watered.

FORMERLY A GREAT CATTLE REGION.

The wild grasses which formerly covered large portions of the State were very nutritious and large herds of cattle from Texas were pastured and fattened here for the eastern markets. The steady settlement, taking up and fencing off the land is changing the whole region into an area of cultivated farms.

We say "is changing," from the fact that this is a young state yet, with only about a small number of persons to the square mile, less than a third as dense a population as Missouri and less than a half that of Kansas.

Though Nebraska is a young State, with over 4,000,000 acres of government land in the state not taken up yet, the yield of cereals in one recent year in Nebraska was, wheat, 48,002,603 bushels; oats, 58,474,370 bushels, and 263,551,772 bushels of corn, being third in rank in the corn-producing States.

DEVELOPMENT IN MANUFACTURING.

But while the rich soil of the State will always make Nebraska an agricultural State, it is already becoming a good deal of a manufacturing point as illustrated in the fact that in 1906 the annual value of manufactured products in the State in a late year was 154,918,220. To make that product, 20,260 wage-earners were employed to whom was paid \$11,022,149.

Omaha, the metropolis of the State, has one of the most complete establishments in the United States for smelting, separating and refining ores, of gold, silver, copper, lead and zinc, brought here from mining regions on the line of the Union Pacific and other railroads. Other industries include machine shops, distilleries and manufacturers of brick, steam engines, etc. In South Omaha are the extensive stock yards of the Union Pacific Railroad, occupying a large tract of land.

Omaha is the third largest pork-packing city in the world, with immense packing houses having plants valued at over \$2,500,000.

ELEVATORS, SALT, LEATHER, FURNITURE.

Lincoln, a great railroad center, has foundries and grain elevators, extensive manufactures of salt, also leather, furniture, bricks and tiles. Other cities in the State are rapidly developing manufacturing institutions, among these Kearney, Nebraska City and Hastings, all places of importance, while Beatrice, in the southeastern part of the state, has large quarries.

A GREAT COMING INDUSTRY.

The manufacture of sugar from the sugar beets is evidently destined to be one of the large industries of the state, and to make this an absolutely safe enterprise the United States government is entering upon an extensive system of adding to the productive power of the western part of the state by irrigation. The following is the outline of the plan mapped out, which will affect Scotts Bluff, Banner and Cheyenne counties in western Nebraska.

NORTH AND SOUTH PLATTE RIVERS.

There are two important rivers in the western part of this state. One, the North Platte, which enters Nebraska at Scotts Bluff county, and flows eastward across the entire state, a distance of over 400 miles, emptying into the Missouri River at Plattsmouth, some fifteen miles south of Council Bluffs.

The other river is the South Platte, which comes in from Colorado, enters Nebraska in Deuel county, flows eastward and joins the North Platte River at the town of North Platte in Lincoln County.

IRRIGATION IN NEBRASKA.

Examination has shown that a considerable body of land can be irrigated by holding the North Platte in certain natural reservoirs in eastern Wyoming and by the construction of an interstate canal 25,000 acres of sandy land can be reclaimed in Wyoming and 900,000 acres in Nebraska.

The head-gate for this interstate canal will be at a point about midway between Guernsey and Fort Laramie in Wyoming on the North Platte River and the canal will extend 150 miles into Nebraska to the vicinity of Bridgeport in Cheyenne County.

The lands benefited by this government irrigation project in Nebraska lie in Sioux, Scotts Bluff, Banner and Cheyenne Counties. By examination of our counties having government land therein it will be seen that a large amount of government sandy land is in Cheyenne, Scotts Bluff and Sioux Counties and a barren soil all along this 150 miles of irrigation canal will become highly fertile.

The particulars about the opening of this land by the government to settlement, cost of land, etc., can be learned by addressing the Government Land Department, Alliance, Boxbutte County, Nebraska.

Nebraska Opportunities in Agriculture and Varied Enterprises

Ask also about other irrigation schemes in Nebraska. It is claimed that in 1895 the State at that time had 2,219 miles of irrigating canals, built or under construction.

THE DENVER MARKETS.

A study of railroad maps will show that this newly reclaimed land will, by the Burlington and Union Pacific railways be but a short distance from Denver, which market will call for all the fruits, melons and early vegetables that can be raised in those counties.

Naturally, as sugar beet raising is coming into practice in Nebraska, this irrigated land will be a sure producer of this product.

It may interest the reader to know that mechanical devices have been so perfected in harvesting beets that a team, driven by the side of a row of beets, so drives an appliance under the beets so as to lift the vegetable from the ground, top it and carry it by an endless apron to a wagon by the side of the machine. Thence, fresh from the ground, with the soil still clinging to them, and without a touch of human hand, they pass on through the factory, from one process to another, until in eighteen hours' time they come out white sugar ready for the market.

MAY BE CENTER OF SUGAR PRODUCTION.

With a favorable climate for growing the beet, with a fertile soil adapted to its production, with all the latest modern appliances for the conversion of the juices of the beet into sugar, it is possible that Nebraska may become the center for the beet sugar industry of the United States.

We advise the land-seeker to write to the United States Department of Agriculture for Bulletin No. 257, entitled "Soil Fertility," and Bulletin No. 52, entitled "Sugar Beet," and after a study of these write to Scyler, Colfax Co., managers of the sugar beet colony at Grand Island, Hall County, and Norfolk, Madison County, asking what inducements they offer to growers of beets. It should be unnecessary for us to say here that in order to get a prompt answer it is always wise to enclose with a letter a prepaid return envelope.

ALWAYS DEMAND FOR SUGAR.

There will be a never-ceasing call for syrups and sweets, whether made as a glucose from corn, from fruits, sorghum, from maple trees, from flowers by bees, from sugar cane or sugar beets, it always will be in demand and will sell; with what profit depends upon management in the production of the article.

The land seeker who will hunt down the sugar beet, go into and raise it, may certainly have a prosperous future.

CONDENSED IMPORTANT FACTS RELATING TO NEBRASKA.

Altitude. Highest at White River summit, in Dawes County, 4,876 feet.

Climate. Omaha, average in January, 19 above; July, 74. Highest, 106; lowest, 32 below. Average annual rainfall, 31.7 inches.

Dimensions. Extreme breadth from east to west, 415 miles. Extreme length from north to south, 205 miles. Area, 77,510 square miles.

History. Was originally a part of the Louisiana Purchase ceded by France to the United States in 1803. Visited by Lewis and Clark in 1804-5. Platte Valley explored by Major Long, for United States Government in 1820. First settlement by whites at Bellevue, Sarpy County, 1847. Nebraska Territory organized in 1854. Admitted to Union in 1867. Bellevue first capital. Seat of government removed to Omaha in 1855; to Lincoln in 1867.

Lakes in Nebraska.

Miles Miles

	Long.	Wide.
Clear Lake, Cherry Co.....	1½	¾
Cottonwood Lake, Holt Co.....	1	¾
Dad's Lake, Cherry Co.....	3½	1½
Freshwater Lake, Cherry Co.....	1	½
Marsh Lake, Cherry Co.....	2	1
Moon Lake, Brown Co.....	4	1
Pelican Lake, Cherry Co.....	2	1
Red Deer Lake, Cherry Co.....	2	1
Swan Lake, Holt Co.....	1¾	¾
Twin Lake, Brown Co.....	1½	¾
Willow Lake, Brown Co.....	1	½

DIFFERENT VARIETIES OF TREES IN NEBRASKA.

Native Forest Trees. Of forest trees the leading variety is the Cottonwood which grows luxuriantly on river bottoms, and many uplands. The ash-leaved maple, soft maple, elms, various species of ash, lindens and willows are in various parts of the state about equal in abundance. The most valuable tree is the black walnut, which grows luxuriantly. The red cedar is abundant in some sections. Spruce and pine are found on tributaries of the Niobrara and Loup, and in the extreme western part of the state. Shrubs are well represented. Wild fruits abound; among which plums and grapes are most conspicuous. The grapes are limited to timber belts. The smaller wild fruits are widely distributed over the state. Grasses and corn are the principal products. Corn, especially, is a rarely failing crop. Eastern Nebraska is eminently adapted to the growth of apples, grapes, plums and cherries do equally well. Peaches are successfully grown south of the Platte.

Mining. The mineral wealth of the state consists mainly of bituminous black and lignite coal in the beds, with a little iron. Valuable beds of limestone, yellowish gray sandstone and red freestone. Also good brick and pottery clay, and remarkably pure salt.

CAN MAKE ENTRY OF 640 ACRES.

In 1904 Congress passed an act known as the Kinkaid Bill, under the terms of which large tracts of public lands in northwestern Nebraska, reached by the line of the Chicago & North-Western Railway, were thrown open to settlement. The principal feature of the Kinkaid Bill is that the applicant may, in the territory named, make entry under the homestead laws of 640 acres (one square mile) instead of 160 acres of land. The purpose of this is to enable the homesteader to use his land profitably for grazing purposes.

There are large quantities of these unallotted public lands in Nebraska, situated in the northern part of the state, through which the Chicago & North-Western Railway passes directly. The lands affected have been open to the homesteader in lots of 160 acres for many years, but have not been heretofore taken up to any great extent because of the fact that a quarter-section is not sufficient to use profitably for cattle-raising purposes.

The rainfall in this part of the state is not sufficient for successful farming except by the advanced methods of scientific dry farming, and it is on this account that the Kinkaid Bill has been passed, with the result that a Nebraska cattle ranch, one mile square, absolutely free, is the offer which the Government makes to every man or head of a family in the United States.

From the 8,500,000 acres of these lands, any one desiring to become possessor of a section of grazing land should have no trouble in finding a tract suitable to his taste, and now that the practical merits of dry-farming methods have become established clearly, the value of these lands for agricultural purposes has become much greater than ever before.

As an example of the quality of the lands, Rock County actually ships more hay to market via The North-Western Line from the town of Newport than is shipped to market from any other one point anywhere in the world; while one of the finest potato-raising districts in the West has its shipping center at Gordon, in Sheridan County.

Such towns as O'Neill, Long Pine, Valentine, Rushville, Chadron and Lusk are well equipped with stores, banks, schools and churches, and the whole region is well populated.

Public lands in Nebraska in counties reached by the North-Western Line, that are subject to settlement under the homestead laws under the Kinkaid bill:

Holt, 12,000 acres.
Rock, 4,000 acres.
Keya Paha, 38,040 acres.
Sheridan, 164,280 acres.
Sioux, 417,320 acres.
Boyd, 700 acres.
Brown, 81,450 acres.
Cherry, 1,015,582 acres.
Dawes, 9,000 acres.

Every man or unmarried woman, over the age of 21; every married man under the age of 21; every widow, every minor orphan child of a deceased soldier, or any person who is the head of a family by adoption of a minor child, not already owning more than 160 acres of land and who is a citizen of the United States, may homestead 640 acres of this land, for the same fee charged by the Government for 160 acres in other states. The amount of this fee is \$14.

STATE AND THE 16 COUNTIES OF NEVADA
With Their Boundaries

Location and Population
of
NEVADA COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Washoe..	17,434
2.....	Humboldt..	6,825
3.....	Elko.....	8,133
4.....	Storey....	3,045
5.....	Ormsby....	3,089
6.....	Douglas...	1,895
7.....	Lyon.....	3,568
8.....	Churchill..	2,811
9.....	Lander....	1,786
10.....	Eureka....	1,830
11.....	White Pine..	7,441
12.....	Mineral....	.....
13.....	Esmeralda..	9,695
14.....	Nye.....	7,513
15.....	Lincoln...	3,489
16.....	Clark.....	3,821
Total.....		81,875

Nevada Cities and Vil-
lages with 1910
Populations.

Towns	Loca.	Pop.
A		
Atlanta	15.....	209
*Austin	9.....	1,215
B		
Bannock	9.....	250
Battle Mountain..	9.....	360
Bauvard	3.....	208
Beatty	14.....	302
Black Horse	11.....	390
Blair	13.....	560
Buckskin	6.....	296
C		
Caliente	15.....	598
*Carson City (capital)	5.....	2,466
Cherry Creek	11.....	350
Columbia	13.....	1,099
D		
*Dayton	7.....	576
Delamar	15.....	709
E		
East Ely	11.....	1,560
*Elko	3.....	1,677
*Ely	11.....	2,055
Empire	5.....	327
*Eureka	10.....	1,609
F		
*Fallon	8.....	741
Farrell	2.....	268
G		
Gardnerville	6.....	210
*Genoa	6.....	434
Glenbrook	6.....	223
Golconda	2.....	890
*Goldfield	13.....	4,838
Gold Hill	4.....	2,078
Granite	13.....	202
H		
*Hawthorne	12.....	1,099
I		
Imlay	2.....	250

NEVADA CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
J			P			S		
Jarbridge	3.....	390	Panaca	15.....	350	Schurz	12.....	633
L			Paradise Valley..	2.....	690	Searchlight	16.....	387
*Las Vegas.....	16.....	1,500	Pinegrove	12.....	200	Silver City	7.....	342
Lida	13.....	224	*Pioche	15.....	1,060	T		
Lovelocks	2.....	1,660	Pioneer	14.....	1,260	Sparks	1.....	2,506
Luckyboy	12.....	899	R			Stillwater	8.....	216
M			Rawhide	12.....	5,090	V		
McGill	11.....	2,209	*Reno	1.....	10,867	Verdi	1.....	566
Manhattan	14.....	730	Rhyolite	14.....	808	*Virginia City..	4.....	2,244
Mazuma	2.....	208	Round Mountain ..	14.....	622	W		
N			S			Wadsworth	1.....	1,309
Nelson	16.....	250	T			Wellington	7.....	260
O			U			Wells	3.....	254
Owyhee	3.....	506	V			*Winnemucca ..	2.....	1,786

NEVADA

Down on the western slope of the Rocky Mountains lies a great state called Nevada. In the far-away-back, in the past, many thousands of years ago, when the earth was gradually cooling, the interior heat, in finding vent on the earth's surface, sputtered up through this portion of the earth's

crust, and finally left immense elevations, known as the Sierra Nevada and Rocky Mountains. Naturally, when elevations are made there are valleys between, and with plenty of room on this part of the globe, the valleys are broad. Out of the tops of these elevations volcanic fires threw

Nevada Opportunities in Agriculture and Varied Enterprises

lava which, during the many centuries that these mountain chimneys emitted ashes, settled into the depressions and elevated the floors of the valleys until, in the final cooling of the whole region, these valleys are vast plateaus, elevated 4,000 feet above the sea.

MOUNTAINS STEAL THE MOISTURE.

As clouds cross the elevations the mountains arrest their progress, cause precipitation of cloud moisture which, in the cold upper air, turns to snow. Thus the tall mountains, absorbing the moisture from passing clouds, nothing or little of moisture is left for rainfall in the valleys.

Such is the topography and such are the atmospheric conditions in many portions of the Rocky Mountain region. Tall mountains covered with perpetual snow which melting in the summer sunshine causes the continual and rapid flow of great rivers in the valleys, while lowlands suffering from lack of moisture remain a desert waste.

This whole area occupied by Nevada was ceded to the United States by Mexico in 1848 and settled by Mormons who, in passing across the country had found tracts of land that they deemed favorable for agriculture.

The valley lands of Nevada are from one mile to twenty-five miles wide, the most of them easily cultivated and wonderfully productive. One of the largest of these valleys is in the western part of the state, and mostly in Churchill County. This is known as the Carson Sink Valley covering an area of several hundred thousand acres.

This valley is the bed of a great lake, long since dried up. There is no outlet to the valley and the water which empties on to the plain from the Sierra Nevada Mountains, sinks into the sands of the desert or are lost by evaporation.

WHY AIR IS SO CLEAR IN NEVADA.

The clouds having given up their moisture and been dispelled on the mountains thus leaves a perfectly clear atmosphere and bright sunshine for more than 300 days in the year. The result is extraordinary growth of all agricultural products, if water can be supplied; but water must be abundant or evaporation will leave the land barren.

EXTENSIVE SYSTEM OF IRRIGATION.

Seeing the effect of irrigation on a small scale, some of the enterprising citizens of the State induced the general government to turn the Truckee River into the Carson River, and holding the waters of the combined streams in lakes and large reservoirs, irrigate the great plain in the Carson Sink Valley, comprising 350,000 acres, 340,000 of which acreage yet belongs to the government. Some 58,000 acres of this irrigated land is owned by the railroads and private parties who want to sell their lands and bring in settlers. See the Nevada-Truckee-Carson Project in our chapter on irrigation.

This Truckee-Carson Government irrigation project is one of the largest ever undertaken, and will, when fully completed, cost the government about \$9,000,000; but the great amount of land which will be reclaimed and the prices at which it will sell, will fully pay the cost.

The Chamber of Commerce at Fallon, Nevada, and the Southern Pacific Railroad Company are sending out particulars as to this large area of land just opened to the public.

From one of the circulars being sent out we quote the following:

UNCLE SAM'S NINE MILLION DOLLAR FARM.

"Is he going to farm it himself? Oh, no; as soon as he has turned the water on it from the big reservoirs he has been building, he is going to give it away to the people of the United States.

"How can you get a part of it? Just as easy—If you are a citizen and he has not already given you a homestead in another place, you need simply tell the agent at the land office in Carson or the agent for the big farm at Fallon, that you want eighty acres of good land. Pick out the eighty acres first that you want and tell him just where it is. Then pay him eight dollars for papers showing that Uncle Sam has agreed to give you that land if you begin living on it within six months and make it a home for the next five years.

"Is that all that Uncle Sam charges? That is all for the land—eight dollars. For the water that he puts on the land to make things grow, he charges you \$2.60 per acre every year for ten years. Then the water and land belong to one another and both belong to you. After the tenth year the only charge will be a few cents per acre to keep up the ditches and reservoirs.

"Where is this new farm that Uncle Sam is giving away?

"It is in Western Nevada, mostly in Churchill County, south of the Southern Pacific's main line. "Maybe you'd like to work for wages part of your time?"

"If so, you don't have to hunt work; it will be looking for you down every road.

WAGES PAID TO WORKMEN.

"Uncle Sam would like five hundred more men to work on the irrigation system during the next two years. Then there are plenty of new-comers who would like to hire help; may be to clear, level and check land, to plant or care for crops, to build houses, or to drive teams. The wages paid are as follows:

"Carpenters, per day, \$4; bricklayers, per day, \$3.50; painters, per day, \$4.50; masons, per day, \$4.50; blacksmiths, per day, \$4; cabinet makers, per day, \$5; teamsters, per day, \$2.50; common laborers, per day, \$2.25; farm hands, per day, with board, \$2; farm hands, per month, with board and lodging, \$45.

"Then, for variety's sake, you can find work in the mines if you wish—though mining with a plow and a hoe may be most profitable in the long run.

"Fallon, the principal town, is county seat of Churchill County and has already more than a thousand people. Here are a high school, graded schools, churches, two newspapers, a bank, several stores, three hotels, restaurants, etc. Hazen has three hundred people and a hotel and restaurant. Stillwater, fourteen miles northeast of Fallon, has a hotel, stores and a good school. There are postoffices at Lettville, St. Clair and Hill.

"There are openings now for a flour mill, grain warehouse, and many other industries in demand in a new country.

"It requires but very little imagination to see this great plain thickly settled with a people having every rural comfort—a valley of waving fields and great orchards, turnpikes lined with trees, homes bright with flowers and such green lawns as only land of ever-living water can own, streams flowing as silver ribbons everywhere.

"The Carson Sink Valley which now has a population of less than 2,000 people will within a comparatively few years have 100,000 people, and 300,000 acres of desert land will have been converted into rich and valuable farms, by the magic of irrigation.

"Address all communications to J. W. Sitton, Secretary Churchill County Chamber of Commerce, Fallon, Nevada."

CONDENSED IMPORTANT FACTS RELATING TO NEVADA.

With History of the Great Comstock Gold and Silver Mines.

Altitude. Highest point, Wheeler Peak in White Pine County, 13,036 feet high.

Climate. At Winnemucca, average temperature in January, 28 above zero. Average July temperature, 72. Extremes, highest, 104; lowest, 28 below. Average annual rainfall, 8.5 inches.

Dimensions. Extreme length of state north to south, 485 miles. Extreme breadth, 315 miles.

History. Territory ceded by Mexico to the United States in 1848. First settlers, 1848, in Carson Valley. Comstock lode discovered in 1859 by Grosh Brothers from Maine. One brother froze to death in the Sierras, the other died of blood poisoning from injuring his foot with a rusty pick. The spot where the main shaft to the Virginia mine was sunk was located by Pat McLaughlin and Pete O'Riley. While washing out some pay dirt, Henry Comstock happened along and seeing the glint of color in the rocks, dismounted from his pony and coolly informed the workers that they were trespassing upon his farm and using the water from his stream because, forsooth, he owned all the land thereabouts by right of agricultural location. This was pure fiction and a monumental bluff, but the overanxious discoverers promptly donated him a two-thirds interest in the greatest mineral discovery in America. Comstock was a lank, lean, cadaverous, untutored and unwashed Canadian possessed, according to John L. Cowan, who, in writing up "the romance of mining strikes," of neither honor, brains or industry. He afterwards went crazy and committed suicide. O'Riley died in an insane asylum. McLaughlin got down and out and did odd jobs about the camp for a time, and then drifted out to California where he died in a poorhouse. In the meantime the Comstock, the most valuable silver bearing lode in the world, for a long time yielded a profit of \$16,000,000 a year. Nevada was admitted to the Union in 1864.

STATE AND THE 10 COUNTIES OF NEW HAMPSHIRE
With Their Boundaries

Location and Population
of
NEW HAMPSHIRE
COUNTIES.

Loca- tion	COUNTIES	Pop. 1910
1.....	Coos.....	30,753
2.....	Grafton.....	41,652
3.....	Carroll.....	16,316
4.....	Sullivan.....	19,337
5.....	Merrimack.....	53,335
6.....	Belknap.....	21,309
7.....	Strafford.....	38,951
8.....	Cheshire.....	30,659
9.....	Hillsboro.....	126,072
10.....	Rockingham.....	52,188
Total.....		430,572

CITIES AND VILLAGES
OF
NEW HAMPSHIRE.
With 1910 Populations.

Towns	Loca.	Pop.
A		
Aacworth.....	4.....	250
Alexandria.....	2.....	630
Alstead.....	8.....	500
Alton.....	6.....	402
Alton Bay.....	6.....	260
Amherst.....	9.....	1,109
Andover.....	5.....	350
Antrim.....	9.....	990
Ashland.....	2.....	1,289
Ashuelot.....	8.....	374
Atkinson.....	10.....	443
Auburn.....	10.....	682
B		
Barnstead.....	6.....	280
Barrington Sta.....	7.....	550
Barrington.....	7.....	308
Bartlett.....	3.....	713
Bath.....	2.....	906
Bedford.....	9.....	1,148
Belmont.....	6.....	1,294
Bennington.....	9.....	667
Benton.....	2.....	209
Berlin.....	1.....	11,780
Bethlehem.....	2.....	1,061
Blackmount.....	2.....	608
Boscawen.....	5.....	1,355
Bow.....	5.....	317
Bow Mills.....	5.....	380
Bradford.....	5.....	805
Brentwood.....	10.....	557
Bridgewater.....	2.....	244
Bristol.....	2.....	1,690
Brookfield.....	3.....	296
Brookline.....	9.....	606
C		
Campton.....	2.....	502
Canaan.....	2.....	1,066
Candia.....	10.....	460
Candia Village.....	10.....	260
Canterbury.....	5.....	621
Cen. Barnstead.....	6.....	309
Center Conway.....	3.....	200
Center Harbor.....	6.....	290
Cen. Sandwich.....	3.....	502
Center Stafford.....	7.....	350
Center Tuftonboro.....	3.....	260
Charlestown.....	4.....	1,660
Chester.....	10.....	809
Chesterfield.....	8.....	281
Claremont.....	4.....	7,529
Clarksville.....	1.....	307
Colebrook.....	1.....	1,876

NEW HAMPSHIRE CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Columbia.....	1.....	590	Doverpoint.....	7.....	1,069	East Rochester.....	7.....	1,066
Concord.....	5.....	21,497	Drewsville.....	8.....	296	East Sullivan.....	8.....	287
(Capital).....	5.....	21,497	Dublin.....	8.....	620	East Swanzey.....	8.....	308
Contoocook.....	5.....	952	Dummer.....	1.....	349	East Tilton.....	6.....	299
Conway.....	3.....	3,413	Dunbarton.....	5.....	451	E. Washington.....	4.....	299
Conway Center.....	3.....	200	Durham.....	7.....	996	East Weare.....	9.....	408
Coos.....	1.....	590	E			Enfield.....	2.....	945
Cornish Flat.....	4.....	450	East Alstead.....	8.....	260	Enfield Center.....	2.....	809
Croydon.....	4.....	272	East Andover.....	5.....	350	Epping.....	10.....	1,109
D			East Candia.....	10.....	409	Epsom.....	5.....	320
Dalton.....	1.....	392	East Concord.....	5.....	509	Errol.....	1.....	305
Danbury.....	5.....	506	East Deering.....	9.....	286	*Exeter.....	10.....	1,897
Danville.....	10.....	290	East Derry.....	10.....	533	F		
Davisville.....	5.....	266	East Grafton.....	2.....	348	Fabyan House.....	1.....	250
Deerfield.....	10.....	462	E. Hampstead.....	10.....	250	Farmington.....	7.....	2,621
Deerfield Cent.....	10.....	350	East Jaffrey.....	8.....	1,741	Fitzwilliam.....	8.....	450
Derry.....	10.....	2,066	East Kingston.....	10.....	496	Fitzwill'm Depot.....	8.....	508
Dorchester.....	2.....	250	Easton.....	2.....	290	Francetown.....	9.....	693
*Dover.....	7.....	13,247				Franconia.....	2.....	669

Explanation: Index to Towns. First Column. Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

New Hampshire Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Franklin	5	6,132	Langdon	4	339	North Walpole	8	1,709	Stark	1	306
Freedom	3	550	Lebanon	2	5,718	North Weare	9	606	Strafford	7	450
Freemont	10	749	Lee	7	250	Northwood	10	604	Strafford	1	466
G			Lee Station	7	250	Narrows	10	302	Sugar Hill	2	718
Gaza	6	244	Lisbon	2	1,821	N. Woodstock	2	409	Sunapee	4	696
Georges Mills	4	296	Littleton	2	3,059	Nottingham	10	590	Suncook	5	3,088
Gilford	6	466	Lochmere	6	206	O			Surry	8	250
Gilmanston			Londonderry	10	1,358	Orford	2	608	Sutton	5	490
Iron Works	6	366	Loudon	5	890	Orfordville	2	290	Swanzy	8	309
Gilsum	8	590	Lyman	2	426	*Ossipee	3	308	T		
Goffs Falls	9	269	Lyme	2	906	P			Tamworth	3	592
Goffstown	9	2,579	M			Parkhill	8	290	Temple	9	313
Gonic	7	460	Madbury	7	336	Penacook	5	3,990	Tilton	6	1,209
Gorham	1	1,797	Madison	3	220	Percy	1	309	Troy	8	1,527
Goshen	4	245	Madison Sta.	3	360	Peterboro	9	2,927	Twin Mountain	1	260
Gossville	5	368	Manchester	9	70,063	Piermont	2	637	U		
Grafton	2	396	Marlboro	8	1,224	Pike	2	580	Union	3	409
Grantham	4	274	Marlboro Depot	8	488	Pittsburg	1	587	Unity	4	472
Grasmere	9	490	Marlow	9	358	Pittsfield	5	2,079	W		
Greenfield	9	605	Mason	9	358	Plainfield	4	464	Walpole	8	2,668
Greenland	10	507	Melvin Village	3	313	Plymouth	2	1,927	Warner	5	833
Greenville	9	1,608	Meredith	6	709	Portsmouth	10	11,269	Warren	6	699
Groveton	1	1,809	Merriden	4	609	Potter Place	5	380	Washington	1	264
H			Merrimack	9	508	R			Weare	9	390
Halcyon	5	350	Middleton	7	390	Raymond	10	1,100	Webb	8	306
Hamstead	10	323	Milan	1	635	Reeds Ferry	9	405	Webster	5	496
Hamstead Sta.	10	250	Milford	9	3,939	Richmond	8	897	Wentworth	2	617
Hampton	10	1,209	Milton	7	825	Rindge	8	390	W. Brentwood	10	250
Hampton Falls	10	500	Milton Mills	7	890	Rochester	7	8,868	W. Campton	2	206
Hancock	9	2,609	Monroe	2	492	Rumney	2	360	W. Chesterfield	8	350
Harrisville	3	606	Montview	2	402	Rumney Depot	2	240	W. Claremont	4	598
Haverhill	2	3,948	Moultonboro	3	651	Rye	10	1,090	West Epping	10	411
Henniker	5	1,357	Moultonville	3	396	Rye Beach	10	1,100	W. Hampstead	10	250
Hill	5	603	Mountainview	3	306	S			West Lebanon	2	590
Hillsboro	9	1,608	Mount Vernon	9	453	Salem Depot	10	709	West Milan	1	590
Hillsboro			Mount Whittier	3	390	Salisbury	5	208	Westmoreland	8	375
Lower Vil'ge	9	590	N			Salisbury Hghts	5	209	West Ossipee	3	306
Hinsdale	8	2,309	*Nashua	9	26,005	Salmon Falls	7	1,701	West Peterboro	9	506
Holiness	2	612	New Boston	9	1,002	Sanbornville	3	509	West Rindge	8	390
Hollis	9	860	New Castle	10	581	Sandown	10	406	W. Rochester	7	460
Hooksett	5	1,655	New Durham	7	575	Sandwich	3	409	West Rumney	2	240
Hopkinton	5	606	Newfields	10	590	Scot	1	220	W. Springfield	4	219
Hudson	9	1,096	New Hampton	6	706	Seabrook	10	1,202	West Swanzey	8	779
Hudson Center	9	261	New Ipswich	9	811	Shelburne	1	283	West Thornton	2	452
I			New London	5	606	Silver Lake	3	306	Westville	10	300
Intervale	3	296	New Market	10	3,348	Snowville	3	215	Whitefield	1	2,006
J			*Newport	4	3,765	Somersworth	7	6,704	Wilmot	5	396
Jackson	3	622	Newton	10	750	South Acworth	4	250	Wilmot Flat	5	303
Jefferson	1	690	N. Charlestown	4	200	S. Charlestown	4	273	Wilton	9	1,596
K			North Chatham	3	200	South Danville	10	215	Winchester	8	1,908
*Keene	8	10,068	N. Chichester	5	499	S. Hampton	10	297	Windham	10	341
Kensington	10	524	North Conway	3	1,400	South Lee	7	250	Depot	10	200
Kingston	10	1,096	North Danville	10	269	S. Lyme	9	516	Wolfboro Falls	3	680
L			N. Hampton	10	306	S. Tamworth	3	460	Wolfboro	3	1,690
*Laconia	6	10,183	N. Haverhill	2	690	Spofford	8	350	Woodstock	2	206
Lakeport	6	2,256	North Salem	10	490	*Woodsville			Woodsville	2	1,709
*Lancaster	1	3,054	N. Sanborn	6	509						
Landaff	2	568	North Stratford	1	508						
			North Sutton	5	290						

NEW HAMPSHIRE

The "Granite State," Famous for Its White Mountains, Abandoned Farms, Summer Homes and Picturesque Resorts.

This State, famous for its granite stone, which early gave it the name, "Granite State," distinguished for its Dartmouth College, its White Mountains and its Merrimack River, which turns the greatest number of mill wheels of any river in the world—with its Winnepesaukee Lake, covering 72 square miles, up in Belknap County (see County 6) and Sunapee Lake (area, 11 square miles) in Merrimack County, a county remarkable for having within its borders over 300 lakes and ponds, 60 rivers, 190 brooks and 290 mountains.

MOST PICTURESQUE REGION IN THE WORLD.

As a whole, New Hampshire, with its mountains, rivers, brooks and groves of maples, willows, elms and evergreens, is the most romantic and beautifully picturesque region on the American Continent.

For delightful summer residence the entire state is becoming celebrated. Pitch tent almost anywhere and the visitor has sublime mountain view, a little lake close by, an active, rippling, bubbling brook, with speckled trout, running across the farm.

A writer well acquainted with New Hampshire says: "The fascination of the state with a family coming here to spend a summer will so grow upon them that they may wish to remain permanently, winters, as well as summers. If so, the home-seeker may buy a little farm, abandoned by the family that has gone west and left their comfortable farm dwelling, their fine apple orchards, maple

sugar groves—a snug, beautiful home with land enough to produce a living—all this offered for sale so cheap the land seeker will be surprised. Let him enter some employment for business exercise in the adjoining village, and when winter arrives with its snows, as the rural mail carrier brings the news from all the outside world, he sits down at evening with his family before the blazing hickory logs, giving a charming fire and heat from the open fire place in the home. Add to this mealy potatoes, maple syrup, apples and hickory nuts, honey, pure cream, the sweetest butter and fresh eggs, all produced on his own property and—what more does he want?"

DEAL IN ABANDONED FARMS.

He may want a more active business possibly, something more extensive to occupy his mind than he finds in the little nearby village. For larger employment he buys the neighboring abandoned property, trims the orchards, fertilizes and reclaims the land, paints the houses and adds such attraction to the premises as modern ideas and taste will suggest. He may follow by selling.

Altitude. Highest in the State, Mount Washington, 6,285 feet.

Climate. Manchester, average January temperature, 22 degrees above zero; July, 69 degrees. Highest, 96 degrees; lowest, 11 degrees below zero. Average annual rainfall, 41.9 inches.

Dimensions. Length, north to south, 180 miles. Breadth, from east to west, from 45 to 100 miles.

STATE AND THE 21 COUNTIES OF NEW JERSEY
With Their Boundaries

Location and Population
of
NEW JERSEY
COUNTIES

ca- ca- tion	COUNTIES	Pop. 1910
1.....	Warren	43,187
2.....	Sussex	26,781
3.....	Morris	74,704
4.....	Passaic	215,902
5.....	Bergen	138,002
6.....	Hunterdon	33,569
7.....	Somerset	38,820
8.....	Union	140,197
9.....	Essex	512,886
10.....	Hudson	537,231
11.....	Mercer	125,657
12.....	Middlesex	114,426
13.....	Monmouth	94,734
14.....	Burlington	66,565
15.....	Ocean	21,318
16.....	Camden	142,929
17.....	Gloucester	37,368
18.....	Salmon	66,999
19.....	Cumberland	55,153
20.....	Atlantic	11,894
21.....	Cape May	19,945
Total.....		2,537,167

Cities and Villages of
New Jersey with 1910
Populations.

Towns	Loca.	Pop.
A		
Abscon.....	20.....	781
Adelphia.....	13.....	450
Allamuchy.....	1.....	260
Allendale.....	5.....	937
Allenhurst.....	13.....	306
Allentown.....	13.....	631
Alliance.....	18.....	406
Alloway.....	18.....	662
Alpha.....	1.....	760
Alpine.....	5.....	377
Andover.....	2.....	884
Annandale.....	6.....	375
Ardena.....	13.....	506
Arlington.....	10.....	3,066
Asbury.....	1.....	575
Asbury Park.....	13.....	10,450
Ashland.....	16.....	320
Atco.....	16.....	606
Athenia.....	4.....	608
Atlantic City.....	20.....	46,150
Atlantic High-lands.....	13.....	1,645
Audubon.....	16.....	1,313
Avalon.....	21.....	230
Avon.....	13.....	426

Barnegat.....	15.....	1,066
Barnsboro.....	17.....	206
Basking Ridge.....	7.....	640
Bayhead.....	15.....	281
Bayonne.....	10.....	55,545
Bayville.....	15.....	200
Beachhaven.....	15.....	272
Beemerville.....	2.....	350
Beesley's Point.....	21.....	350
Belford.....	13.....	250
Belleville.....	9.....	5,907
Belmar.....	13.....	1,433
*Belvidere.....	1.....	1,761
Bennett.....	21.....	225
Bergenfield.....	5.....	1,991
Berkley Heights.....	8.....	392
Berlin.....	16.....	860
Bernardsville.....	7.....	1,062

CITIES AND VILLAGES OF NEW JERSEY WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Bethlehem.....	6.....	1,761	Bloombsbury.....	6.....	660	Bridgeport.....	14.....	275
Beverly.....	14.....	2,140	Blue Anchor.....	16.....	250	Bridgeport.....	17.....	638
Birmingham.....	14.....	215	Bogota.....	5.....	1,125	*Bridgeton.....	19.....	14,209
Bivalve.....	19.....	200	Bonton.....	3.....	4,930	Tricelle.....	13.....	360
Blackwells Mills.....	7.....	225	Bordentown.....	14.....	4,250	Broadway.....	1.....	209
Blackwood.....	16.....	609	Boundbrook.....	7.....	3,970	Brookdale.....	9.....	250
Blairstown.....	1.....	896	Bradley Beach.....	13.....	1,807	Brown Mills.....	14.....	390
Bloomfield.....	9.....	15,070	Branchville.....	2.....	663	Browntown.....	12.....	206
Bloomington.....	4.....	333	Bridgeboro.....	14.....	273	Buddtown.....	14.....	259

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of New Jersey with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Burlington	14	8,336	Fairview	5	2,441	Jamesburg	J		Mt. Arlington	3	277
Burrsville	15	290	Fanwood	8	471	Janvier	17	208	Mt. Bethel	7	206
Butler	3	2,265	Far Hills	7	360	*Jersey City	10	267,779	Mt. Ephraim	16	302
Buttville	1	366	Farmingdale	13	416	Jobstown	14	290	Mt. Freedom	3	202
C			Fieldsboro	14	480	Julistown	14	998	*Mt. Holly	14	5,750
Caldwell	9	2,236	Flanders	5	501	K			Mt. Hope	13	352
Califon	6	506	*Flemington	4	2,693	Keansburg	13	509	Mt. Laurel	13	250
*Camden	16	94,538	Florence	14	1,282	Kearney Jct.	10	18,659	Mt. Olive	3	1,221
Cape May	21	2,471	Florham Park	3	558	Kenil	8	341	Mt. Tabor	3	1,506
Cape May C. H.	21	1,008	Folsom	20	232	Keyport	13	3,554	Mullica Hill	17	590
Carlstadt	5	3,807	Fords	12	750	Kingsland	13	809	N		
Carmel	19	750	Forked River	15	560	Kingston	7	308	National Park	17	325
Carpentersville	1	201	Fort Lee	5	4,472	Kingwood	6	1,375	Naughton	3	293
Carteret	12	5,066	Franklin			Kresson	16	390	Navesink	13	622
Cassville	15	262	Furnace	2	1,066	L			Neptune City	13	488
Cedar Brook	16	466	Franklin Park	12	251	La Fayette	2	709	Neshanic	7	362
Cedar Grove	9	569	Franklinville	17	390	Lake Como	13	225	Netcong	3	1,532
Cedarville	19	1,278	*Freehold	13	3,233	Lakehurst	15	979	Netherwood	8	941
Changewater	1	203	Frenchtown	6	984	Lakewood	15	3,096	*Newark	9	347,469
Chapel Hill	13	208	Freneau	13	290	Lambertville	15	4,637	New Bedford	13	225
Chatham	3	1,874	G			Lanoka	15	262	Newbridge	5	525
Chatsworth	14	958	Garfield	5	10,213	Laurel Springs	16	225	*New		
Cheesequake	12	290	Georgetown	14	1,118	Lawnside	16	320	Brunswick	12	23,388
Chester	16	2,449	German Valley	3	575	Lawrence Sta.	11	250	New Durham	16	800
Chestertown	16	1,409	Gibbsboro	16	308	Lawrenceville	11	360	New Egypt	15	490
Chesw	12	399	Gibbstown	17	2,706	Layton	2	315	Newfield	17	509
Clarksboro	17	262	Glassboro	17	2,706	Lebanon	6	360	Newfoundland	3	564
Clarksburg	13	250	Glendora	13	250	Ledgewood	3	406	New German-		
Clayton	17	1,926	Glen Gardner	6	600	Leeds Point	20	366	town	6	306
Clementon	16	562	Glen Ridge	9	3,260	Leesburg	19	662	New Gretna	14	950
Clermont	21	360	Glenrock	4	1,055	Lenardo	13	280	New Market	12	509
Cliffside	5	2,128	Glenwood	2	360	Leonia	5	1,486	New Milford	5	322
Cliffside Park	5	3,394	GloUCESTER City	16	9,462	Liberty Corner	7	260	Newport	19	1,017
Clifton	4	506	Goshen	21	580	Lincoln	12	209	New Providence	8	875
Clinton	6	836	Grantwood	5	1,502	Linden	8	610	Newton	2	4,467
Closter	5	1,483	Green Creek	21	360	Lindenwald	16	308	North Arlington	2	567
Colesville	2	290	Greenwich	19	1,200	Linwood	20	602	North Branch	7	250
Collingswood	16	4,795	Grenlock	16	266	Little Falls	4	4,660	No. Caldwell	9	595
Colonia	12	296	Griggstown	7	362	Little Ferry	5	2,541	Northfield	20	866
Columbia	1	292	Groveville	11	320	Little Silver	13	426	No. Hacken-		
Columbus	14	535	Guttenberg	10	5,647	Livingston	9	1,412	sack	5	350
Como	13	225	H			Lodi	5	4,138	No. Haledon	4	749
Coytesville	5	750	*Hackensack	5	14,050	Long Branch	13	15,298	No. Paterson	4	1,288
Cranbury	12	1,428	Hackettstown	1	2,715	Lower			No. Plainfield	7	6,117
Cranford	8	2,854	Haddonfield	16	1,412	Squankum	13	250	Northvale	5	460
Cresskill	5	550	Haddon			Ludlow	6	222	No. Wildwood	21	833
Cresskeys	17	250	Heights	16	1,453	Lumberton	11	850	Norwood	5	664
Crosswicks	14	566	Hainesburg	1	360	Lyndhurst	5	1,350	Nutley	9	6,009
D			Hainesport	14	566	Lyons Farms	8	462	O		
Dayton	12	350	Hainesville	2	326	M			Oakhurst	13	506
Deal Beach	13	273	Haledon	4	2,560	McAlfee	2	260	Oakland	5	568
Delair	16	230	Haleville	19	322	Madison	3	4,658	Oaklyn	16	653
Delanco	14	750	Hamburg	3	866	Magnolia	13	606	Oaktree	12	200
Delawanna	4	792	Hamilton	13	256	Mahwah	5	550	Ocean City	21	1,950
Delaware	1	406	Hamilton Square	11	425	Malaga	17	409	Ocean Grove	13	3,066
Delford	5	1,005	Hammoncton	20	5,088	Manahawkin	15	808	Oceanic	13	608
Delmont	19	569	Hampton	6	914	Manalapan	13	390	Oceanport	13	408
Demarest	5	569	Hanover	3	5,366	Manasquan	13	1,582	Ocean View	21	209
Dennersville	21	860	Hanover Neck	3	213	Mantua	17	750	Oceansville	20	369
Denville	3	627	Hardwick	1	470	Maple Shade	14	290	Ogdensburg	2	562
Dias Creek	21	250	Hartlingen	7	280	Marlboro	13	496	Old Bridge	12	1,062
Dividing Creek	19	791	Harmony	1	1,110	Marlton	14	760	Oradell	5	809
Dorchester	19	326	Harrington	5	377	Marmora	21	202	Orange	9	29,630
Dorothy	20	206	Harrison	10	14,498	Matawan	13	1,646	Osbornville	15	568
Dover	3	7,468	Harrisonville	17	320	Maurice River	19	2,116	Oxford	1	2,040
Dumont	5	1,783	Hasbrouck			Mauricetown	19	554	P		
Dundee Lake	5	420	Heights	5	2,155	*Mays Landing	20	1,359	Palisade	5	250
Dunellen	12	1,990	Haworth	5	588	Maywood	5	889	Palisades Park	5	1,411
E			Hawthorne	4	3,460	Medford	14	1,260	Palmyra	14	1,650
East Creek	21	411	Hazel	13	208	Mendham	3	1,129	Park Ridge	5	1,401
East Millstone	7	356	Heislerville	19	411	Menlo Park	12	350	Parsippany	3	206
East Newark	10	3,163	Helmetta	12	661	Merchantville	16	1,996	Passaic	4	54,773
East Nutley	9	760	Herbertsville	15	382	Metuchen	12	2,138	*Paterson	4	125,600
East Orange	9	34,371	Hewitt	206		Middletown	13	409	Patterson	6	309
East Rutherford	5	1,275	Hibernia	3	1,389	Middle Valley	3	299	Paulsboro	17	2,121
Eatontown	13	1,266	High Bridge	6	1,545	Milford	6	667	Peapack	7	247
Edgewater	5	2,655	Highland Park	12	1,517	Millburn	9	2,762	Pedricktown	19	660
Edgewater Park	14	200	Highlands	13	1,215	Millington	3	360	Petzburg	5	367
Egg Harbor			Highlands of			Milltown	12	1,584	Pemberton	14	747
City	20	2,181	Navesink	13	1,386	Millville	19	12,451	Penn Grove	18	1,118
*Ellisabeth	8	73,409	High Point	15	560	Milton	3	362	Pennington	11	722
Ellisdale	13	350	Hightstown	11	1,879	Minotola	20	562	Pennsville	18	466
Elm	16	221	Highwood	5	460	Monmouth	13	485	Pensauken	16	526
Elmer	18	1,167	Hillsdale	5	945	Monmouth Jct.	13	466	Penwell	1	250
Elwood	20	366	Hilton	2	216	Montague	2	208	Perrinville	13	260
Emerson	5	767	Hoboken	10	70,324	Montclair	9	21,550	Perth Amboy	12	32,121
Englewood	5	9,924	Hobokuk	5	488	Montvale	5	522	Petersburg	21	375
Englewood Cliffs	5	410	Holland	6	1,706	Montville	5	685	Phillipsburg	1	13,903
English Creek	20	350	Holly Beach	21	1,901	Moonachie	5	638	Pinebrook	3	272
Englishtown	13	468	Holmdel	13	1,066	Moorestown	14	2,809	Pitman	17	1,950
Erma	21	225	Homestead	10	350	Morris Plains	3	445	Pitman Grove	17	2,506
Essex Falls	9	443	Hope	1	350	*Morristown	3	12,507	Plainfield	8	20,550
Ewan	17	250	Hopewell	11	1,073	Mountainside	8	362	Pleasant Mills	20	208
F			Hudson Heights	10	1,502	Mountainview	4	411	Pleasantville	20	4,390
Fair Haven	13	1,066	Hurffville	17	280	I			Point Pleasant	15	745
Fairton	19	506	Irvington	9	11,877	Island Heights	15	313	Poinville	14	380

Cities and Villages of New Jersey with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Port Elizabet	19	550	Saddle River	5	483	Stirling	3	540	Weehawken	10	4,508
Port Monmouth	13	650	*Salem	18	6,614	Stockholm	2	425	Wenonah	17	645
Port Morris	3	556	Sayreville	12	4,155	Stockton	6	605	W. Caldwell	9	494
Port Murray	1	304	Scotch Plains	8	1,099	Succasunna	3	604	W. Cape May	21	844
Port Norris	19	1,509	Scullville	20	250	Summit	8	7,590	W. Collings-		
Port Republic	20	450	Sea Bright	13	1,220	Sussex	2	1,212	Wood	16	606
Pottersville	7	280	Sea Isle City	21	551	Swanton	21	309	West Creek	15	507
Princeton	11	5,136	Seaville	21	345	Swedesboro	17	1,477	Westfield	8	6,429
Prospect Park	4	2,719	Seaucacus	10	4,740				W. Freehold	13	206
			Sergeantsville	6	260				W. Hoboken	10	35,403
			Sewaren	12	250				West Long		
Quakertown	6	250	Sewell	17	260				Branch	13	879
Quinton	18	1,307	Shady Side	13	806				W. Milford	4	206
			Sharptown	18	225				Westmont	16	275
			Shiloh	19	402				W. Moorestown	14	2,800
Rahway	8	9,337	Short Hills	9	350				W. New York	10	13,560
Ramsey	5	1,667	Shrewsbury	13	422				West Orange	9	10,980
Rancocas	14	325	Sicklerville	16	229				West Paterson	4	406
Rancocas	14	325	Silver Lake	9	250				West Point		
Rancocas	14	325	Silvertown	15	290				Pleasant	15	283
Readington	7	3,672	Singac	4	207				West Portal	6	1,761
Reaville	6	2,776	Smiths Landing	20	490				Westville	17	820
Red Bank	13	7,398	Smithville	14	654				Westwood	5	1,870
Richfield	4	201	Somers Point	20	604				Weymouth	20	972
Ridgefield	5	966	*Somerville	7	5,099				Wharton	3	2,983
Ridgefield Park	5	2,850	So. Amboy	12	7,007				Whippany	3	961
Ridgewood	5	5,416	Southard	13	406				Whitehill	14	459
Riegelsville	1	562	So. Boundbrook	7	1,024				White House		
Ringoes	6	325	So. Branch	7	206				Station	6	350
Ringwood	4	207	So. Dennis	21	308				Whitesville	15	208
Manor	4	207	So. Orange	9	6,014				Wilburtha	11	209
Rio Grande	21	241	So. Pemberton	14	771				Wildwood	21	898
Risley	20	209	So. Plainfield	12	308				Williamstown	17	1,500
River Edge	5	375	South River	12	4,772				Windsor	11	360
Riverside	14	4,069	So. Seaville	21	498				Winstow	16	250
Riverton	14	1,788	So. Vineland	19	560				Woodbine	21	2,399
Rivervale	5	350	Sparta	2	506				Woodbridge	12	7,631
Roadstown	19	213	Spotswood	12	623				*Woodbury	17	4,642
Rochelle Park	5	360	Springfield	8	1,072				Woodcliff Lake	5	470
Rockaway	3	1,902	Spring Lake						Wood Lynne	16	506
Rocky Hill	7	502	Beach	13	853				Woodridge	5	1,043
Roebling	14	750	Springtown	1	306				Woodstown	18	1,613
Rosevelt	12	5,786	Stanhope	2	1,021				Wortendyke	5	450
Roseland	9	486	Stanley	3	203				Wrightstown	14	220
Roselle	8	2,725	Stanwick	14	408				Wyckoff	5	352
Roselle Park	8	3,138	Steeltonville	20	490						
Rosenhayn	19	662	Stewartsville	1	518						
Rumson	13	1,419									
Rutherford	5	7,015									

NEW JERSEY

Closely on the Edge of New York and Philadelphia,

By virtue of its location New Jersey is a very important State. It has the Atlantic Ocean on the east and the Delaware River and Bay on the west side. It receives the surplus population of New York in the northern portion of the State and gets the overflow of people from Philadelphia in the south end of the State.

EASY TO GO ANYWHERE FROM NEW JERSEY.

It is easy to go anywhere from New Jersey. The State is covered with a network of railways. Steam and trolley lines lead to steamboat landings, whence people journey by water to all parts of the earth, while railroad lines radiate from New York and Philadelphia in all directions.

In the purchase of land and settlement in this State the home seekers will not fail to observe thus the superior facilities for transportation to the great markets.

AN EXCELLENT REGION FOR TRUCK FARMING

It is clearly evident that this must be an ideal region in which to engage in truck farming. While the soils in different parts of the State greatly differ in natural strength it is found that even on the extremely poorest land certain crops do well, and even the sand barrens, as they were called, have been found well adapted to fruit and vegetable gardening.

In natural fertility the central part of the State is best, but experience is proving that excellent crops are being grown on the oak and pine land in the southern part of the State, the result of intelligent cultivation.

Considering the great nearby markets it is well to engage in producing that which can be taken into the towns in the early mornings perfectly ripe and fresh.

FRESH FOODS ALWAYS IN IMMEDIATE DEMAND

Good milk and cream is always in demand; fresh eggs are always wanted. Vegetables just taken from

Great Markets for Fresh Fruits and Vegetables.

the soil find ready buyers. Perfectly ripe fresh strawberries will make a reputation for the growers in a short time. Blackberries, peaches, melons and tomatoes are much more highly valued when they can come into the market fresh from the vines.

This certainly is a great advantage in behalf of New Jersey, the whole of the State having a soil on which can easily be grown all those products in the immediate vicinity of the hundreds of thousands of people who are ready to buy.

There are always certain people who want to go West, the result being that properties in the Eastern States are vacated and farms, including sometimes 20, 50 and a hundred acres are thrown on the market at a price often far below what it would cost to erect the buildings.

To show how cheaply such properties may be bought we pursue the plan of selecting from advertisements a sample list of cheap small farms which we publish herewith. See advertisements, with our description of some of the Eastern States, which we copy to give readers to understand what is in the market and for sale. Very full lists can usually be obtained by application to the Secretary of State.

Originally we had not thought of giving the name of a real estate dealer, the public being of the opinion we thought that this work was simply an advertising medium for real estate, but subsequent consideration convinced us that our work would be much more valuable to the land-seeker were we to give, with description of land, prices at which they could be bought and of whom they could be obtained. Hence our real estate mention of various properties for sale, through a study of which the reader can learn from whom the lands we mention can be bought.

In our description of lands, States and localities we aim to give also the opportunities existing in that region for getting employment outside of cultivating the soil. Hence we dwell considerably on the manufacturing facilities and other enterprises going forward in every section of the country.

New Jersey Opportunities in Agriculture and Varied Enterprises

OPPORTUNITIES FOR EMPLOYMENT IN NEW JERSEY.

We may mention right here that New Jersey affords common labor and skilled mechanics superior opportunities for getting employment, and aside from cultivating the land, various members of the household may obtain work and get good wages in neighboring factories. As proof of this, statistics of one of the recent years show \$715,060,170 invested here in manufacturing, employing 266,336 wage earners, to whom was paid that year \$128,-168,801.

New Jersey Health and Pleasure Resorts

SEVERAL OF THE MOST POPULAR PLEASURE RESORTS ARE IN NEW JERSEY.

Barnegat City Beach, N. J.—On the New Jersey seacoast, three miles from Barnegat City, and fourteen miles from Barnegat Bay station on the Pennsylvania Railroad (by steamer) this new summer resort invites visitors by its beautiful location, its numerous cottages and its still and surf bathing, hunting, fishing, boating and other recreations.

Long Branch, N. J.—Twenty-eight miles south of New York is Long Branch, an old town which for many years was one of the most popular of the summer resorts in the United States. The ocean beach here is admirably adapted to bathing, a fact appreciated by the people of New York, as seen in the great number of New Yorkers who come here from the metropolis regularly, daily and annually, for pleasure, rest and recreation. With the establishments of numerous manufacturing industries and the development of various resorts near New York, Long Branch is not spoken of as a pleasure resort so much as formerly. It retains, however, a large number of permanent residents in the old town about a mile back from the beach.

Pleasure Resorts.—Parties wishing to establish other resorts in New Jersey, may wish to know of the following:

Lakes in New Jersey.	Miles Long.	Miles Wide.
Budd's Lake, Morris Co.....	1½	¾
Denham Lake, Morris Co.....	¾	¾
Dundee Lake, Passaic Co.....	2	¾
Green Pond, Morris Co.....	3	1
Greenwood Lake, Passaic Co.....	9	1
Hopatcong Lake, Morris Co.....	7	3
Splitrock Lake, Morris Co.....	2	½
Spring Lake, Monmouth Co.....	¾	¼

Ocean Beach, N. J.—Eight miles south of Long Branch, near Shark River, and half a mile from the ocean, is located this recent acquisition to the

Our space does not permit us to enumerate the many branches of manufacture going forward in New Jersey. We can only briefly say here are made hats, here are extensive silk and glass works, brass and iron works, hardware, machinery, leather, jewelry and celluloid goods being made in great variety, besides pottery, drugs and chemicals. Besides being the foremost city in America in the manufacture of silks, Paterson is widely renowned for its cotton, woolen, velvet, paper mills and locomotive works.

watering-places of New Jersey, which is principally remarkable for good fishing facilities.

Ocean City, N. J.—Not many years ago, near Great Egg Harbor, opposite Somers Point, the Methodists established a pleasant religious resort, bearing the above name. It has a beach 7 miles long, smooth and hard, and handsome residences, abundant flowers and local celebrities, for attractions.

Atlantic City, N. J.—Between Long Branch and Cape May, on what is known as Absecon Beach, is located this attractive resort for invalids and tourists. Such are the advantages of its situation on the seacoast, that both summer and winter it receives many visitors. During the warm weather there is safe and delightful surf bathing, with notable facilities for sailing and fishing; while in the colder seasons the mild temperature, sunny skies and pleasant surroundings, make a sojourn there extremely agreeable. Atlantic City is a pleasant town, with handsome hotels, pretty cottages and wide and shady streets, suitable for long drives, and possesses very desirable accommodations for the throngs who visit it. The ease with which it may be reached from Philadelphia and New York add much to its popularity as a seaside resort.

Cape May, N. J.—For particular excellence in whatever pertains to a delightful seaside watering place, Cape May has become justly celebrated. All that nature has left undone, the improvement of the age has supplied, for the health, comfort and enjoyment of old and young. The beach ranks among the finest anywhere for the purposes of bathing, promenading or driving, while the city itself, with its broad avenues lying between lines of shade-trees, and abounding in handsome residences, hotels and ornamental grounds, invites thousands of gay and cultured people from all parts of the Union, to enjoy its beauties.

New Jersey Manufacturing Cities

Very plainly on our map of New Jersey are seen the locations of Hoboken, Jersey City, Perth Amboy, Trenton and Camden, all residence towns formerly, and suburbs of New York and Philadelphia. These towns have permitted the incoming of factories, and have increased in population accordingly, as seen by reference to our list of New Jersey cities.

Hoboken, N. J.—This city is only a quarter of a mile from New York with which it is closely connected by ferries. Originally a residence locality it is now noted for its lead pencil factory, iron foundries, paper mills, silk works and other factories.

Jersey City.—This town is situated on the West side of Hudson River, a mile from New York, with which city it is connected with ferries. Among its factories are watch-making, glass works, breweries, sugar refining, foundries and numerous other industries.

Perth Amboy, N. J.—This city was formerly called by the Indians Ambo. About 1680 it was settled by

a colony from Scotland who gave the name Perth to the place, in honor of the earl of Perth, one of the colony proprietors. The Indian name was so much used, however, that finally the place taking both names, was named Perth Amboy. The place is noted for its manufacture of fire brick, stone-ware and pottery.

Trenton, N. J.—Settled about 1680, this place was named in honor of William Trent, speaker of the house of assembly, in 1720. Was selected as the capital of the state in 1790, and incorporated as a city in 1792. This city is widely known for its manufacture of crockery.

Camden, N. J.—Situated on the left bank of the Delaware River, opposite the city of Philadelphia, with which city it is connected by several ferries. There are several iron foundries here, chemical and glass works, besides other factories. The town is handsomely located on a plain and is a beautiful residence city for great numbers of people from Philadelphia.

CONDENSED IMPORTANT FACTS RELATING TO NEW JERSEY.

Altitude. Highest point in New Jersey, Kittatinny Mountain, in Sussex Co., 1,527 feet.

Cities. Having 10,000 population in 1900, outside of county seats: Hoboken, Hudson Co., 59,364; Bayonne, Hudson Co., 32,722; Atlantic City, Atlantic Co., 27,838; Passaic, Passaic Co., 27,777; Orange, Essex Co., 24,141; West Hoboken, Hudson Co., 23,094; East Orange, Essex Co., 21,506; Perth Amboy, Middlesex Co., 17,699; Plainfield, Union Co., 15,369; Union, Union Co., 15,187; Montclair, Essex Co., 13,962; Kearney, Hudson Co., 10,896; Harrison, Hudson Co., 10,596; Millville, Cumberland Co., 10,583; Phillipsburg, Warren Co., 10,052.

Climate. Healthful and less extreme heat and

less extreme cold than states inland. Average annual mean temperature, 51.94; winter, 31.22; summer, 72.01; extremes, Cape May, highest 96, lowest 7 below; yearly rainfall, 47.2 inches.

Dimensions. Extreme length of State, 160 miles; extreme width, 70 miles.

History. Earliest settlements by the Dutch at Bergen, 1617-20; by the Swedes on Delaware River, 1683; Fort Nassau, on Delaware, erected by the Dutch, 1655; country passed to English, with New York, 1664; became Royal Province, 1702; one of the original 13 States; adopted State constitution 1776; present constitution 1844; became a member of the Union 1787.

STATE AND THE 26 COUNTIES OF NEW MEXICO

With Their Boundaries

Location and Population

of
NEW MEXICO
COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
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1.....	San Juan..	8,504
2.....	Rio Arriba..	16,719
3.....	Taos..	12,008
4.....	Colfax..	16,460
5.....	Union..	11,404
6.....	McKinley..	12,963
7.....	San Doval..	8,579
8.....	Santa Fe..	14,770
9.....	Mora..	12,611
10.....	San Miguel..	22,930
11.....	Valencia..	13,320
12.....	Bernalillo..	23,606
13.....	Torrance..	10,119
14.....	Guadalupe..	10,927
15.....	Quay..	14,912
16.....	Curry..	11,443
17.....	Socorro..	14,761
18.....	Lincoln..	7,822
19.....	Chaves..	16,850
20.....	Roosevelt..	12,064
21.....	Grant..	14,813
22.....	Sierra..	3,536
23.....	Luna..	3,913
24.....	Dona Ana..	12,893
25.....	Otero..	7,069
26.....	Eddy..	12,400

Total 327,301

NEW MEXICO CITIES
AND VILLAGES

Towns	Loca.	Pop.
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A		
Abiquiu	2.....	590
Acoma	11.....	828
Alameda	12.....	490
*Alamogordo	25.....	3,500
*Albuquerque	12.....	11,020
Alcalde	2.....	309
Algodones	7.....	272
Anthony	24.....	250
Anton Chico..	14.....	847
Arroyo Hondo..	3.....	485
Arroyosceco	3.....	408
Artesia	26.....	1,883
Atresico	12.....	531
*Aztec	1.....	509

B		
Bayard	21.....	200
Belen	11.....	673
Bent	25.....	366
*Bernalillo	7.....	786
Beulah	10.....	200
Bibo	11.....	200
Bland	7.....	615
Bloomfield	1.....	246
Bonito	18.....	300

C		
*Carlsbad	26.....	1,736
Carrizozo	18.....	750
Casaas	14.....	206
Central	21.....	508
Cerro	3.....	560
Chacon	9.....	266
Chama	9.....	299
Chamberino	24.....	597
Chamita	2.....	404
Chaperito	10.....	373
Chilili	12.....	498
Chimayo	8.....	319
Chimarron	4.....	910
Clarkville	6.....	250
*Clayton	5.....	970
Cleveland	9.....	615

NEW MEXICO CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Cloudcroft	25.....	250	Fierro	21.....	763	Jemez	7.....	525
*Clovis	16.....	3,353	Flora Vista..	1.....	236	Jemez Springs..	7.....	266
Cochiti	7.....	545	Folsom	5.....	484	K		
Colmar	4.....	232	Fort Bayard..	21.....	520	Kelly	17.....	616
Cooks	23.....	504	Fort Stanton..	18.....	290	Kingston	22.....	284
Cooney	17.....	260	Fort Sumner..	14.....	496	L		
Cordova	2.....	350	Fort Wingate..	6.....	526	La Cueva	9.....	570
Corona	18.....	209	French	4.....	290	Laguna	11.....	1,583
Costilla	3.....	599	Fruitland	1.....	450	Lajoya	17.....	342
Coyote	2.....	366	G			Lake Arthur..	19.....	344
Cubero	11.....	342	Galisteo	8.....	726	Lake Valley..	22.....	215
Cuchillo	22.....	260	Gallina	2.....	257	Lakewood	26.....	250
Cuervo	14.....	360	*Gallup	6.....	2,904	La Luz	25.....	444
D			Gardiner	4.....	905	La Mesa	24.....	302
Dayton	26.....	280	Gila	4.....	350	Laplatia	1.....	221
*Deming	23.....	1,864	Glorieta	8.....	250	Largo	1.....	450
Des Moines..	5.....	208	Golden	8.....	323	*Las Cruces..	24.....	3,836
Dexter	19.....	242	Guadalupita..	9.....	292	Las Palomas..	22.....	225
Dona Ana	24.....	748	Guique	2.....	490	*Las Vegas..	10.....	3,755
Dorsey	4.....	217	H			La Vegas	10.....	3,179
E			Hagerman	19.....	449	Lemitar	17.....	428
Elida	20.....	327	Heaton	6.....	362	Liberty	1.....	250
Elizabethtown..	4.....	577	*Hillsboro ..	22.....	1,022	*Lincoln	18.....	1,065
El Rito	2.....	644	Hodges	3.....	290	Lordsburg	21.....	1,109
Endee	15.....	288	I			*Los Lunas..	11.....	458
Espanola	2.....	550	Isidor	14.....	296	Lucero	9.....	208
*Estancia	13.....	517	Isleta	12.....	1,085	Lumberton	2.....	465
F			J			Luna	17.....	260
Fair View	22.....	232	Jarales	11.....	848	M		
Farmington	1.....	785				Madrid	8.....	422

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

New Mexico Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Magdalena	17	909	Pecos	10	536	Sandoval	7	613			
Manzano	13	649	Peralta	11	561	San Felipe	8	492	T		
Maxwell City	4	271	Petaca	2	341	San Ildefonso	8	363	Tajique	13	318
Mayhill	25	286	Piacheo	18	384	San Jon	15	225	*Taos	3	531
Melrose	16	1,066	Pinos Altos	21	1,118	San Jose	10	606	Tecolote	10	508
Mesilla	21	1,271	Placitas	7	206	San Juan	2	1,362	Texico	16	409
Miera	5	450	Polvadera	17	417	San Lorenzo	21	329	*Tierra Ama-	2	844
Milligan	17	896	*Portales	20	1,292	San Marcial	17	1,018	Tome	11	985
Mimbres	21	295	Puerto de Luna	14	1,097	San Mateo	11	322	*Tucumcari	15	2,526
Mogollon	17	599	Putnam	1	200	San Pedro	8	451	Tularosa	25	752
Monticello	22	391				San Rafael	11	698	Tyrone	21	250
Montoya	15	308	Q			Santa Ana	7	212			
*Mora	9	1,290	Questa	3	650	Santa Clara	8	268	V		
Mountain Park	25	317				Santa Cruz	8	674	Valencia	11	455
N			R			Santa Domingo	7	809	Vallecitos	2	617
Nara Visa	15	290	Ranches of Taos	3	1,407	Santa Fe (Capit-			Variadero	10	309
O			*Raton	4	1,539	tal)	8	5,072	Vaughn	14	808
Ocate	9	200	Red River	3	208	Santa Rita	21	1,874	W		
Organ	24	259	Rincon	24	276	*Santa Rosa	11	1,650	Wagon Mound	9	895
Orogrande	25	460	*Roswell	19	6,172	Scapelo	10	351	Watrous	9	214
P			Roy	9	460	Sawyer	11	560	Weed	25	514
Pajarito	12	388	Ruidoso	18	348	Scama	11	218	White Oaks	18	390
Paraje	17	282	S			*Silver City	21	3,217	Z		
Park View	2	811	San Acacia	17	469	*Socorro	17	1,560	Zuni	6	1,309
			San Antonio	17	542	Springer	4	558			

NEW MEXICO

Contains the Oldest House in the United States Oldest Settlement and Oldest Resident Civilization.

In the writing of New Mexico we realize that we have set aside a very small space to do justice to a state **14 times larger** than Massachusetts, a region of the country containing the **oldest house** in the United States, at Santa Fe, the oldest settlement and oldest resident civilization.

In the preparation of this volume we early began collecting literature relating to New Mexico, and in a brief time our desk was filled with books and pamphlets descriptive of the minerals, the health resorts, the antiquities, the agricultural possibilities, the irrigation schemes going forward, the easy money and small investments to be had in the lands that could be bought from the irrigation companies, and the profits in fruit raising and farming.

EXTENSIVE IRRIGATION PROSPECTS HERE.

Over the immense area of this State there are many mountains, between which lie broad, level valleys of rich soil. As the annual rainfall is usually too light for agricultural requirements, **extensive irrigation systems** under control of private corporations and the general government are being developed.

**HUNDREDS OF THOUSANDS OF ACRES
RECLAIMED.**

Thus hundreds of thousands of acres of desert lands in New Mexico are being reclaimed and made profitable for the settlers.

All farmers do not depend on these general plans of irrigation. They buy cheaper lands, sink wells, put in a gasoline engine, construct a reservoir and irrigation system of their own and demonstrate that they can be independent of drouth and have a certainty of crops.

WOULD PAY EASTERN FARMERS TO STUDY IRRIGATION HERE.

It would will pay many an Eastern farmer, who is never sure what his crop will be, because of uncertain rainfall, to visit these **self-irrigated farmers**, study their systems, return East and put their **methods** into practice on their own farms.

From the literature sent out from the irrigation associations, from the railroad companies, and the Bureau of Immigration, located at Santa Fe, N. M., the reader can obtain a **large amount** of statistics and information which will be useful.

From a book entitled "The Land of Sunshine," we condense the following:

A LAND OF OPPORTUNITIES.

"New Mexico is a land of opportunities. The major part of its wealth is latent, the bulk of its natural resources is undeveloped. There are **three hundred acres** of land to each inhabitant, and only **one acre** out of every three hundred is under cultivation. Few of the almost three hundred mining districts have been thoroughly prospected, much less systematically developed.

FOR THE CAPITALIST.

Capital is invited, for money is a prime requisite nowadays for the development of resources. Good returns upon carefully invested capital are certain in a greater measure than in any other part of the Union.

FOR THE MANUFACTURER.

Manufacturers are needed to make use of the raw material that New Mexico can and does furnish in large quantities. It has grazing upon its thousand hills **six million sheep** of improved grades, therefore it produces the raw material for many woolen mills. Thus in other industries.

FOR THE HUSBANDMAN.

Farmers are urged to come to till the fertile soil
 under the most favorable conditions, and with home
 markets that pay better prices than can be ob-
 tained anywhere else. Only a quarter of a million
 of acres are under cultivation, and most of these
 only in forage plants or in products that demand
 little attention; four times that area is **immediately**
available for agricultural purposes.

FOR THE MINER.

A great field for the miner! New Mexico lies in the same mineral zone as Colorado, with the difference that Colorado has been well prospected, while in New Mexico, although mining is an old industry, there are many virgin mineral districts and even the oldest mining sections have been incompletely prospected and but little developed.

FOR THE BUSINESS MAN.

The business men of New Mexico have most of them come from the east and it seems that, without exception, they have done exceedingly well.

FOR MECHANICS.

While New Mexico is no manufacturing commonwealth, yet mechanics are needed in the building trades, in the coal mines, in the railroad shops, or to go into business for themselves on a small scale.

FOR THE HEALTH SEEKER.

Health seekers are invited. New Mexico does not intend to shut the door upon them. Physicians the world over recognize that its climate offers the best, and in most circumstances the only conditions under which those suffering from lung, throat and nervous trouble can be cured.

CONDENSED IMPORTANT FACTS.

Altitude. Highest peak, Las Truchas, in Rio Arriba County, 13,306 feet.

Climate. At Santa Fe, mean temperature, 53; average temperature, January, 28 degrees above zero; July, 68 degrees above zero. Highest, 97 degrees above zero; lowest, 14 degrees below zero. Average annual rainfall, 14.2 inches.

Dimensions. Extreme length of State, north to south, 390 miles; extreme width, east to west, 350 miles.

History. Spanish exploration, under Coronado, 1541. Eastern two-thirds of territory originally formed part of Texas, all east of the Rio Grande having been claimed by the republic. A portion of the territory ceded by Mexico to the United States in 1848, and a strip of the Gadsden purchase added in 1853 to protect a cotton route. In 1850 and since that time has been seeking admission to the Union.

STATE AND THE 61 COUNTIES OF NEW YORK

With Their Boundaries

LOCATION AND 1910 POPULATION OF NEW YORK COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.
1.	St. Lawrence.	85,005	22.	Erie.	528,985
2.	Franklin.	45,717	23.	Genesee.	37,615
3.	Clinton.	48,230	24.	Wyoming.	31,380
4.	Jefferson.	80,297	25.	Livingston.	38,037
5.	Lewis.	24,849	26.	Ontario.	52,286
6.	Herkimer.	56,356	27.	Yates.	16,642
7.	Hamilton.	4,378	28.	Seneca.	26,972
8.	Essex.	33,458	29.	Tompkins.	33,647
9.	Niagara.	92,036	30.	Cortland.	29,249
10.	Orleans.	82,000	31.	Chenango.	35,575
11.	Monroe.	283,212	32.	Otsego.	47,216
12.	Wayne.	47,778	33.	Montgomery.	37,567
13.	Cauga.	67,106	34.	Schoharie.	23,855
14.	Oswego.	71,664	35.	Schenectady.	88,235
15.	Ononadaga.	200,298	36.	Albany.	173,666
16.	Madison.	39,289	37.	Rensselaer.	122,276
17.	Oneida.	154,157	38.	Chautauqua.	105,126
18.	Fulton.	44,534	39.	Cattaraugus.	65,919
19.	Warren.	32,223	40.	Allegheny.	41,412
20.	Saratago.	611,917	41.	Steuben.	83,362
21.	Washington.	50,179	42.	Schuyler.	14,004

Loca.	County	Pop.	Loca.	County	Pop.
43.	Chemung.	54,662	54.	Rockland.	46,873
44.	Tioga.	25,624	55.	Westchester.	283,055
45.	Broome.	78,809	56.	Bronx.	53,265
46.	Delaware.	87,661	57.	Richmond.	85,969
47.	Greene.	30,214	58.	Kings.	1,634,351
48.	Columbia.	43,658	59.	Queens.	284,011
49.	Sullivan.	33,808	60.	Nassau.	83,930
50.	Ulster.	91,769	61.	Suffolk.	96,138
51.	Dutchess.	87,861			
52.	Orange.	115,751			
53.	Putnam.	14,665			
			Total.		9,113,614

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Accord	50	375	Alexandria	4	1,899	Amityville	61	2,517	Arkport	41	460
Adams	4	1,458	Bay	4	1,899	Amsterdam	33	31,267	Arkville	46	430
Adams Basin	11	274	Alfred	10	759	Anchram	48	1,332	Arkwright	38	886
Adams Center	4	650	Allaben	50	250	Andes	46	414	Arlington	51	750
Addison	41	2,004	Allegany	39	1,286	Andover	40	1,336	Armonk	55	265
Adrian	41	500	Allenshill	26	220	Angelica	40	1,056	Ashford	39	306
Afton	31	729	Allentown	40	655	Angola	22	898	Ashland	47	780
Akin	33	606	Allgerville	50	250	Antwerp	4	974	Ashville	38	496
Akron	22	1,677	Almond	40	606	Apalachin	44	460	Athens	47	1,556
Alabama	23	227	Altamont	36	674	Aquebogue	61	320	Athol Springs	23	380
Albany	36	100,253	Altay	42	206	Aquetuck	36	250	Atlanta	41	294
(capital)	36	100,253	Altmar	14	360	Arcade	24	1,294	Attica	24	1,869
*Albion	10	5,016	Alton	12	350	Arden	52	290	Attwood	50	209
Alburt	2	363	Altona	3	250	Ardsley	55	537	*Auburn	13	34,686
Alden	22	828	Amagansett	61	608	Arena	46	208	Augusta	17	1,354
Alexander	23	212	Amawalk	55	290	Argyle	21	231	Aurelius	13	1,548
			Amenia	51	1,206	Arietta	7	295	Aurora	13	493

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Au Sable Chasm.3.		2,399	Briarcliff			Chadwicks	17	375	Copenhagen	5	585
Au Sable Forks 8.		2,500	Manor	55	950	Chafee	22	226	Copiate	61	516
Averilpark	37	450	Bridge			Champion	4	2,668	Copbettsville	45	201
Avoca	41	1,057	Hampton	61	1,394	Champlain	3	1,280	Corfu	23	413
Avon	25	2,083	Bridgeport	16	426	Chapin	26	360	Corinth	20	2,166
Awosting	50	508	Bridgewater	17	245	Chappaqua	55	733	Cornig	41	13,730
B			Brier Hill	1	266	Charleston	33	932	Cornwall	52	2,651
Babcockhill	17	2,600	Brighton	2	794	Charlotte	11	1,938	Cornwall		
Babylon	61	2,357	Brighton	11	846	Charlotteville	34	2,777	Landings	52	302
Bacon Hill	20	290	Broadalbin	18	1,933	Chateaugay	2	1,045	Cornwall on the		
Bainbridge	31	1,159	Brookport	11	3,579	Lake	2	220	Hudson	52	1,301
Baiting Hollow	61	250	Brocton	38	1,181	Chatham	48	2,251	*Cortland	39	11,504
Baldwin	60	2,596	Bronxville	55	1,863	Chazy	2	223	Cossayuna	21	211
Baldwinsville	15	3,099	Brookfield	16	395	Chautauqua	55	206	Covert	28	1,954
Ballston Lake	20	200	Brook Haven	61	1,351	Chazy Lake	3	285	Cowlesville	24	202
Ballston Spa	29	4,138	*Brooklyn	58	1,630	Chelsea	51	226	Coxsackie	47	2,494
Bangor Station	2	490	Brookton	29	362	Chemung	43	392	Cratercluf	8	201
Bangor	2	2,184	Brookview	37	222	Chenango	45	250	Creek Locks	50	502
Barker	9	441	Broome Center	34	1,054	Cherry Creek	38	606	Cruescent	20	315
Barre Center	10	208	Brownville	4	854	Cherry Valley	32	792	Croghan	5	604
Barrytown	51	490	Brushton	2	598	Cheshire	56	204	Crofton Falls	55	451
Barryville	49	380	Buchanan	55	390	Chester	52	1,210	Crown Point	8	1,891
Barton	44	208	*Buffalo	22	123,705	Chestertown	19	1,965	Crown Point		
*Batavia	23	11,613	Burdett	42	382	Chichester	50	606	Center	8	201
*Bath	41	3,884	Burlington	2	1,875	Chili	11	2,109	Crugers	55	212
Battenville	21	275	Burlington	49	266	Chittenango	16	678	Cuba	40	1,556
Bayport	61	750	Flats	32	309	Chittenango	16	222	Cuchogue	61	851
Bay Shore	61	3,842	Buskirk Bridge	21	321	Falls	11	565	Cuylerville	25	254
Bayville	69	590	Busti	38	390	Churchville	11	565	D		
Beaver Dams	42	509	Byron	23	350	Cicero	15	490	Dalton	49	201
Beaver Falls	5	900	C			Cincinnati	30	1,033	Damascus	45	201
Bedford	55	390	Cadosia	46	509	Clare	1	329	Danby	29	1,241
Bedford Sta-			Cairo	47	573	Clarence	22	560	Danemora	3	1,146
tion	58	609	Caledonia	25	1,240	Clarence	22	560	Dansville	23	3,938
Beckman	51	255	Callicoon	49	880	Center	22	490	Darien	46	401
Beckmantown	3	1,889	Callicoon	49	880	Clark Mills	17	606	Davenport	39	501
Belfast	40	990	Center	49	250	Clarkson	11	390	Deansboro	17	251
Belle Isle	4	326	Calverton	61	210	Clarksburg	36	406	Debruce	49	250
Bellville	4	344	Camden	21	1,528	Claverack	48	402	Deerfield	17	691
Bellevue	22	490	Cameron	17	2,170	Claverhouse	11	426	Deerhead	8	302
Bellmore	60	680	Camillus	15	1,217	Clayton	4	1,941	Deer River	5	201
Bellona	27	250	Campbell	41	480	Clayville	17	649	Deferiet	4	802
Bellport	61	419	Canaan	48	215	Clemans	21	321	De Kalb		
Bellevue	52	350	Canajoharie	33	2,273	Cleveland	14	687	Junction	1	451
*Belmont	40	1,094	*Canandaigua	26	7,217	Clifton	11	250	De Lancey	46	202
*Belmont Center	2	380	Canaseraga	40	754	Clifton	26	1,608	Delanson	35	451
Belvidere	40	200	Canastota	16	3,247	Clinton	17	1,236	Delavan	39	751
Bennington	24	390	Canastota	44	737	Clinton	17	1,236	*Delhi	46	1,736
Benson	7	215	Canastota	40	450	Corners	51	320	Delmar	36	401
Benson Mines	23	637	Canastota	41	2,354	Clintonville	3	244	Delphi Falls	15	231
Bergen	23	637	Canton	46	300	Clyde	12	2,695	Dempster	14	501
Berkshire	44	1,160	*Canton	46	300	Clyde	12	2,695	Denning	50	897
Berlin	37	1,677	Cape Vincent	4	1,155	Cobleskill	34	2,088	Depauville	4	351
Berne	36	1,915	Capron	17	608	Cochection	49	1,174	Depew	22	3,921
Bethel	49	215	Carlisle	34	1,091	Center	49	1,174	Deposit	45	1,864
Bethlehem			Carman	35	450	Coeymans	36	4,264	Derby	22	251
Center	36	4,451	*Carmel	53	660	Coeymans	36	4,264	Derrick	22	351
Big Creek	11	208	Caroline	29	200	Hollow	36	410	De Ruyter	16	538
Big Flats	41	590	Caroline	29	200	Cohocton	41	838	Dexter	4	1,005
Big Trees	22	208	Carrollton	29	266	Cohoes	36	24,709	Dickinson	2	1,763
*Binghamton	45	18,443	Carthage	4	3,563	Cold Brook	6	358	Center	2	1,664
Binnewave	50	490	Cassadaga	38	428	Colden	22	462	Dobbs Ferry	55	3,455
Bishopville	40	2,129	Cassville	17	226	Cold Spring	53	2,549	Dodgeville	6	2,685
Black River	4	916	Castle	24	1,040	Harbor	61	981	Dorloo	34	201
Bladell	22	849	Castle Creek	45	220	Cold Water	11	260	Dover Plains	51	797
Blauvelt	54	350	Castleton	37	1,396	Collins	22	320	Downsville	46	591
Blleecker	18	527	Castorland	5	360	Collins Center	22	350	Dresden	27	345
Blles	24	499	Catharine	42	1,268	Columbiaville	48	320	Dresden		
Bloomburg	49	550	Catlin	43	912	Columbus	31	290	Station	21	251
Bloomington	8	382	Cato	13	374	Commaack	61	360	Dryden	29	709
Bloomington	58	466	Caton	41	1,215	Conesus	25	526	Duane	2	372
Bloomville	46	350	*Catskill	39	5,396	Coneville	34	734	Duanesburg	35	2,467
Blue Point	61	506	Cattaraugus	39	1,165	Conewango	39	220	Dundee	27	1,238
Bohemia	61	390	Caughdenoy	14	250	Valley	39	202	Dunkirk	38	17,221
Bolivar	40	2,318	Cayuga	13	348	Congers	54	730	Durham	47	275
Bolton	19	1,561	Cayuta	42	383	Connelly	50	850	Durhamville	17	731
Bolton			Cazenovia	16	1,861	Constable	2	1,355	E		
Landing	19	1,363	Cedar Hill	36	206	Constableville	5	407	Eagle Bridge	37	301
Bonhay	2	1,386	Cedarhurst	60	762	Constantia	14	241	Eagle Harbor	16	315
Bonville	17	1,794	Cedarville	15	226	Cooks Falls	46	401	Eagle Mills	37	501
Boquet	8	250	Celestine	38	619	Coopers Plains	41	301	Earlville	10	874
Border City	28	296	Cementon	47	606	*Cooperstown	32	2,484	East Aurora	22	2,781
Borodino	15	209	Center Cam-			Cooperstown			East Avon	25	251
Boston	22	1,278	bridge	21	357	Cooperstown			East Bethany	23	201
Bouckville	16	250	Center Lisle	45	225	Cooperstown			East		
Bowmansville	22	366	Center			Cooperstown			Bloomfield	26	1,941
Bradford	41	620	Moriches	61	1,017	Cooperstown			East Branch	46	301
Brainerd	37	280	Centerport	61	487	Cooperstown			East		
Brainerdsville	2	280	Centerville			Cooperstown			Chatham	48	224
Branchport	27	273	Station	49	862	Cooperstown			East Durham	47	251
Brant	2	920	Central Bridge	34	426	Cooperstown			East Florence	17	201
Brasher Falls	22	250	Central Islip	61	426	Cooperstown			East		
Breakabeen	31	606	Central Park	60	530	Cooperstown			Greenbush	47	2,036
Breesport	43	506	Central Valley	52	429	Cooperstown					
Brentwood	61	250	Ceres	40	350	Cooperstown					
Brewster	15	625				Cooperstown					
Brewster	53	1,296				Cooperstown					

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
East			Farmersville	.33	275	Glenham	.51	801	Herman	.1	587
Groveland	.25	205	Farmersville			Glen Head	.69	677	Heuvelton	.1	500
East Hampton	.61	2,001	Station	.39	201	Glenlock	.26	515	Hewittville	.1	259
East Hartford	.21	202	Farmingsdale	.60	1,567	Glenpark	.4	522	Hewlett	.60	511
East Islip	.61	999	Farnham	.22	541	Glens Falls	.19	15,243	Hicksville	.60	2,509
East			Faust	.2	301	Glenside	.15	301	High Falls	.50	790
Kingston	.50	401	Payetteville	.28	251	Glenville	.35	4,178	Highland	.50	1,300
East Marion	.61	401	Payetteville	.15	1,481	Glenwood			Highland		
East			Pelts Mills	.4	202	Landing	.60	351	Falls	.52	2,470
Meredith	.46	301	Pennwood	.14	202	Gloverville	.18	20,642	Highland Mills	.52	2,470
East			Pilmore	.40	401	Good Ground	.61	1,011	Hillburn	.54	1,090
Moriches	.61	847	Findley Lake	.38	401	Gorham	.26	301	Hillsdale	.48	560
East Nassau	.37	201	Fin	.1	302	Goshen	.52	3,081	Hilton	.11	627
East			Firthcliff	.52	301	Gouverneur	.1	4,128	Himrod	.27	310
Northport	.61	301	Fishers	.26	201	Gowanda	.39	2,012	Hinckley	.17	666
East Oldfield	.23	502	Fishers			Grafton	.37	501	Hindsburg	.10	222
Easton	.21	201	Island	.61	301	Grahamsville	.49	301	Hinsdale	.39	208
East			Fiskill	.51	516	Granby Center	.14	2,938	Hoag Corners	.37	257
Onondaga	.15	400	Fishkill			Grande Gorge	.46	251	Hobart	.46	544
East Otto	.39	301	the Hudson	.51	3,902	Grand Island	.22	1,401	Hogansburg	.2	353
East			Fishs Eddy	.46	225	Grandview	.54	356	Holbrook	.61	201
Palmyra	.12	251	Flagg	.8	201	Granville	.21	3,921	Holcomb	.26	226
East Park	.51	203	Fleischmanns	.46	201	Grapeville	.47	251	Holland	.22	762
East			Fleming	.13	1,076	Grassy Point	.54	701	Holland		
Patchogue	.61	251	Floral Park	.60	1,225	Great Bend	.4	301	Patent	.17	337
East			Florence	.17	251	Great Neck	.60	1,985	Holley	.10	1,679
Pembroke	.23	501	Florida	.52	555	Greatneck			Homesville	.31	250
Eastport	.61	401	Floy Creek	.17	222	Station	.60	201	Homer	.39	2,695
East Quogue	.61	302	*Fonda	.33	1,101	Great Valley	.39	210	Honeoye	.25	426
East			Forestburg	.49	714	Greece	.1	251	Honeoye Falls	.11	1,169
Randolph	.39	592	Forestport	.17	507	Greene	.31	1,275	Hoosick	.37	362
East			Forestville	.38	721	Green Island	.36	4,737	Hoosick Falls	.37	5,532
Rochester	.11	2,398	Forks	.22	3,201	Green Lawn	.61	401	Hope	.07	317
East			Port Ann	.21	436	Greenport	.61	3,089	Hopewell		
Rockaway	.60	1,202	Port Covington	.2	854	Greenville	.47	351	Junction	.51	320
East Schodack	.37	205	Port Covington			Greenwich	.21	2,314	Hopkinton	.1	206
East			Center	.2	877	Greenwood	.41	1,082	Horicon	.19	1,114
Setauket	.61	684	Port Edward	.21	3,762	Griffin Corners	.46	492	Hornby	.41	940
Springfield	.32	201	Port Hunter	.33	701	Groton	.29	1,261	Hornell	.41	13,617
East			Port Miller	.21	301	Groveland			Horseheads	.43	1,730
Syracuse	.15	3,274	Port Montgom-			Station	.25	252	Howard	.41	1,578
Eastwood	.15	810	ery	.52	215	Guilderland	.36	3,541	Hoyalls	.52	250
East			Port Plain	.33	2,762	Guilderland			Hubbardsville	.16	460
Worcester	.32	501	Station	.33	708	Center	.36	218	*Hudson	.48	11,417
Eaton	.16	2,474	Powerville	.25	382	Guilford	.31	402	*Hudson Falls	.21	5,189
Ebenezer	.22	501	Frankfort	.6	3,303				Hughsonville	.51	682
Eddyville	.50	601	Franklin	.46	473	Hadley	.20	351	Huguenot Park	.57	456
Eddyville	.39	215	Franklin Falls	.2	1,496	Hagaman	.33	875	Huilton	.10	462
Eden	.22	701	Franklin			Hagerman	.61	250	Hume	.40	385
Edinburg	.20	1,032	Springs	.17	352	Hague	.19	1,054	Hunter	.47	408
Edison	.4	651	Franklinville	.39	1,568	Haines Falls	.47	1,509	Huntington	.61	5,030
Edmeston	.32	801	Fredonia	.38	5,285	Hale Eddy	.46	200	Huntington		
Edwards	.1	476	Freehold	.47	241	Halesite	.61	560	Hurley	.50	462
Egbertsville	.22	301	Freeman	.41	501	Hall	.36	439	Hurleyville	.49	520
Egypt	.11	392	Freeport	.60	4,836	Halsey Valley	.41	306	Huron	.12	266
Elba	.23	351	Freetown			Hamburg	.22	2,131	Hurstville	.36	1,793
Elbridge	.15	463	Freeville	.30	539	Hamden	.46	375	Hyde Park	.51	786
*Elizabethtown	.46	505	Freemont	.29	318	Hamilton	.16	1,689			
Elkbrook	.46	201	Center	.49	2,168	Hamlet	.38	209			
Ellenburg	.3	324	Frewsburg	.38	801	Hamlin	.11	350			
Ellenburg			Friendship	.40	1,218	Hammond	.1	404			
Center	.3	252	Fulton	.14	10,481	Hammonds-					
Ellenville	.50	3,114	Fulton Chain	.6	201	port	.41	1,254			
Ellicottville	.39	985	Fultonham	.34	1,998	Hampton	.21	675			
Ellington	.38	501	Fultonville	.33	812	Hancock	.46	1,329			
Ellisburg	.4	702				Hannawa Falls	.1	390			
Elma	.22	251				Hannibal	.14	330			
Elmhurst	.59	2,500				Hannibal					
*Elmira	.43	3,716				Center	.14	250			
Elmira			Gabriels	.2	201	Hardenburg	.50	784			
Heights	.43	2,732	Gaines	.10	201	Harford	.30	679			
Elmsford	.55	552	Gainesville	.24	327	Harford Mills	.30	200			
Emerick	.36	501	Galena	.31	865	Harpersville	.45	450			
Emeryville	.1	201	Gallupville	.34	258	Hartford	.21	763			
Empire	.48	202	Ganestvoort	.21	324	Hartland	.9	350			
Enderlin	.52	1,001	Garbutt	.41	224	Hart Lot	.15	330			
Endicott	.45	2,408	Garden City	.60	577	Hartsdale	.55	706			
Endicott			Gardenville	.22	701	Hartwick	.32	662			
Center	.29	1,141	Gardiner	.50	352	Hastings	.14	306			
Ephraim	.18	1,497	Garfield	.37	401	Hudson upon	.55	4,552			
Erinville	.16	251	Garnerville	.54	1,301	Hauppauge	.61	266			
Erin	.43	898	Garoga	.18	449	Haverstraw	.54	5,669			
Erwin	.41	2,107	Garrattsville	.32	225	Hawkinsville	.17	322			
Esopus	.50	251	Garrison	.53	501	Hawthorne	.55	350			
Esperance	.34	263	Gaspport	.9	375	Hecla Works	.17	326			
Essex	.8	1,344	Geneseo	.25	2,065	Hector	.42	3,888			
Essex Station	.8	251	Geneva	.26	12,446	Hemlock	.25	320			
Etna	.29	375	Genoa	.13	451	Hempstead	.60	4,964			
Euclid	.15	201	Georgetown	.16	896	Henderson	.4	340			
Evans	.22	200	Germantown	.48	801	Henderson					
			Gerry	.38	302	Harbor	.4	290			
			Getzville	.22	501	Henricetta	.25	292			
			Gibson	.41	278	Hensonville	.47	230			
			Gilbert	.28	290	*Herkimer	.6	7,520			
			Gilbertsville	.33	445	Hermitage	.24	226			
			Gilboa	.34	1,425						
			Gile	.2	201						
			Glascow	.50	1,501						
			Glen	.33	2,191						
			Glen Cove	.60	7,501						
			Glenfield	.5	251						

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
K			Louisville	1	1,553	Mitchellville	41	308	No. Brookfield	16	350
Kaaterskill	47	890	*Lowville	5	2,940	Model City	9	290	North Chill	11	302
Kanana	41	290	Loyd	50	262	Modena	50	250	No. Chocton	41	350
Katona	55	1,409	Ludlowville	29	262	Mohawk	6	2,079	No. Collins	22	730
Katrine	50	566	Luzerne	19	1,371	Molra	2	2,473	North Creek	19	450
Kearney	8	1,258	Luzon	19	352	Monroe	52	1,195	No. Elba	8	3,001
Keene Valley	3	1,258	Lycoming	14	203	Money	54	326	No. Evans	22	390
Keeseeville	8	1,835	Lynbrook	60	2,051	Monterey	4	276	North Fair		
Keddall	10	460	Lyndowville	19	617	Montezuma	13	350	Haven	13	360
Kelleys	35	650	*Lyons	12	4,460	Montgomery	52	941	North Ger-		
Kendall Mills	10	330	Lynsdale	5	1,151	*Monticello	49	1,941	mantown	48	360
Kenmore	22	1,020	Lyons Falls	5	759	Montour Falls	42	1,208	No. Granville	21	626
Kennedy	38	662	Lysander	15	305	Montrose	55	204	No. Hannibal	14	226
Kenwood	16	632	M			Moores	3	560	No. Hebron	21	301
Kerhonkson	50	330	McConnellsville	17	260	Moores Forks	3	226	No. Hoosick	37	491
Killbuck	45	362	McDonough	31	322	Moravia	13	1,324	No. Hudson	8	505
Kill Buck	39	250	McGraw	30	931	Moreauville	7	216	North Java	24	390
Kinderhook	48	698	McLean	29	460	Moriah	8	571	No. Lawrence	1	598
King Ferry	13	320	Macedon	12	536	Moriches	61	2,041	No. Norwich	31	865
Kings Park	61	1,090	Macchias	39	662	Morley	1	530	North Peham	55	1,341
*Kingston	50	25,908	Macomb	1	1,245	Morris	32	535	No. Petersburg	37	293
Kirkville	15	250	Madalin	51	1,041	Morrisonville	3	350	No. Pharsalia	31	260
Kirkwood	45	290	Madison	16	308	Morristown	1	540	Northport	61	2,096
Knappp Creek	39	226	Madrid	1	950	Morrisville	16	562	North Rose	12	460
Knapps	1	360	Madrid Spgs.	53	450	Morton Corners	22	201	North Salem	55	226
Knowlesville	10	321	Madhapac	53	450	Moscow	25	304	No. Stockholm	1	362
Knox	36	1,174	Maine	45	409	Mossyglenn	41	293	No. Syracuse	15	399
Knoxboro	17	262	Maiden Bridge	48	210	Mottville	15	601	No. Tarrytown	55	5,421
Kripplebush	50	229	Malden on Hud-			Mountain Dale	49	362	No. Tonawanda	9	11,955
L			son	50	244	Mountainville	59	450	Northville	18	1,130
Lackawanna	22	14,549	Mallory	14	256	Mt. Kisco	55	2,802	*Norwich		
Lacona	14	443	*Malone	2	6,467	Mt. Morris	25	2,782	Norwood	1	1,993
La Fargeville	4	475	Mamaroneck	55	5,699	Mt. Sinai	61	275	Nunda	25	1,043
La Grangeville	51	200	Manchester	26	881	Mt. Upton	31	350	Nyack	54	4,619
Lake George	19	632	Manhasset	60	1,062	Mt. Vernon	55	30,919	O		
Lake Grove	61	462	Manitow	53	250	Mt. Vision	32	251	Oakfield	23	1,236
Lake Hunt-			Manlius	15	1,314	Mumford	11	455	Oaks Corners	26	369
ington	49	326	Mannsville	4	330	Munnsville	16	401	Ocean Side	42	562
Lake Katrina	50	562	Manorville	61	550	N			Odessa	42	330
Lake Placid	8	1,632	Marathon	30	1,079	Nanuet	54	701	Ogden	11	1,876
*Lake Pleasant	7	494	Marcellus	15	917	Napanoch	50	650	Ogdensburg	1	15,998
Lake View	22	596	Margaretville	46	669	Naples	26	1,093	Oldcott	9	250
Lakeville	25	476	Marilla	22	462	Narrowsburg	49	401	Old Chatham	48	390
Lakewood	38	501	Marion	12	836	Nassau	37	529	Old Forge	6	465
Lancaster	22	4,304	Marlboro	5	920	Natural Bridge	4	401	Old Holbrook	61	201
Langford	22	218	Martinsburg	5	226	Nauburg	5	201	Old Westbury	60	250
Lansing	14	262	Maryland	32	220	Nelsonville	33	737	Olean	39	14,743
Larchmont	55	1,958	Masonville	46	350	Never sink	49	301	Oliverbridge	4	500
La Salle	9	1,299	Massapequa	60	543	New Albion	39	201	Oneida	16	8,317
Lassalleville	18	326	Massena	1	2,951	Newark	12	6,227	Oneida Castle	17	301
Laurens	32	242	Massena Spgs.	1	206	Newark Valley	44	925	Oneida Valley	16	406
Lawrence	60	1,189	Matton	1	222	New Baltimore	47	731	Oneonta	32	9,491
Lawrenceville	1	398	Matteawan	51	6,727	New Berlin	31	1,114	Onondaga	15	250
Lawyersville	34	250	Matituck	61	1,290	New Bremen	5	1,975	Onondaga		
Lebanon Spgs.	48	530	Maybrook	52	250	New Bridge	1	201	Valley	15	590
Lee Center	17	325	Mayfield	18	590	Newburgh	52	27,805	Onoville	39	609
Leeds	45	300	*Mayville	38	1,122	New City	54	450	Ontario	12	490
Le Fevre Falls	50	292	Maywood	36	460	New City	8	554	Ontario Center	12	306
Liebhart	50	290	Mechanicsville	20	6,634	Newfane	9	501	Oppenheim	18	1,258
Leicester	25	304	Mecklenburg	42	460	Newfield	29	354	Orangeburg	22	390
Leon	39	250	Meco	18	200	New Hamburg	51	590	Orchard Park	22	869
Leonardsville	16	350	Medford Sta.	61	250	New Hampton	52	260	Orient	61	808
Le Roy	23	3,771	Medina	10	5,603	New Hartford	17	1,195	Oriskany	17	1,206
Lestershire	45	3,775	Medusa	36	250	New Haven	14	296	Oriskany Falls	14	832
Levant	38	762	Mellenville	48	564	New Hyde			Orleans	26	220
Lewis	8	1,049	Melrose	37	360	Park	60	1,001	Orleans Four		
Lewiston	9	713	Melville	61	266	New Lebanon	48	460	Corners	4	2,433
Lexington	47	362	Memphis	15	224	New Lisbon	32	201	Orwell	14	1,029
Liberly	38	272	Mendon	11	204	New Paltz	50	1,250	Ossian	25	780
Lillydale	38	250	Meridian	13	326	Newport	6	583	Ossining	55	11,480
Lima	25	866	Merrick	69	520	New Rochelle	55	28,867	Oswego	14	23,368
Limestone	39	684	Mexico	14	1,233	New Scotland	36	3,015	Oswego Center	14	23,368
Lincolnaen	31	250	Middleburg	34	1,114	New Suffolk	61	251	Otego	32	256
Lincolndale	55	200	Middle Falls	21	420	Newtonfalls	1	401	Otisville	52	250
Lindenhurst	61	1,575	Middlefield	32	243	Newtonville	36	250	Otto	39	490
Lindley	41	1,174	Middle Gran-			New Windsor	52	614	Quaquaga	45	260
Linlithgo	48	266	vile	21	723	New Wood-			*Ovid	28	584
Linlithgo Sta.	48	208	Middle Grove	20	250	stock	16	338	Owasco	13	260
Liste	45	329	Middle Hope	52	350	*New York	56	4,766,883	*Owego	44	4,633
Little Falls	6	12,273	Middle Island	60	250	New York			Oxbow	4	250
Little Genesee	40	250	Middleport	9	1,530	Mills	17	2,552	Oxford	31	1,654
*Little Valley	39	1,368	Middlesex	27	350	Niagara Falls	9	30,445	Oyster Bay	60	3,692
Liverpool	15	1,388	Middletown	52	15,313	Niagara			P		
Livingston	48	245	Middleville	6	625	University	9	250	Pagebrook	31	250
Livingston			Milford	32	511	Nichols	44	533	Painted Post	41	1,224
Manor	49	1,086	Millbrook	51	1,136	Nicholville	1	362	Palatine Bridge	33	392
Livingstonville	34	326	Millerton	51	858	Nile	40	290	Palermo	14	1,301
Livonia	25	823	Millgrove	22	262	Nineveh	45	450	Palisades	54	362
Livonia Center	25	226	Mill Port	43	506	Niobe	38	290	Palmyra	12	2,268
Lodi	3	253	Mills	30	290	Niskayuna	35	1,445	Panama		
Locke	9	1,079	Milton	58	1,209	Niverville	48	279	Corners	4	202
*Lockport	9	17,970	Mina	38	1,125	Norfolk	1	1,500	Paris	17	226
Locust Valley	60	448	Minaville	33	256	Northampton	18	2,604	Parish	14	490
Lodi	28	495	Minden	33	4,591	North Argyle	21	208	Parishville	1	712
Long Eddy	49	766	*Mineola	60	1,981	No. Bangor	2	480	Parkston	49	250
Long Lake	7	1,233	Minerva	8	1,012	North Bay	17	350	Patchogue	61	3,821
Loomis	49	226	Minville	8	1,844	No. Blenheim	34	528	Patterson Mills	21	250
Lordville	46	226	Minisink	52	390	No. Boston	22	209			
Lorraine	4	390	Minoa	15	320	North Branch	49	250			
Loudonville	36	556									

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Patterson	53	860	Ramapo	R		Saranac	3	4,983	South Byron	23	251
Pavilion	23	420	Randallsville	16	250	Saranac Lake	2	3,834	South		
Pawling	51	848	Randolph	39	1,298	Saratoga			Cambridge	21	201
Peakville	46	206	Ransomville	9	522	Springs	20	12,693	South Clyde	12	269
Pearl River	54	1,560	Rathbone	41	973	Sardinia	22	499	South Colton	1	251
Peconic	61	606	Ravena	36	1,260	Saugerties	50	3,929	South Corinth	20	201
Peekskill	55	15,245	Raymondville	1	726	Sauquoit	17	596	South Dayton	39	601
Pelham	55	681	Readburn	46	220	Savannah	12	521	South		
Pelham Manor	55	852	Reading Center	42	1,412	Savona	41	587	Edmeston	32	201
Pembroke	23	350	Red Creek	12	457	Sayville	3	927	South		
Pendleton	9	250	Redfield	14	792	Scarsdale	65	633	Fallsburg	49	401
Pennell	11	760	Red Hook	51	960	Schaghticoke	37	765	South Glen		
Pennellville	14	250	Red House	39	560	*Schenectady	35	72,826	Falls	20	2,247
*Penn Yan	27	4,597	Redwood	4	560	Schenevus	32	576	South		
Perkinsville	41	460	Remsen	17	421	Schodack			Harthford	21	318
Perry	24	4,388	Rensselaer	37	10,711	Landing	37	399	South Horicon	19	1,582
Perrysburg	39	360	Rensselaer Falls	1	443	*Schoharie	34	996	South		
Perrys Mills	3	280	Rensselaer Falls	36	1,638	Schroon Lake	8	1,214	Jamesport	61	301
Perryville	16	226	Rensselaer Falls	36	1,638	Schuylerville	20	1,614	South Lansing	29	501
Perth	18	676	Reserve	47	632	Scio	40	811	South		
Peterboro	29	2,350	Result	27	239	Scipioville	13	200	Millbrook	51	201
Peterboro	16	330	Rexford	20	426	Scotia	35	2,957	South New		
Petersburg	37	460	Reynoldsville	42	290	Scott	30	708	Berlin	31	401
Pharsalia	31	972	Rhinebeck	51	1,548	Scottsboro	25	299	South Nyack	54	2,063
Phelps	26	1,354	Rhinecliff	51	690	Scottsburg	25	299	Southold	61	1,501
Philadelphia	4	842	Richburg	40	451	Scotsville	11	784	South		
Philmont	48	1,813	Richfield	32	250	Scriba	14	2,241	Onondaga	15	251
Phoenix	50	316	Richfield Spgs	32	1,503	Scriba	14	2,241	South Otselee	31	301
Phoenix	14	1,612	Richford	44	350	Sea Breeze	11	1,998	South		
Piercedale	1	750	Richland	18	408	Sea Cliff	60	1,694	South Wales	22	301
Piermont	54	1,380	*Richmond	57	85,969	Seaford	60	716	Southwest		
Pierrepont	1	1,953	Richmond Hill	59	1,890	Seaverton	1	290	Oswego	14	326
Pierrepont			Richmondville	34	599	Selkirk	36	262	Spafford	15	1,131
Manor	4	252	Richville Station	1	307	Sempronius	13	594	Sparks	54	951
Piffard	25	250	Ridgeway	10	390	Seneca Castle	26	299	Sparrow Bush	52	401
Pife	24	422	Rifton	50	745	Seneca Falls	28	6,588	Spencer	41	569
Pine Bush	52	560	*Riverhead	61	2,500	Sennett	13	1,859	Spencerport	11	1,001
Pine City	53	260	Rochester	11	218,149	Scriba	14	2,241	Spencertown	48	315
Pine Hill	50	417	Rock City Falls	20	220	Scriba	14	2,241	Split Rock	15	301
Pine Plains	41	1,500	Rock Glen	24	260	Shandaken	50	441	Spragueville	51	301
Pine Valley	43	208	Rockland	49	366	Sharon	34	1,993	Sprakers	33	319
Pittsford	11	1,205	Rockland Lake	54	550	Sharon Springs	34	459	Spring Brook	22	201
Plainville	15	250	Rock Rife	46	290	Shelby	10	299	Springfield		
Plattekill	50	260	Rock Stream	27	220	Sheldrake	28	200	Center	32	275
*Plattsburg	3	11,138	Rockville			Shelter Island	61	401	Spring Glen	50	209
Pleasant Plains	51	489	Center	60	3,667	Shelter Island			Springs	61	339
Pleasant Valley	51	127	Rockwood	18	326	Heights	61	1,199	Spring Valley	54	2,353
Pleasantville	55	2,207	Rocky Point	61	260	Sherburne	31	961	Springville	22	2,346
Plessis	4	240	Rodman	4	206	Sheridan	38	251	Springwater	25	601
Point Chau-			Rome	17	20,497	Sherman	38	836	Staatsburg	51	399
taqua	37	360	Romulus	28	202	Sherman Park	55	450	Stamford	46	973
Poland	6	332	Ronkonkoma	61	230	Sherrill	17	301	Stanfordville	51	399
Pompey	15	2,381	Rosevelt	60	1,026	Shokan	50	401	Stanley	26	451
Pompey Center	15	250	Roscoe	49	1,020	Shortsville	26	1,112	Starke	27	1,662
Ponds	11	860	Rose	12	990	Short Tract	40	510	Starlake	1	201
Poolville	16	250	Roseboom	32	200	Shrub Oak	55	325	Steamburg	39	251
Portage	25	450	Rosendale	50	1,125	Shushan	21	501	Steele	28	351
Port Byron	13	1,085	Roseton	52	2,062	Sidney	46	2,507	Stephentown	37	251
Port Chester	55	12,809	Roslyn	60	2,847	Sidney Center	44	463	Stephentown		
Port Crane	55	530	Rossie	1	1,192	Silver Creek	38	2,512	Stewart	37	200
Port Dickinson	45	437	Rosser	23	250	Silver Springs	24	974	Sterling	13	351
Porter Corners	20	210	Rotterdam	35	4,198	Sinclairville	38	542	Sterling Station	13	221
Port Ewen	50	1,211	Rotterdam Jct	35	360	Skaneateles	15	1,615	Stillwater	20	1,004
Port Gibson	26	460	Rouses Point	3	1,638	Skaneateles			Stillville	17	351
Port Henry	8	2,266	Roxbury	46	499	Falls	15	501	Stockbridge	16	301
Port Jefferson			Ruby	50	285	Slaterville			Stockport	48	701
Station	61	2,156	Ruralgrove	33	225	Springs	29	401	Stockton	38	601
Port Jervis	52	9,564	Rush	11	299	Slingerlands	36	501	Stone Ridge	50	225
Portland	38	506	Rushford	40	598	Sloan	22	1,259	Stony Brook	61	844
Port Leyden	5	764	Rushville	27	463	Sloatsburg	34	201	Stony Creek	49	910
Portville	39	758	Russell	1	399	Sloatsburg	54	1,125	Stony Point	54	951
Port Wash-			Russia	3	251	Smithboro	44	251	Stottville	48	721
ington	60	3,066	Rye	55	3,964	Smiths Basin	21	251	Stratford	18	652
Potsdam	1	4,036	Sacket Harbor	4	868	Smithtown	61	301	Streetroad	8	201
Pottersville	19	320	Sag Harbor	61	3,418	Smithtown			Stretkerville	24	528
*Poughkeepsie	51	27,936	St. Bonaventure	39	399	Branch	61	528	Stuyvesant	48	401
Prattsburg	41	684	Saint Huberts	8	1,211	Smithville	4	201	Falls	48	925
Prattsville	47	384	Saint James	61	351	Smithville Flats	31	1,318	Suffern	54	2,663
Preble	30	847	Saint Johns	54	299	Smithville			Summer Hill	43	669
Presho	41	302	Saint Johnsville	33	2,536	South	60	601	Summit	31	1,146
Preston	31	260	Saint Regis			Smyrna	31	257	Summitville	49	223
Preston Hollow	36	250	Falls	2	1,324	Sodus	19	401	Swormville	22	301
Princtown	35	653	Saint Remy	50	251	Sodus Center	12	351	Syosset	60	401
Prospect	17	278	Salamanca	39	5,792	Sodus Point	12	701	*Syracuse	15	137,249
Protection	22	260	Salamanca			Solon	30	541			
*Pulaski	14	1,788	Salisbury	25	1,251	Solvay	15	5,189	Taberg	17	331
Pulteney	41	1,384	Salisbury Center	6	230	Somers	9	301	Taborton	37	200
Pulteneyville	12	250	Salisbury Mills	52	351	Sonyea	25	301	Tallman	54	206
Purdy's Station	55	230	Salt Point	51	266	Southampton	61	2,509	Tannersville	47	660
Putnam	21	505	Sammons	18	301	South			Tappan	54	301
Pyrites	1	260	Samsonville	50	222	Amsterdam	33	31,267	Tarrytown	55	5,601
			Sanborn	9	278	South Argyle	21	281	Taylor	30	759
			Sandlake	37	488	South Berlin	37	210	Taylor Valley	50	806
			Sandusky	39	301	South			Theresa	4	932
			Sandy Creek	14	617	Bethlehem	36	501	Thiels	54	301
			Sangerfield	17	226	South			Thompsonville	49	201
			Sanitaria			Bloomfield	26	200	Thousand Island		
			Springs	45	200	South Bristol	26	1,104	Park	4	401
			Santa Clara	2	299	South Butler	12	351	Throopville	13	984

New York Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Thurman	19	833	Vermilion	14	220	Wellsburg	43	432	Westersfield		
Ticonderoga	8	2,475	Vernon	17	451	Wellsville	40	4,382	Springs	24	206
Tilly Foster	53	290	Vernon Center	17	210	West	39	201	Wevertown	19	225
Tioga Center	44	299	Verona	17	301	West Bethany	23	215	Wheeler	41	1,114
Tivoli	51	1,034	Verplanck	55	999	West			Wheeler	14	311
Toddsville	32	391	Versailles	39	290	Bloomfield	26	301	Whippleville	2	206
Tompkins Cove	54	1,201	Vesper	15	216	Westburg	43	351	White Creek	21	560
Tonawanda	22	8,291	Vestal	45	2,076	Westburg	40	387	Whitehall	21	4,917
Town Line	22	351	Vestal Center	45	301	West Camp	50	251	White Lake	49	798
Treadwell	46	275	Veteran	50	401	West Carthage	4	1,393	White Lake		
Trenton	17	317	Victor	26	881	West Chazy	3	251	White Lake		
Trenton Falls	17	289	Victory	13	1,316	West Coxsackie	47	501	Corners	17	251
Trides Hill	33	368	Victory Mills	20	748	Westdale	17	211	White Plains	55	15,949
Troupsburg	41	225	Virgil	30	201	West Danby	29	312	Whiteport	50	690
Trou Brook	46	201	Voorheesville	36	533	West Eaton	16	511	Whitesboro	17	2,375
Trout River	2	214				West Edmeston	32	222	White Sulphur		
*Troy	37	76,831	W			Westerville	32	222	Springs	49	251
Trudeau	3	225	Waddington	1	731	West Falls	17	311	Whitesville	40	398
Trumansburg	29	1,188	Wading River	61	397	Westfield	38	299	Whitfield	50	214
Truthville	21	201	Walden	52	4,004	West Fort Ann	21	206	Whitney Point	45	744
Truxton	30	1,186	Wales Center	22	290	West Fulton	34	211	Willard	28	201
Tuckahoe	55	2,772	Wallace	41	234	West Galway	17	312	Willket	30	685
Tully	15	551	Walkill	50	790	West Granville	21	311	Williamson	12	651
Tunesassa	39	201	Walton	46	3,102	West Hampton	61	448	Williamstown	14	951
Tupper Lake	2	3,057	Walworth	12	212	West Hampton			Williamsville	22	1,105
Tupper Lake			*Wampsville	16	451	Beach	61	251	Willow	50	200
Turin	2	299	Wantagh	60	710	West			Willowemoc	49	251
Turnwood	50	301	Wappingers			Haverstraw	54	2,360	Willowvale	17	490
Tuscarora	45	201	Falls	51	3,195	West Hebron	21	211	Willsboro	8	1,629
Tuxedo Park	52	2,001	Warner	15	590	West Hurley	50	321	Willseyville	44	561
Tyre	28	808	Warnerville	34	263	West Kill	47	220	Wilmington	8	575
Tyrone	42	1,411	Warrensburg	19	2,109	West Leyden	5	612	Wilson	9	655
			*Warsaw	24	3,206	West Milton	20	214	Windham	47	351
			Warwick	52	2,218	West Monroe	14	914	Windsor	45	637
U			Washington			Westmoreland	17	351	Windsor Beach	11	411
Unadilla	32	1,175	Hollow	51	251	West Nyack	54	231	Winthrop	1	351
Unadilla Forks	32	1,009	Washington			West Oneonta	32	299	Wiscoy	40	265
Union	45	1,544	Mills	17	301	West Oneonta	32	299	Wolcott	12	1,216
Union Center	45	201	Washington-			Westons Mills	39	511	Wolcottsburg	22	245
Union Grove	46	201	ville	52	301	West Point	52	1,212	Wolcottsville	9	811
Union Springs	13	798	Wassala	51	251	Westport			Woodbourne	49	351
Unionville	52	351	Waterford	20	3,245	West Rush	11	220	Woodbury	60	366
Upper Jay	8	501	*Waterloo	28	3,931	West			Woodhull	41	316
Upper Nyack	54	591	Water Mill	61	301	Salamanca	39	532	Woodstock	50	351
Urbana	41	2,517	Waterport	10	321	Lake Sand	37	311	Worcester	32	1,211
*Utica	17	74,419	*Watertown	4	26,730	West			Worth		
			Waterville	17	1,410	Saugerties	50	206	Wrights		
V			Watervliet	36	15,074	West Sayville	61	921	Corners	9	211
Valatie	48	1,219	Watkins	42	2,817	West			Wurtsboro	49	478
Valhalla	55	690	Watts Flats	38	400	Stephentown	37	381	Wyoming	24	526
Valley Cottage	54	280	Waverly	44	4,855	West Stockholm	1	211			
Valley Falls	37	835	Wawarsing	50	202	Westtown	52	211	Y		
Valley Stream	60	2,709	Wayland	41	1,392	West Union	41	1,112	Yaphank	61	3,151
Valois	42	360	Webb Mills	43	206	West Valley	39	461	Yonkers	55	79,803
Van Etten	43	476	Webster	11	1,032	Westville	2	1,146	York	25	512
Vanhornesville	6	350	Weedsport	13	1,344	West			Yorkshire	39	390
Varna	29	406	Wegatchie	1	210	Walworth	12	298	Yorkville	17	691
Varysburg	24	262	Wells	7	925	West Webster	11	211	Youngstown	9	555
			Wells Bridge	32	260	West Winfield	6	726	Youngsville	49	275
									Z		
									Zurich	12	200

NEW YORK STATE

Having the Advantage of Age, Experience, Central Location, Ocean Shipping, Port of Landing, and Superior Transportation Facilities.

Examination of location, in a study of New York State, reveals why this is the **foremost** state in the Union in several respects. **First**, it is a large state, **second** it is an old state, **third** it has a healthy climate and fertile soil, and **fourth**, in means of transportation it is so accessible for immigration, and so favorably situated to reach all the best markets, with agricultural and manufactured production it is not surprising that there is a large population to the square mile.

In fact, the surprise is that there is not a greater density of population. With every natural advantage, in productive soil, rivers, canals and railroads, with highly favorable climate, with a rapidly increasing population calling for every agricultural product which can be raised, it is clearly evident that land must become **much more valuable** than it now is in all portions of the state.

ADVANTAGE OF LARGE POPULATION.

Density of population largely determines real estate values. A small store space on Broadway, New York, or on State Street, in Chicago, will bring a large annual rental because **so many thousands** of people go by that store every day. It is true that goods may not increase in price, but the great number called for with some profit on each article sold is what brings the ultimate large profit in the aggregate.

Thus the vast increase in population throughout New York State means a greater and greater demand for food and a consequent greater profit because of the larger business.

Only about **one-half** of the State of New York is under cultivation at the present time. And this with eight millions of people. When three millions more are added to the population and there is a third greater demand, the land to supply that demand for food must yet be a good deal more valuable.

COMPETING WITH WESTERN LANDS.

It is true that the opening of new western lands will increase the volume of foodstuff, but it will always cost a certain percent of income to transport goods, and the nearer to market the products are produced, the greater the **saving** on transportation, the greater the **profit** on farm products, and the more valuable is nearby land.

ADVANTAGE OF BEING NEAR MARKETS.

With fertility of soil kept up, with all the up-to-date appliances in use for growing crops, it is not possible to conceive that **far away land** can be worth as much as that which is nearer to market. The **nearby farmer** is ahead of the western agriculturist all the time in **cost of transportation**, and therein largely lies his profit.

New York Opportunities in Agriculture and Varied Enterprises

Before going West it is well for the land seeker to come into communication with real estate market conditions near him.

It may be well to buy a small place near a manufacturing city, go into intensive farming, cultivate very thoroughly a small tract of land, raise what the people want, get it to market fresh and in the best possible condition.

It seems folly for people to leave conditions which are as good at home as abroad, to go far away into a new land among strangers, when it is possible to do as well or perhaps better in the immediate vicinity of where they have always lived.

Another factor to be considered is the immense amount of manufacturing going forward in this state. If the family is large and the farm is small it is often of advantage to have opportunity for some members of the household to work in a nearby factory while others till the farm.

What New York in manufacturing is, compared with the four greatest manufacturing states in the Union, is seen by the number of wage-earners which each state employs. Thus, Illinois had in a recent census, 379,436; Massachusetts, 488,399; Pennsylvania, 763,382, while New York had 856,947, or nearly 100,000 more wage-earners employed than Pennsylvania.

ONE-HALF OF THE STATE YET CULTIVATED.

New York's annual payroll to workmen in manufacturing was \$430,014,851. But this is only the

beginning. With the harnessing of waters in the one hundred and thirty rivers in the State, with the development of electric power, as yet only commencing, we may imagine that New York, with only half its land surface under cultivation, will find room and opportunity for thousands of other land-seekers right here, within the boundaries of the State.

In a journey throughout the State investigation shows that New York stands first in dairy products and in number and value of nurseries. Broom corn has long been the staple of the Mohawk Valley, hops have been an important crop in Oneida, Madison, Otsego and Schoharie Counties. Wayne County produces more dried fruit than any county in the State, and is also famous for its oil of peppermint. Grapes are successfully grown in the lake region of the central part of the State, in the Valley of the Hudson, below the Highlands, and in the north shore of Long Island.

Maple sugar is an important product in northern and central New York; and fruits, including apples, peaches, pears and strawberries, are largely grown in the western counties north of the watershed; while peaches are an important crop in Ulster County. Large tracts of land in the vicinity of New York City, and particularly on Long Island, are devoted to market gardening and dairying, and the inhabitants supply milk, butter, cheese, eggs, vegetables, and small fruits to the markets of the metropolis.

HEALTH AND PLEASURE RESORTS IN THE STATE OF NEW YORK. BEAUTIFUL PICTURESQUE VIEWS.

Another feature of New York which many people forget, and a multitude of people know nothing about, is the scenic attractions of the State. As their beauties become known they are visited by thousands of tourists annually and great wealth is coming to the State from that source. We could fill a volume descriptive of New York pleasure resorts, but content ourselves with mention of only a few interesting points, thus:

FIVE COUNTIES IN ADIRONDACKS.

Adirondack Mountains, N. Y. Northeastern New York, comprising the Counties of Hamilton, Franklin, Essex and Clinton, is now known to sportsmen and pleasure-seekers as the Adirondacks. A chain of mountains extends through the counties named, from northeast to southwest, on an elevated plateau, or ridge, which is nearly 2,000 feet higher than the surface of the Atlantic Ocean. Two of these mountains are remarkable for their height. Mount Marcy, the tallest, rises 5,337 feet above the sea-level; Mounts St. Anthony and McMartin are each estimated to be 5,000 feet, and Mounts Emmons and McIntyre, 4,000 feet above it. Owing to the irregularity of the mountain chain, and the consequent effect upon the country, the scenery is grand and romantic. The rivers Au Sable and Saranac, originating in the recesses of the mountains, flow into Lake Champlain, on the east, while the Cedar and Eoreas rivers, uniting with the headwaters of the Hudson, empty into that stream. There are numerous other rivers and creeks throughout the Adirondack region, with several ponds and lakes of varied magnitude, which add much to the grandeur and excellence of this famous resort. Game and fish are found within its borders. On the mountains abound groves and forests of ash, birch, beech, maple, hemlock, spruce, cedar, tamarack, fir and white pine trees. Rapids and falls in the streams, which are principally navigable for light boats, add diversity to the rugged surroundings. Tourists are conveyed by boats and footpaths to the numerous places of summer resort. Timber and iron ore form the principal staple productions of the Adirondack region, which is accessible by several railroad and water routes.

LINE OF STEAMERS IN ADIRONDACKS.

Blue Mountain Lake. In the Adirondack (N. Y.) Region, at the base of Blue Mountain, rising to a height of 3,824 feet, lies this beautiful sheet of water, which forms one of the finest attractions of this great resort. A line of steamers makes daily trips through this and the neighboring lakes, Raquette, Eagle and Utowana, a distance of twenty miles, and even twenty miles further, passing through Forked Lake and Long Lake to Saranac. Blue Mountain Lake is $3\frac{1}{2}$ miles long and 2 miles wide; Eagle Lake, 2 miles long and $\frac{1}{2}$ mile wide; Utowana Lake, 3 miles long and 1 mile wide.

DESCRIPTION OF NIAGARA FALLS.

Niagara Falls, N. Y. By act of Congress, in 1885, this great cataract became a national public park. The river is 33 miles long. Lake Erie is 334 feet higher than Lake Ontario, into which the river empties. Within a mile above the falls the descent is 52 feet. The total width of the river at Goat Island is 4,750 feet. The height of the waterfall on the American side is 164 feet, and on the Canadian side about 150 feet. The new Niagara Suspension Bridge is 1,300 feet long, and 190 feet above the river. Its towers are each 100 feet high. The stairway beside the inclined railway has 290 steps. Goat Island was so named from goats placed there about the year 1790 by Mr. John Stedman, who left them so uncared for during one winter that they died of exposure. There are seventeen islands in the river, near each other, above the Falls, all owned by the estate of Peter B. Porter, to whom the property was ceded by the State of New York in 1818. The height of the river bank at the Biddle Staircase is 185 feet. The old Suspension Bridge, 2 miles below the Falls, has a floor for the railway 60 feet wide, and the track is 258 feet above the river. The length of the bridge from the center of the towers at each end is 822 feet. The height of the towers on the American side is 88 feet, and on the Canadian side, 78 feet. The width of the river at the whirlpool is 300 feet, and its estimated depth is 250 feet.

PLACID WATERS WITH 1,692 ISLANDS.

Alexandria Bay, N. Y. At the approach of the St. Lawrence River, a short distance east of Kingston, Can., the tourist enters Alexandria Bay, quite as frequently designated "The Lake of the Thousand Isles," and which extends down the St. Lawrence, forty miles, with a breadth of five miles. The scenery on this lake is among the finest on the continent. Scattered here and there, everywhere throughout the placid waters, lie 1,692 islands, of every conceivable size and shape; some being mere rocky projections above the surface; others, nearly as small, covered with verdure, while others, of larger size, are luxuriant in shade trees and grassy plats, and often lying in most attractive clusters. One is 12 miles in length and 2 miles wide. The beautiful color of the leaves and grass is attributed to the bountiful supply of water surrounding the islands. Lighthouses, indicating the frequent changes in the channel of the stream, add greatly to the picturesque diversity of the scenery; and on other islands have been erected elegant residences, with ornamental grounds. Hotels abound at several points, and boating, fishing and hunting offer variety and pleasure to the seeker of rest and recreation.

RUGGED AND ROMANTIC DEEP GORGE.

Watkins Glen, N. Y. Eighty rods from Watkins Station, near the head of Seneca Lake, a vast gorge

New York Picturesque and Interesting Places to Visit

in a tall, rocky bluff, 500 feet high, through which flows a noisy mountain stream, forms the glen, extending a distance of about 3 miles. The scenery is rugged and romantic in the deep gorge, with cascades and towering rocks, a dark pool, narrow footpaths, hemlock trees, difficult stairways and a balcony overhanging the gorge; solitude and grandeur distinguish the place, and the admirer of nature may here view it in its wildest phases. Prominent objects are the Mountain House, a chalet cottage, an iron suspension bridge across the gorge, an art gallery, Glen Cathedral (amphitheater 1,000 feet long), Rainbow Falls, Pluto Falls, Omega Falls, etc. Other glens in the vicinity present additional charms for the tourist.

CHASM NEARLY TWO MILES LONG.

Au Sable Chasm. Among the many remarkable features of the Adirondack region in New York, as described above, is a natural chasm in the Potsdam sandstone, through which the Au Sable river flows from the northern termination of the Adirondack Mountains toward Lake Champlain. This channel is in some places nearly two hundred feet deep, and overshadowed by cedar trees and tall precipices of varied shapes. At one point the channel is only ten feet in width, while at another it expands to fifty feet. The chasm is nearly two

miles long, and the dark and raging waters dash madly down shallow rapids, cascades and falls, leaping in one place a distance of twenty feet, and at another, sixty feet—the whole forming a scene that rivals the famous cataracts of mountain streams in Switzerland. The surroundings are as remarkable as the chasm itself, embracing views of mountain ranges and peaks, and Lake Champlain. The pleasure-seeker in this locality may enjoy fine drives and rambles, fresh air and good fishing stations.

SOME OF THE FINEST SCENERY IN AMERICA.

West Point, N. Y. The early history of the Union is intimately connected with this beautiful place on the west bank of the Hudson River, 52 miles north of New York City. In the Revolutionary War, the neighborhood bristled with forts built by Colonial troops. Above the river at an altitude of 600 feet may still be seen the ruins of Fort Putnam, and from that deserted fortress the tourist may view some of the finest scenery in America. The Government Military Academy and grounds, where so many great warriors have been educated, are finely located and ably maintained. Kosciusko's Monument is a prominent feature at this delightful resort.

LARGE AND SMALL LAKES IN NEW YORK STATE.

LAKES IN NEW YORK.

	Miles long.	Miles wide.
Amber Lake, Hamilton Co.....	2.....	1½
Ballston Lake, Saratoga Co.....	3.....	1
Beaver River Lake, Lewis Co.....	3.....	1
Black Lake, St. Lawrence Co.....	20.....	2
Blodgett's Pond, Wyoming Co.....	¾.....	¾
Blue Mountain Lake, Hamilton Co.....	3½.....	2
Brant Lake, Warren Co.....	5.....	1½
Buonaparte Lake, Lewis Co.....	5.....	3
Canandaigua Lake, Ontario Co.....	15.....	¾ to 1½
Cayuga Lake, Cayuga Co.....	28.....	1 to 3½
Catamount Lake, St. Lawrence Co.....	1½.....	1
Catlin Lake, Essex Co.....	3.....	1½
Chautauqua Lake, Chautauqua Co.....	18.....	1 to 3
Chazy Lake, Clinton Co.....	3.....	1¼
Crooked Lake, Yates Co.....	18.....	1½
Cranberry Lake, St. Lawrence Co.....	9.....	3
Cross Lake, Onondaga Co.....	5.....	1½
Eagle Lake, Hamilton Co.....	2.....	1½
Fern Lake, Clinton Co.....	1.....	½
Greenwood Lake, Orange Co.....	12.....	1
Harris Lake, Essex Co.....	2.....	½
Horseshoe Pond, St. Lawrence Co.....	1½.....	½
Indian Pond, St. Lawrence Co.....	1.....	¾
Java Lake, Wyoming Co.....	¾.....	¾
Jordan Lake, St. Lawrence Co.....	2.....	1
Leeds Lake, Kakaska Co.....	2.....	1
Lincoln Lake, Mason Co.....	4.....	1½
Little Cham Lake, Wexford Co.....	3.....	1
Loon Lake, Iosco Co.....	2.....	1
Loon Lake, Oakland Co.....	½.....	¼
Long Lake, Kalamazoo Co.....	2.....	1½
Lower Saranac Lake, Franklin Co.....	6.....	2

LAKES IN NEW YORK.

	Miles long.	Miles wide.
Massewepie Lake, St. Lawrence Co.....	2.....	1½
Minnewaska Lake, Ulster Co.....	1½.....	1½
Mohonk Lake, Ulster Co.....	1½.....	1½
Mud Lake, St. Lawrence Co.....	1½.....	1½
Oneida Lake, Oneida Co.....	20.....	4 to 7
Onondaga Lake, Onondaga Co.....	7.....	¾
Oswegatchie Lake, Lewis Co.....	2¾.....	1 to 1
Otisco Lake, Onondaga Co.....	7.....	¾
Otsego Lake, Otsego Co.....	7½.....	1½
Owasco Lake, Cayuga Co.....	11.....	1½
Owazena Lake, Madison Co.....	3.....	1
Rich Lake, Essex Co.....	1.....	1½
Round Lake, Saratoga Co.....	1.....	1
St. Regis Lake, Franklin Co.....	4.....	1½
Saratoga Lake, Saratoga Co.....	7.....	3
Schroon Lake, Essex Co.....	10.....	1½
Schuyler Lake, Otsego Co.....	5.....	1½
Seneca Lake, Seneca Co.....	36.....	2
Silver Lake, Wyoming Co.....	3.....	1
Silver Lake, Clinton Co.....	2.....	¾
Skaneateles Lake, Onondaga Co.....	15.....	1½
Spitfire Lake, Franklin Co.....	1½.....	1½
Sylvia Lake, St. Lawrence Co.....	1½.....	¾
Taylor Pond, Clinton Co.....	1½.....	½
Pepper's Lake, Hamilton Co.....	6.....	2
Trout Lake, Warren Co.....	2.....	1½
Trout Lake, St. Lawrence Co.....	3.....	1½
Upper Chateaugay Lake, Clinton Co.....	3.....	1½
Upper Saranac Lake, Franklin Co.....	7.....	1
Utawara Lakes, Hamilton Co.....	3.....	1
Yellow Lake, St. Lawrence Co.....	4.....	1½

HISTORY, CLIMATE AND HIGHEST ALTITUDE IN NEW YORK STATE.

Altitude. Highest, Mount Marcy, in the Adirondack Mountains, Essex County, 379 feet.

Climate. Length of season from blooming of apple trees to first killing frost, 174 days; though on Long Island it is twelve and one-half days longer and in St. Lawrence County twenty-two days shorter. The average summer temperature at Albany is 70.43 degrees, at Buffalo 67.73, at New York 76.62. The average winter temperature at Albany is 25.26, at Buffalo 26.28, at New York 31.93. Average yearly temperature of State, 46.49. Average annual fall of rain and snow, State, 40.93 inches; at New York 43.24 inches. Warmest temperature at Albany, 100 above; coldest, 24 below; at New York, warmest, 100 degrees above; coldest, 6 degrees below.

Dimensions. Extreme length from north to south, 310 miles; extreme breadth, from east to west, 320 miles.

History. Was one of the thirteen original states. Admitted to Union in 1788. Northern part of State explored by Champlain, 1609. New York Bay and Hudson river up as far as Albany visited by Hudson in 1609. A fort built by the Dutch on Manhattan Island in 1613. Manhattan Island was bought of the Indians by Peter Minuet, the first Dutch governor, for 60 guilders, about \$24, named New Amsterdam and settlement made thereon in 1623.

Suffered from Indian wars, 1641. Captured by the English 1664, recaptured by the Dutch 1673. Charter granted by Charles II to Duke of York, covering Manhattan Island and other territory, and name of New Amsterdam changed to New York. Robert Fulton's first steamboat voyage to Albany, 1807. In 1812 steam ferry to Long Island opened and was introduced in 1825. Erie Canal opened and first boat from Buffalo, 1825. Croton Aqueduct completed in 1842. First city railroad built in 1852 and Chrystal Palace opened in 1853. Tweed Ring broken in 1871 and Brooklyn Bridge opened in 1883.

Railroads, miles of, in State, 8,336.30.

ATTRACTIVE LAKE AND RESORT.

Saratoga Springs, New York. Widely known as a fashionable health resort and occasional aquatic display on the lake. See population 12,693. Located 32 miles northwest of Albany. Contains 28 springs, all powerfully charged with carbonic acid gas. Regarded as valuable aids in curing cutaneous and liver diseases, dyspepsia and chronic affections of the bowels. Large quantities of the waters, especially of the Congress, Empire and Hathorn Springs, are bottled and exported. Depth of High Rock Spring from top of the rock is 32 feet.

STATE AND THE 100 COUNTIES OF NORTH CAROLINA
With Their Boundaries

LOCATION AND 1910 POPULATIONS OF NORTH CAROLINA COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1	Ashe	19,074	27	Franklin	24,692	53	Yancey	12,072	79	Harnett	22,174
2	Alleghany	7,745	28	Nash	33,727	54	McDonald	13,588	80	Wayne	35,698
3	Surry	29,705	29	Edgecomb	32,010	55	Burke	21,408	81	Lenoir	22,769
4	Stokes	20,151	30	Marten	17,797	56	Catawba	27,918	82	Craven	25,594
5	Rockingham	36,442	31	Bertie	23,039	57	Rowan	37,521	83	Jones	8,721
6	Caswell	14,858	32	Chowan	11,303	58	Swain	10,403	84	Pimlico	9,966
7	Person	17,356	33	Mitchell	17,245	59	Haywood	21,020	85	Union	33,277
8	Granville	25,102	34	Avery	...	60	Buncombe	49,798	86	Anson	25,465
9	Vance	19,425	35	Caldwell	20,579	61	Graham	4,749	87	Richmond	19,673
10	Warren	20,266	36	Alexander	11,592	62	Cherokee	14,136	88	Hoke	...
11	Halifax	37,646	37	Iredell	34,315	63	Clay	3,909	89	Cumberland	35,285
12	Northampton	22,323	38	Davie	13,394	64	Macon	12,198	90	Sampson	29,982
13	Hertford	15,436	39	Davidson	29,404	65	Jackson	12,998	91	Duplin	25,442
14	Gates	10,455	40	Randolph	29,491	66	Transylvania	7,191	92	Onslow	14,125
15	Perquimans	11,054	41	Chatham	22,635	67	Henderson	16,262	93	Carteret	13,776
16	Pasquotank	16,693	42	Wake	63,229	68	Polk	7,640	94	Scotland	15,363
17	Camden	5,640	43	Johnson	41,401	69	Rutherford	28,385	95	Robeson	51,945
18	Currituck	7,693	44	Wilson	28,269	70	Cleveland	29,494	96	Bladen	18,006
19	Watauga	13,556	45	Greene	13,083	71	Lincoln	17,132	97	Pender	15,471
20	Wilkes	30,282	46	Pitt	36,340	72	Gaston	37,063	98	Columbus	28,020
21	Yadkin	15,428	47	Beaufort	30,877	73	Mcklenburg	67,031	99	New Hanover	32,037
22	Forsyth	47,311	48	Washington	11,002	74	Babarus	26,240	100	Brunswick	14,432
23	Guilford	60,497	49	Tyrell	5,219	75	Stanly	19,909			
24	Alamance	28,712	50	Dare	4,841	76	Montgomery	14,967			
25	Orange	15,064	51	Hyde	8,840	77	Moore	17,010			
26	Durham	35,266	52	Madison	20,132	78	Lee	11,376			
									Total	2,206,056	

North Carolina Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
Aberdeen	77	794	Atlantic	93	524	*Beaufort	93	2,483	Bladenboro	96	276
Advance	38	283	Aulander	31	543	Bee Log	53	308	Bluemont	60	200
Ahoskie	13	924	Aurora	47	440	Bee Tree	60	206	Blowing Rock	19	261
*Albemarle	75	2,166	Avon	50	409	Belhaven	47	863	Boardman	98	796
Altamahaw	24	366	Ayden	46	990	Belmont	72	1,176	Boonville	21	282
Andrews	62	936	Aydlett	18	309	Benson	43	860	Bostic	69	209
Angier	79	221	B			Bessemer City	72	1,529	*Brevard	66	919
Ansonville	86	486	*Bakersville	33	416	Bethel	46	469	Bridgeton	82	348
Apex	42	681	Bath	27	283	Biscoe	76	265	Bridgewater	55	280
*Ashboro	40	1,865	Battleboro	28	211	Black Creek	44	219	Brockford	58	725
*Asheville	60	18,762	*Bayboro	81	370	Black Moun-			*Bryson City	58	612
						tain	60	311	Buffalo City	50	200

Explanation: Index to Towns. First Column. Names of Towns; Second Column. Number the Same as Number of the County Where Town is Located; Third Column. Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

North Carolina Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Bines Creek.....	79	249	Fairmont.....	95	730	L			Peachland.....	86	232
*Bismarck.....	94	956	Faison.....	91	519				Pee Dee.....	86	628
Burlington.....	24	4,808	Faith.....	57	808	Lake Comfort.....	51	360	Pembroke.....	95	258
*Burnsville.....	53	422	Fallston.....	70	290	Lake Landing.....	51	320	Pikeville.....	80	210
Buxton.....	50	366	Farmville.....	46	816	Landis.....	57	226	Pilot Mountain.....	3	652
C			*Fayetteville.....	89	7,045	Lasker.....	12	1,203	Pine Level.....	43	394
			Flat Rock.....	67	308	Lattimore.....	70	267	Pinetops.....	29	211
Cameron.....	77	259	Forest City.....	69	1,592	Laurel Hill.....	94	350	Pinetown.....	47	412
Canton.....	59	1,393	Fort Landing.....	49	366	Laurinburg.....	94	2,322	Pineview.....	79	262
Caplesville.....	76	490	Four Oaks.....	43	329	Lawndale.....	70	350	Pineville.....	73	688
Caroleen.....	69	1,892	*Franklin.....	64	379	Leaksville.....	5	1,127	Pinnacle.....	4	402
*Carthage.....	77	863	Franklinton.....	27	809	Leasburg.....	6	390	*Pittsboro.....	41	502
Cary.....	42	383	Franklinville.....	40	566	Leechville.....	47	250	*Plymouth.....	48	2,165
Casar.....	70	392	Fremont.....	80	951	*Lenoir.....	35	3,364	Point Harbor.....	18	290
Castalia.....	28	219	G			Lewara.....	87	474	Polkton.....	86	287
Catawba.....	56	222				Lewiston.....	31	262	Polkville.....	83	227
Cedarfalls.....	40	222	Garner.....	42	284	*Lexington.....	39	4,163	Pomona.....	23	560
Central Falls.....	40	590	*Gastonia.....	72	5,759	Liberty.....	40	474	Poplar Branch.....	18	200
Cerro Gordo.....	98	323	*Gatesville.....	14	203	Lilesville.....	86	386	Powell's Point.....	18	466
Chadburn.....	98	1,242	Gibson.....	94	820	*Lillington.....	79	380	Princeton.....	43	354
Chapel Hill.....	25	1,149	Gibsonville.....	23	1,162	Lilly.....	7	390	Princeville.....	29	627
*Charlotte.....	73	34,014	Gilkey.....	69	220	*Lincolnton.....	71	2,413	Proctor.....	58	290
Cherryfield.....	66	208	Glen Alpine.....	55	308	Linnville.....	34	250	Fungo.....	47	399
Cherryville.....	72	1,153	Gold Hill.....	57	304	Littleton.....	11	1,152	R		
China Grove.....	57	852	*Goldboro.....	80	6,107	Long Island.....	56	200			
Chinquapin.....	91	295	Goldston.....	41	240	Longview.....	56	243	*Raeford.....	88	580
Claremont.....	56	297	*Graham.....	24	2,504	*Louisburg.....	27	1,775	Raleigh		
Clarkton.....	96	276	Granite Falls.....	35	381	Lowel.....	72	876	(capital).....	42	19,218
Clayton.....	43	1,411	Granite Quarry.....	57	363	Lucama.....	44	266	Ramseur.....	40	1,012
Cleveland.....	57	426	*Greensboro.....	23	15,895	*Lumberton.....	95	2,230	Randleman.....	40	1,950
Cleveland Mills.....	70	462	*Greenville.....	46	4,101	Lynn.....	68	290	Red Springs.....	95	1,089
Cliffside.....	69	1,096	Griffin.....	50	200	M			Reidsville.....	5	4,828
*Clinton.....	90	1,101	Grifton.....	46	291				McAdenville.....	72	893	Rodhiss.....	35	370
Clyde.....	59	344	Grimesland.....	46	330	Madison.....	5	1,033	Richfield.....	75	210
Colington.....	50	269	Grover.....	70	209	Magnolia.....	91	653	Richlands.....	92	445
*Columbia.....	49	848	Gulford Col-lege.....	23	226	Maiden.....	56	664	Rich Square.....	12	367
Como.....	13	390	Gulf.....	41	200	Manly.....	20	220	Ridgeway.....	10	250
*Concord.....	74	8,715	Gum Neck.....	49	896	Manns Harbor.....	50	369	Roanoke		
Connellys Spgs.....	55	566	H			*Manteo.....	50	408	Rapids.....	11	1,670
Conover.....	56	421				*Marion.....	54	1,519	Robertell.....	87	422
Contentnea.....	45	246	*Halifax.....	11	314	Marlborough.....	46	225	Robertsonville.....	30	616
Conway.....	12	237	Hamilton.....	30	452	*Marshall.....	52	802	*Rockingham.....	87	2,155
Coolmeesee.....	32	2,060	Hamlet.....	87	2,173	Mars Hill.....	52	301	Rocky Mount.....	29	805
Cordova.....	87	650	Harbinger.....	18	328	Marshville.....	55	449	Rocky Mount		
Cornelius.....	73	833	Hardin Mills.....	72	230	Matthews.....	73	396	Mills.....	28	480
Cove City.....	82	308	Harkers Island.....	93	290	Maxton.....	95	1,321	Rocky Point.....	97	390
Cranberry.....	34	496	Harlow.....	93	210	Mayesworth.....	72	200	Roper.....	48	819
Creedmoor.....	8	324	Harmony.....	37	290	Mayodan.....	5	874	Rosehill.....	91	364
Creswell.....	48	329	Hatteras.....	50	690	Maysville.....	83	345	Roxland.....	95	787
Cronly.....	98	289	Haw River.....	24	1,290	Mebane.....	24	693	*Roxboro.....	7	1,425
Cullasaja.....	64	250	Hazelwood.....	59	428	Merry Oaks.....	41	769	Roxobel.....	31	491
Cumberland.....	89	320	Helton.....	1	226	Middlesex.....	28	467	Royal Cotton		
Cummock.....	78	230	*Henderson.....	9	4,503	Middle Swamp.....	96	220	Mills.....	42	427
*Currituck.....	18	260	Hendersonville.....	67	2,818	Milton.....	6	419	Ruffin.....	5	250
D			Henrietta.....	29	1,850	*Mocksville.....	38	1,062	Rural Hall.....	22	309
			*Hertford.....	56	1,841	*Monroe.....	85	4,082	Rutherford.....	55	208
Dallas.....	72	1,065	Hickory.....	48	375	Mon Swamp.....	49	202	*Rutherfordton.....	69	1,062
*Danbury.....	4	490	Hiddenite.....	36	250	*Montezuma.....	34	254	S		
Davidson.....	73	1,056	Highland Park.....	73	1,560	Mooresville.....	37	3,409			
Davis.....	93	250	Highlands.....	56	487	Morehead City.....	93	2,039	Saginaw.....	34	300
Day Brook.....	53	309	Highlands.....	64	267	*Morganton.....	55	2,712	Saint Helena.....	37	250
Denton.....	39	320	Highpoint.....	23	9,525	Mortimer.....	35	261	Saint Pauls.....	95	419
Denton.....	71	282	Highshoals.....	72	1,602	Morven.....	86	498	Salem.....	22	5,533
Dillsboro.....	65	277	*Hillsboro.....	25	857	Mountain			*Salisbury.....	57	7,153
*Dobson.....	3	360	Hollysprings.....	42	261	Island.....	72	346	Salsbury.....	68	235
Dover.....	82	737	Hookerton.....	45	204	Mt. Airy.....	3	3,844	Sandy Ridge.....	4	250
Draper.....	5	1,000	Hooverhill.....	40	220	Mt. Gilead.....	76	723	*Sanford.....	77	2,282
Drexel.....	55	200	Hot Springs.....	52	443	Mt. Holly.....	72	526	Scotland Neck.....	11	1,726
Duke.....	79	500	Howard.....	19	226	Mt. Olive.....	80	1,071	Scranton.....	51	200
Dunn.....	79	1,823	Hudson.....	35	411	Mt. Pleasant.....	74	753	Seaboard.....	12	280
*Durham.....	26	18,241	Hunt Dale.....	33	280	Mt. Tabor.....	98	418	Selma.....	43	1,331
E			Huntersville.....	73	591	Moyock.....	18	200	Sevensprings.....	80	208
			Icemorlee.....	85	398	Murfreesboro.....	13	809	*Shelby.....	70	3,127
Earleys.....	13	360	I			*Murphy.....	62	977	Shelmerdine.....	46	400
East Durham.....	26	1,508				Silver City.....	41	895	Shore.....	21	308
East Kings Mountain.....	72	383	*Jackson.....	12	527	*Nashville.....	28	750	*Silver City.....	41	1,395
East Lake.....	50	606	*Jacksonville.....	92	505	*Newburn.....	82	9,961	*Smithfield.....	43	1,347
East Laurin-burg.....	94	577	James City.....	82	1,237	New London.....	75	312	*Snowhill.....	45	450
East Lumber-ton.....	95	881	Jamesville.....	30	398	Newport.....	93	321	Sound.....	48	300
East Monbo.....	37	250	Jarvisburg.....	18	490	*Newton.....	56	2,316	South Biltmore.....	60	238
East Spencer.....	57	1,729	Jonesboro.....	77	799	No. Charlotte.....	73	1,500	South Creek.....	47	826
*Edenton.....	32	2,789	Jonesville.....	21	280	No. Wilkesboro.....	20	1,902	Southern Pines.....	77	542
*Elizabeth City.....	16	8,412	Juniper.....	50	280	Norwood.....	75	928	South Mills.....	17	390
Elkin.....	3	886	K			O			*Southport.....	100	1,484
Elk Park.....	34	337							Southside		
Ellenboro.....	69	293	Kannapolis.....	74	566	Oak City.....	30	251	South Wades-boro.....	86	202
Elm City.....	44	590	Kelford.....	31	316	Ocracoke.....	51	680	South Wash-ington.....	97	206
Elmgrove.....	41	260	*Kenansville.....	91	270	Old Fort.....	54	778	Spencer.....	57	1,915
Elon College.....	24	226	Kernersville.....	22	1,128	Oldtrap.....	17	390	Spray.....	5	6,066
Enfield.....	11	1,167	Kings Moun-tain.....	70	2,218	Olin.....	37	209	Spring Hope.....	28	1,246
Engelhard.....	51	390	*Kinston.....	81	6,995	Oriental.....	84	645	Stanley.....	72	321
Evergreen.....	98	248	Kittrell.....	9	242	*Oxford.....	8	3,018	Stantonsburg.....	44	204
F			Kitty Hawk.....	18	350	P			Star.....	76	239
			Knotts Island.....	18	892				*Statesville.....	37	4,599
Fair Bluff.....	98	441	Kittrell.....	9	242	Pantego.....	47	324	Steads.....	76	290
Fairfield.....	51	660	Kitty Hawk.....	18	350	Parkwood.....	42	290	Stoneville.....	5	404
Fairmont.....	39	432	Knotts Island.....	18	892	Parkton.....	95	219	Stony Point.....	36	330
						Parmele.....	30	272	Stovall.....	8	305

North Carolina Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Stubbs	70	306				Watha	97	204	*Wilson	44	6,711
Stumpypoint	50	206	V			Waxham	85	692	* Windsor	31	684
Stumpys Grove	19	260	Valdese	55	208	*Waynesville	59	2,011	Winfall	15	285
Sunbury	14	208	Valmied	35	466	Weaverville	60	442	Wingate	85	353
Swansboro	92	390	Vanceboro	82	391	*Webster	65	301	*Winston-		
Swepsonville	24	441	Vandemere	84	296	Weldon	11	1,989	Salem	22	17,167
Sylva	65	698	Vaughan	10	420	Wendell	43	59	Winterville	46	483
			Voss	77	273	*Wentworth	5	252	*Winton	13	623
						West Durham	26	2,007	Woodard	31	303
						West Hickory	56	846	Woodland	12	321
						West Lumber-			Woodleigh	18	303
						ton	95	231	Worthville	40	393
						Whitakers	29	755	Wysocking	51	804
						Whiteplains	3	251			
						*Whitely	90	1,768			
						Whitney	75	1,502	*Yadkinville	21	433
						Whittier	58	216	*Yanceyville	6	333
						*Wilkesboro	20	799	Youngsville	27	433
						*Williamston	30	1,574			
						*Wilmington	99	25,748	Zebulon	42	483
									Zephyr	3	330

NORTH CAROLINA

A State in Which Was Made the First Settlement in the United States. A Region Where a Colony Was Established, Every Member of Which Disappeared and Was Never Heard of Afterwards.

A publication entitled "The Sketch Book of North Carolina" is sent to us by the North Carolina Department of Agriculture and for the **advantage of land seekers** in "The Old North State" we quote freely from its pages.

The first settlement in the New World was made in North Carolina.

In 1584 Sir Walter Raleigh sent out two boats to explore as much as possible of this continent and the first land sighted was on the coast of North Carolina, near Cape Fear. After beating along the coast about a week they anchored in Ocracoke Inlet, near a beautiful island called by the Indians Wohokon.

PRAYER AND THANKS.

At midday on the 13th of July, 1584, after a prayer of thanks that the flag of England was about to float over broader realms, Captain Amadas took possession of the land in these words:

"We take possession of this island in the right of the Queen's most excellent majesty, as rightful Queen and Princess of the same, to be delivered over to the use of Sir Walter Raleigh, according to Her Majesty's grant and letters patent under Her Highness' great seal."

The Indians gave them welcome and tried to make their stay comfortable. After acquiring as much information as possible the expedition returned to England, taking along as curiosities of the new land two Indians, potatoes and smoking tobacco. Queen Elizabeth was greatly pleased with the report of Raleigh's captains and named the land Virginia, in honor of herself, the "Virgin Queen."

A COLONY SENT BY RALEIGH.

Raleigh the next year sent out a colony of 108 men to make a **permanent** settlement. These colonists landed on Roanoke Island, on the 26th of July, 1585. There they built a few cabins, fortified them and called their new home the "City of Raleigh." Becoming reduced in numbers and finding the Indians **hostile**, this colony returned to England with one of the exploring expeditions sent out by Sir Francis Drake, who visited them with a large fleet. There the **first** English settlement in the new world was **abandoned** and the City of Raleigh left tenantless.

Not discouraged, Raleigh sent out **another** fleet containing 150 men, women and children. These colonists brought with them farm tools and came determined to make themselves a home in the new country. John White was the governor of this colony.

Among these colonists was Eleanor Dare, daughter of Governor White. On the 18th of July, Mistress Dare gave birth to a daughter, the first English-speaking child born in America. In honor of the colony, this child was named Virginia Dare. After a stay on the island, Governor White felt impelled to return to England and to enlarge their numbers. Upon representations of White, unwearied Raleigh again

loaded two ships to take aid to the Roanoke colonists. But for one reason or another, White was long delayed. When at last he reached Roanoke, not a sign of the colonists that he had left there could be seen. Three years had passed between his going and his coming, and on his return he found the City of Raleigh as overgrown and desolate as it had been at his first visit. Upon a tree the single word "Croatan" had been rudely carved. Before White's sailing for England, he had directed the settlers to carve upon a tree the name of any place that they might find it necessary to move to. **No trace** of the lost colonists was **ever found**, and White returned to England. It is said that Raleigh sent out at least **five** separate expeditions to search for the lost colony. With their disappearance, attempts at colonization of that part of the coast ceased.

The attempts of Sir Walter Raleigh having signally failed, **no further** attempts at colonization were made for **three-quarters** of a century. In 1629, a charter was granted by Charles I of England to Sir Robert Heath of the Southern part of Virginia, latitudes 31 degrees to 36 degrees, under the **name**, in that king's Carolina. Although nothing under it, a renewal was granted in 1663 to eight Lords Proprietors, and an enlargement to 36 degrees 30 seconds and 29 degrees, two years afterwards. The **first permanent** settlement in the limits of North Carolina was called the County of Albemarle. The Lords Proprietors appointed a Governor, a Secretary, the Governor, or Deputy Governors, of North Carolina until 1728. Seven of them then sold their interests to the Crown, Lord Carteret, afterwards Earl Granville, yielding the right of government, but retaining his one-eighth interest in the land of all Carolina. In 1744 he obtained a grant in fee of the whole of North Carolina, and he sold the Carolina line. The colony was therefore under the Crown from 1728 to the Revolution.

Its topography may be best conceived by picturing to the mind's eye the surface of the State as a vast declivity, sloping down from the summits of the Smoky Mountains, an altitude of nearly 7,000 feet, to the level of the Atlantic Ocean. The Smoky Mountains constitute a part of the great Appalachian chain which here attains its greatest height, the greatest in the United States, east of the Rocky Mountains. This slope is made up of three wide extended terraces—if that term may be allowed; the first a high mountain plateau—distinguished as the **Western or Mountain Section**; the second, a submontane plateau, distinguished as the **Middle Section**; and the third, a low plain region; the third, the **Atlantic plain**, distinguished as the **Low Country or the Coastal Plain region**, and that part from the head of the tides downward as the **Tidewater section**. From the first to the second section there is a sharp descent through a few miles only of the high land, and from the second to the low country a descent of about 200 feet; through the two latter, however, there is a constant downward grade.

THE MOUNTAIN REGION.

Broadly considered, the mountain section may be treated as a high plateau bounded on the east by

North Carolina Opportunities in Agriculture and Varied Enterprises

the irregular chain known as the Blue Ridge, extending across the State in a general direction from northeast to southwest, until, reaching the southeastern border of Henderson County, it turns to the west, and forms for a long distance part of the southern boundary of the State, passing at length by a southwest projection into the State of Georgia, and again reuniting with the chain of the Smoky Mountains, to which it had made near approach on its entry into North Carolina in the counties of Ashe and Watauga.

The average elevation of the Blue Ridge is nearly 4,000 feet, though on the southern and northern extremities it drops to 3,000 feet; its lower gaps being a little above 2,000 feet over the main level of the Piedmont country.

The western boundary of this division is that long chain known under the various names of the Iron, the Smoky, and the Unaka Mountains, and forming the dividing line between North Carolina and Tennessee and enclosing with marked definiteness the plateau of Western North Carolina. The area of this division approximates 6,000 square miles. The plateau is the culminating region of the Appalachian system, and contains not only its largest masses, but also its highest summits. The elevation of some of the peaks is as follows:

Mitchell's Peak, 6,711; Clingman's Dome, 6,660; Mount Buckley, 6,599; Mount Love, 6,443.

In all there are forty-three peaks of 6,000 feet and upwards. There are eighty-two mountains which in height exceed 5,000 feet, and an innumerable number exceeds 4,000 feet. The general contour of all these mountains is gentle, the summits generally presenting smooth, rounded outlines. The mountains are covered with deep rich soil, and clothed with massive forests to their tops. There is little hazard in saying that there is nowhere in any of the other States an equal area of land covered with timber trees of such various kinds, and of such value. The walnut, tulip trees (poplars), and oaks attain a size that would hardly be credited by one who had not seen them. The preservation of this magnificent forest is due to the fact that it has hitherto been inaccessible to transportation. Within the past few years much of it has been brought into connection with the markets of the world. One railroad line passes entirely through this section and another branching off at Asheville, and leading to the extreme southwest of the State, is now completed. Into the northwestern part of the State also a railroad has been completed and others projected.

DIFFERENT SOILS AT DIFFERENT ELEVATIONS.

On the various levels of this great State may be found a soil adapted to varied agricultural productions, and a delightful climate, as attested by the many pleasure and health resorts in the State.

We urge those who would acquaint themselves with the possibilities in this State to address the Department of Agriculture, Raleigh, N. C., for the sketch book of the State.

CONDENSED IMPORTANT FACTS.

Altitude. Highest, Mt. Mitchell, in the Appalachian range of mountains, extreme western part of the State, 6,711 feet.

Climate. Average January temperature at Charlotte, 51 degrees above. At Wilmington, 47. Average July temperature at Charlotte, 79; at Wilmington, 78. Warmest at Charlotte, 102; at Wilmington, 103. Coldest at Charlotte, 5 degrees below zero; at Wilmington, 5 degrees above zero. Average annual rainfall at Wilmington, 54.3 inches.

Dimensions. Extreme breadth, east and west, 520 miles. Extreme length, north and south, 200 miles. Area, 52,250 square miles.

History. One of the thirteen original States to adopt the National Constitution and enter the Union, in 1789. Colonization and some dwellings erected on Roanoke Island in 1584-7, through colonists sent out from England by Sir Walter Raleigh, but colony abandoned. (See account in general description.) First permanent settlement made at Albemarle, 1653. The Carolinas were made one province in 1693 by grant of charter by Charles II. About 1700 the province divided into North and South Carolinas, and separate governments were organized, followed by large immigration of Scotch and Scotch-Irish. From 1729 up to the Revolution

North Carolina was ruled by successive governors appointed by the English king.

LIVE STOCK, COTTON AND RICE.

Three-fourths of the inhabitants of the state are engaged in agricultural pursuits, cotton and rice being staple products of the eastern part of the state, live stock, buckwheat and other north temperate zone products pertain to the mountain region. In one section or another of the state may be found every agricultural product grown between the Great Lakes and the Gulf, except the orange. Indian corn occupies the largest acreage and this and the other cereals are common to all sections. Cotton is raised in two-thirds of the counties. It is the chief market crop of the eastern and of the southern half of the middle region. In the northern part of the state tobacco replaces cotton as a market crop.

THE FISHING INTEREST.

The fisheries of the eastern rivers and sounds are large and profitable, and give employment to several thousand persons. There are about 3,000 miles of railway in the state. There are 1,000 miles of waterway open to steamboat navigation, including rivers, bays, sounds and canals.

THE MINING INTERESTS OF NORTH CAROLINA.

Mining has long given occupation to a portion of the population. Gold was first discovered in 1819 and between that date and 1850 many gold and copper mines were opened in the middle and western sections. In the last few years mining industries have received a new impulse. Iron ores are mined on a considerable scale for export and several new gold and copper mines have been opened, and the amount of the various mining industries is increasing very notably. Mica mining began several years ago in the mountain region and has grown to a considerable importance, much the larger part of this material found in commerce being produced here.

FOREST TREES IN LARGE VARIETY.

Native Forests. The whole area of the state was originally forest-covered and about two-thirds of it is yet in primitive condition. The great variety of soils together with the wide range of climate, gives rise to a remarkably rich and varied flora. The important trees are the oak, pine, maple, hickory, magnolia and birch. Among the trees are many valuable and popular cabinet woods, such as walnut, holly, cherry, ash, cedar, birds-eye maple, sycamore, etc. These forests are rapidly increasing in value as those of the northern states disappear and as the demand for timber increases.

THE LAND OF THE SKY.

One of the most beautiful regions on the earth is Western North Carolina. In this delightful portion of the State are numerous elevated plateaus, nestling among mountains and running streams. On one of these charming uplands, 2,000 feet in elevation above sea level, with the Blue Ridge Mountains in the distance, are Mount Mitchell, Mount Guyot and Clingman's Dome. There are so many of these mountain elevations, which cause the beholder to look up, this region has been fittingly named the "Land of the Sky."

It is here on one of these levels amid nature's diversified scenes, with mountain, plain, streams and beautiful southern trees, where the charming City of Asheville, North Carolina, is located. This is a town of 20,000 people, which has thrice that number in the tourist season of the year.

It was natural that George W. Vanderbilt, who had traveled extensively and knew the beautiful regions of the earth, should buy 100,000 acres a short distance from Asheville, and here, with unlimited wealth at command, he has laid out and developed "Biltmore," one of the most notable and attractive country estates in the world. With its costly residences, surrounded by broad lawns and luxuriant gardens, with its roads rivaling the most perfect boulevards, it represents an investment of over \$6,000,000.

"Asheville has acquired by reason of its wonderful climate and from the reputation of its superb hotels, a popularity and a progressive spirit quite beyond the usual limitations of towns of much larger size. Its broad asphalted streets, plentifully shaded, its substantial public buildings and luxurious homes mark it a place of wonderful endowment and public spirit.

STATE AND THE 49 COUNTIES OF NORTH DAKOTA

With Their Boundaries

LOCATION AND 1910 POPULATION OF NORTH DAKOTA COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Divide..		14.....	Benson..	12,681	27.....	Griggs..	6,274	40.....	Barnes..	18,066
2.....	Burke..		15.....	Ramsey..	15,199	28.....	Steele..	7,616	41.....	Cass..	33,935
3.....	Renville..		16.....	Walsh..	19,491	29.....	Traill..	12,545	42.....	Emmons..	9,796
4.....	Bottineau..	17,295	17.....	McKenzie..	5,720	30.....	Oliver..	3,577	43.....	Logan..	6,168
5.....	Rolette..	9,558	18.....	Dunn..	5,302	31.....	Billings..	10,186	44.....	Lamoure..	10,724
6.....	Towner..	8,963	19.....	Mercer..	4,665	32.....	Stark..	12,504	45.....	Ransom..	10,345
7.....	Cavalier..	15,659	20.....	McLean..	14,598	33.....	Bowman..	4,668	46.....	McIntosh..	7,251
8.....	Pembina..	14,749	21.....	Sheridan..	8,103	34.....	Hettinger..	6,557	47.....	Dickey..	9,839
9.....	Williams..	20,249	22.....	Wells..	11,814	35.....	Adams..	5,407	48.....	Sargent..	9,202
10.....	Mountrail..	8,491	23.....	Eddy..	4,800	36.....	Morton..	25,289	49.....	Richland..	19,659
11.....	Ward..	42,185	24.....	Foster..	5,313	37.....	Burleigh..	13,087			
12.....	McHenry..	17,627	25.....	Nelson..	10,140	38.....	Kidder..	5,962			
13.....	Pierce..	9,740	26.....	Grand Forks..	27,888	39.....	Stutsman..	18,189			
									Total.....		577,036

Cities and Villages of North Dakota with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
Antler	4.....	342	Barlow	24.....	252	*Bowbells	2.....	651	*Carrington	24.....	1,217
Abercrombie	49.....	299	Barton	13.....	202	Bowdon	22.....	302	Casselton	41.....	1,553
Adams	16.....	338	Bathgate	8.....	328	*Bowman	33.....	481	Cathay	22.....	225
Almont	36.....	401	Beaulieu	7.....	1,003	Brinsmade	14.....	203	Cavalier	8.....	652
Anamoose	12.....	669	Belfield	32.....	401	Buffalo	41.....	241	Christine	49.....	202
Aneta	25.....	654	Berthold	11.....	454	Burlington	11.....	201	Churches Ferry	15.....	457
Ardoch	16.....	271	Berwick	12.....	251	Buxton	29.....	401	Clifford	29.....	201
*Ashley	46.....	682	Binford	27.....	275	C					
B											
Balfour	12.....	399	Birdsell	36.....	444	Caledonia	29.....	251	Cogswell	48.....	418
Bantry	12.....	201	*Bismarck (capital)	37.....	5,443	Calvin	7.....	301	*Cooperstown	27.....	1,019
			*Bottineau	4.....	1,331	*Cando	6.....	1,332	Courtenay	39.....	539
						Carpio	11.....	257	Crary	15.....	279

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of North Dakota with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
*Crosby	1	206	Granville	12	455	Max	20	285	Sanborn	40	391
Crystal	8	376	Gwinner	48	301	Maxbass	4	241	Salles	7	346
D			H			Mayville	29	1,072	Sawyer	11	327
Davenport	41	226	Hamilton	8	213	Medina	39	342	Scranton	33	214
Dawson	38	201	Hampden	15	235	Mekinock	26	201	Sharon	28	304
Daze	40	265	Hankinson	49	1,503	Michigan	35	449	Sheldon	45	358
Denhoff	21	318	Hannaford	27	341	Minor	48	641	Sherwood	3	328
Deslacs	11	251	Hannah	7	501	Milton	7	411	Sheyenne	23	451
*Devils Lake	15	5,157	Hansboro	6	302	*Minnewaukan	14	512	Souris	4	267
*Dickinson	32	3,679	Harvey	22	1,443	*Minot	11	6,188	Spiritwood	39	207
Dogden	20	321	Halton	29	666	Minto	16	701	*Stanley	10	818
Donnybrook	11	297	Havana	48	221	*Mohall	3	493	Starkweather	15	246
Doyon	15	202	Hebron	36	597	Monango	47	338	*Steele	38	501
Drake	12	348	*Hillsboro	29	1,239	Munich	7	225	Strasburg	42	273
Drayton	8	587	Hope	28	909	N			Sykeston	22	276
Dunseith	5	776	Hunter	41	365	*Napoleon	43	301	T		
E			I			Neche	8	528	Thompson	26	351
Edgeley	44	749	Inkster	26	353	*New Rockford	23	802	Toga	9	203
Edinburg	16	301	J			New Salem	36	621	Tolley	3	251
Edmore	15	344	*Jamestown	39	4,358	Nome	40	218	Tolna	25	209
Egeland	6	266	K			North Minot	11	432	Tower City	41	452
*Ellendale	47	1,389	Kathryn	40	251	Northwood	26	702	*Towner	12	691
Emerado	26	225	Kenmare	11	1,437	O			Turtle Lake	20	201
Enderlin	45	1,541	Kensal	39	456	Oakes	47	1,499	U		
Ernest	8	353	Kief	12	221	Oberon	14	302	Underwood	20	422
F			Kindred	41	302	City	7	201	Upham	12	296
Fairmount	49	387	Knox	14	331	Omamee	4	332	V		
*Fargo	41	14,331	Kulm	44	645	Osnabrock	7	253	*Valley City	40	4,606
*Fessenden	22	713	L			P			Velva	12	837
Fingal	40	351	*Lakota	25	1,023	Page	41	479	Verona	44	235
Finley	28	516	*La Moure	44	929	Park River	16	1,011	W		
Flaxton	2	301	*Langdon	7	1,214	Pembina	8	719	*Wahpeton	49	2,467
Forbes	47	221	Lankin	16	341	Pert	6	321	Walcott	49	251
Forest River	16	233	Lansford	4	456	Petersburg	25	353	Wales	7	225
*Forman	48	352	Larimore	26	1,224	Pingree	39	251	Walhall	8	592
Fort Yates	36	351	Leeds	14	682	Pisek	16	312	Waluma	27	201
Fullerton	47	206	Lidgerwood	49	1,019	Plaza	10	224	Warwick	14	201
G			*Linton	42	614	Portal	2	491	*Washburn	20	657
Gackle	43	301	*Lisbon	45	1,758	Portland	29	561	Westhope	4	592
Galesburg	29	225	Litchville	40	484	R			Wheatland	41	501
Gardner	41	203	M			Ray	9	436	White Earth	10	264
Garrison	20	406	*McClusky	21	517	Reynolds	26	412	*Williston	9	3,124
Geneseo	48	201	McHenry	24	398	Richardton	32	647	Willow City	4	623
Gilby	26	301	McVille	25	311	Rollette	5	408	Wilton	20	437
Gladstone	32	202	*Maddock	14	374	*Rolla	5	1,587	Wimbledon	40	571
Glasston	8	401	*Mandan	36	3,873	Rugby	13	1,651	Wishek	46	432
Glenburn	3	268	Manvel	26	201	Rutland	48	224	Wyndmere	49	439
Glen Ullin	36	921	Mapleton	41	207	Ryder	11	338	Y		
Goodrich	21	411	Marmarth	31	791	S			York	44	431
Graceville	33	2,229	Martin	21	251	St. John	5	424			
*Grand Forks	26	12,478				St. Thomas	8	513			
Grandin	41	302									

NORTH DAKOTA

Facts About the Celebrated Red River of the North, Devil's Lake, the Many Mines of Lignite Coal and Other Features of Interest.

Up in the northern part of the United States, directly south of the Canadian Dominion, and extending from Minnesota on the East to Montana on the West, covering a distance of 360 miles, lies **North Dakota**.

AN INLAND SEA.

About midway in the State, from east to west, is a grassy upland which is supposed to have been the western shore line in some prehistoric time when the whole region hereabouts was covered with an inland sea, extending from Oklahoma up to Lake Winnipeg. In the very bottom of this immense lake was the **Red River** of the North and **Lake Winnipeg**.

Through upheavals in the centuries of the past this lake was **drained**, leaving a few water basins remaining, like **Devil's Lake** in North Dakota and **Lake Winnipeg** in Canada, and a few streams flowing very slowly, among them being the **Red River** of the North and its tributaries.

FERTILE SOIL OF THE RED RIVER REGION.

Naturally with the draining of this great inland lake there was left in the bottom an exceedingly fertile soil which is a characteristic of the Eastern Dakota lands.

The valley of the Red River of the North has a

wide reputation because of its great crops of wheat. This valley, including the part located in Minnesota, comprises a tract 250 miles long with a width of from 50 to 100 miles, and is almost a level plain, with a descent of from one to two feet to the mile, sloping to the north, in which direction the river runs.

The first permanent white settlement in the territory occupied by the present State was made in 1780 near Pembina, which locality at the present time, is a short distance south of the Canadian line on the Red River.

EARLY SETTLEMENT OF NORTH DAKOTA.

In 1810 Lord Selkirk built a fort near Pembina, supposing the region to be on British soil. The Pembina settlement grew in population and, isolated from all outside civilization, was an honest rural community with distinctive peculiarities in dress and manners.

When St. Paul, Minnesota, was established in 1841, and goods were brought up the **Mississippi River** for wholesale distribution to settlers in the northwest, it was one of the great curiosities to see the immense two-wheeled wooden ox-carts, which came down from Pembina with the inhabitants of the region, who exchanged their furs and wheat for modern products to take back into the Pembina region.

Physical Advantages of North Dakota

From N. Dak. Bulletin.

The geographical location of North Dakota is favorable—to the north are the great Canadian Provinces of Saskatchewan and Manitoba—the northern state line of North Dakota forming part of the International Boundary Line between ourselves and our good friend and neighbor, Canada. Directly south of North Dakota is her sister state—South Dakota—like most sisters their characters are entirely different. West—is Montana, the first of the Northwestern Rocky Mountain States. Minnesota (Land of the sky-blue-water) lies due east. Surrounded by large prosperous commonwealths, North Dakota's condition and characteristics are not on all fours with her neighbors. North Dakota possesses many strong, well defined differences and advantages.

NORTH DAKOTA'S SIZE.

North Dakota is the fourteenth state in size,—the area in square miles is 70,795—including 600 square miles of water surface. In acres the land area amounts to 44,736,477—if divided into farms of 160 acres this big state would contain 279,602 farms. North Dakota is about 25 per cent larger than Illinois (56,650 square miles).—Iowa (56,025 square miles)—and nearly twice as large as Indiana (36,350 square miles). Michigan contains only 58,195 and Little Old New York,—once thought to be a huge commonwealth,—contains only 49,170 square miles. Compare this to North Dakota's 70,795 square miles. North Dakota is rectangular in shape and is 360 miles wide (east and west), 210 miles long (north and south). These figures give some idea of the tremendous stretch of the wide prairies of this vigorous young state.

THE GENERAL PHYSICAL FEATURES OF NORTH DAKOTA.

North Dakota has no mountains, few hills, no forests and little broken land. The larger part of the surface of this big State is either flat or slightly rolling prairie. Hundreds of little lakes dot the country east of the Missouri River. Devils Lake, near the city of that name, is a very large lake. Several other good sized lakes are near by. Turtle Mountains are the highest hills and are about 400 feet high. Other "Mountains" are as much as 300 feet high.

There are four great divisions of land in North Dakota. First—the land east of the outer rim of the plateaus of the Missouri River. Second—the land south and west of the Missouri River's plateaus. Third—the rough butte broken portion south and west of the Missouri River. Fourth—the renowned and fertile Red River Valley.

LOCATION OF THE FAMOUS RED RIVER VALLEY.

Starting at the eastern edge of the State next to Minnesota, you find the Red River and the broad, flat Red River Valley—which has an altitude of approximately 1,000 feet and averages 50 miles in width. Soil authorities say the soil in the Red River Valley is unexcelled in fertility—in the world. The Red River flows northward and forms the North Dakota-Minnesota state line.

THE ROLLING PRAIRIES WEST OF THE RED RIVER VALLEY.

The valley of the Red River is separated from the rest of the State by a series of high ridges, named the Manitoba Escarpment. West of these ridges the prairie is slightly rolling and slowly rises (about two and one-half feet a mile) until the edge of the Plateaus of the Missouri River are reached. Here the land rises about 300 feet in 40 miles. Some of the land on this plateau is badly broken, but the greater part rises in long, rolling swells, studded with little hills, ridges and coulees. Much good bottom land is located on the flats of the Missouri, the Little Missouri and the Yellowstone Rivers. On the east side of the Missouri River's plateaus and north of the Missouri River you find flat and slightly rolling prairies.

WHY NORTH DAKOTA'S SOIL MAKES FARMERS RICH.

That worn out phrase "rich black soil" no longer means anything. Pick up any newspaper or farm journal and every farm offered for sale from Maine to California has a "rich black soil." What the man who makes his living direct from the land needs to know is whether it will produce paying

crops and whether the climate above the land will allow him to live in health and comfort. Given these two vital conditions, he don't care a snap whether the color of the soil is gray, black or brown. What will it produce and why?—is what he wants to know. A short history of how Nature formed and favored North Dakota will quickly show why the land is fertile and pays good cash dividends. The color of the soil in this state happens to be black—whether it is rich or not you can best judge by the evidence of actual farmers given herein.

HOW MOUNTAINS OF ICE MADE THE LAND LEVEL.

Nature once put North Dakota in cold storage. Then by using a huge ice plow and tremendous pressure the high hills of old North Dakota were planned away. The broken valleys were filled up. The flattened prairies of today are the result. Centuries ago, glaciers, miles high, and larger than those now in Glacier Park, Montana, or in Alaska, formed near the Arctic Circle. This was in the Ice Age. As it grew colder, more ice formed and hundreds of glaciers, forming a solid ice sheet started to move and grind their way to North Dakota. Near far off Labrador and the Arctic Circle were great ledges of limestone, cliffs of granite and large quartz deposits. These were picked up and dragged along. By the time this ice sheet reached North Dakota it was miles high. The pressure on the surface of the soil was hundreds of tons to the square yard. Soft rock, like limestone, was ground to powder by the pressure and the friction. The soil was harrowed and ground to powder and millions of tons of this pulverized limestone and other rock were mixed with it.

WHERE THE ICE SHEET FORMED.

The ice sheet reached a high ridge of land just this side (east) of the Missouri River. Before this ridge could be ground down—glaciers only move from a few inches to one or two feet a day—the Ice Age ended. It became warmer. The ice sheet melted. Large lakes were formed. Old river beds, like the Missouri's were overflowed. Gradually the lakes were drained by old and new rivers. Where these lakes had been the lake bottom was, of course, almost as flat as a floor. The valley of the Red River and the valley of the Mouse River are the two most striking examples. In North Dakota, of ancient lake bottoms. Elk River Valley in Trail, Steele and Grand counties, the larger parts of Sargent and Dickey counties, are also old lake bottoms.

Don't overlook the important fact that the Ice Sheet stopped in North Dakota because when the ice melted all the soil it was carrying was dropped. This is agreed by scientists "glacial drift," and makes fertile soil. It is fertile because it has been ground as fine as wheat (sometimes as fine as flour) and well mixed with limestone and granite, etc. (limestone soils grow the most wheat), that is, it is not only mixed with mineral fertilizers, but is in good mechanical condition. Then the soil is deep. The Red River Valley was covered to an average depth of 300 feet.

This left four different surfaces in the State:

First,—level prairies, covered by the ice sheet, which became ancient lake bottoms when the ice melted.

Second,—rolling prairies, dotted with numberless little lakes, and a few low, rounded hills.

Third,—the plateau region west of the Missouri River, never covered by ice, owing its fertility to other sources, well drained by rivers, with no lakes and many moderately high, flat-topped hills.

Fourth,—the wrongly named Bad Lands. As the Bad Lands are outside the Great Northern counties of North Dakota, space will not be taken to discuss them.

There are no mountains in North Dakota. There are no forests. The high hills can be counted on your fingers.

The greater part of North Dakota is flat or rolling prairie. The land is ready for the plow. No stones hamper the farmer. No stumps cumber the ground. The soil is covered by a heavy growth of native grass on which that wild native beef, the buffalo—grew fat.

North Dakota Opportunities in Agriculture and Varied Enterprises

GREAT CHANGES AMONG THE PEOPLE.

As the years have passed the Red River regions of the North have undergone great changes. The Indians have sold their lands and gathered upon reservations; their children are educated in Indian schools, and are up in the active walks of life among the whites. The old Pembina fort is no longer a necessity. The original Pembinians are largely scattered, and, excepting an occasional cart, which is preserved as a curiosity, very little remains of the original oddities of old Pembina.

In the meantime, white settlers have taken up the lands in the Red River Valley, the first great farms being divided into smaller tracts, all of the new settlers being highly prosperous.

The State as a whole is an immense stretch of level and rolling prairie land and river valleys, with numerous small lakes. Even the Red River Valley is not yet thickly settled and land throughout the State can be had from \$5 to \$30 per acre.

By application to the Secretary of State of North Dakota the remainder of the government land which is yet left in the State can be known. That which now remains unappropriated is agricultural and grazing land.

THICKNESS OF SOIL.

The soil of Central Dakota is a black loam, varying from two to three feet in thickness; it has a clay subsoil which retains the moisture of the winter and early spring in reserve for summer use, and its fertility throughout the entire State is remarkable. The Red River Valley has ample rainfall which gradually decreases toward the west, until the elevations in the middle of the State are reached, beyond which irrigation is required. From the Turtle and Pembina Mountains along the Canadian boundary line towards the south, the descent is gradual to Devils Lake, in Ramsey County.

THE CELEBRATED DEVILS LAKE.

This lake, a picturesque sheet of water with no visible means of outlet, has an elevation of 1,434 feet above sea level. Its length is nearly 50 miles, and its greatest width is from 12 to 15 miles. On its north shore is located the Dakota Chautauqua assembly grounds and on the south side of the lake is an Indian industrial school.

While North Dakota is essentially a prairie State, the native timber covers some 460,000 acres distributed mostly along the Red River of the North and on the border of various lakes. The government in various ways is rewarding settlers for the planting of trees, and thus large areas have been planted with rapidly growing trees, the effect of which will be to attract rainfall in the western part of the state and break the blizzard winds which are liable to prevail in the winter months.

As a whole, the climate of this State is remarkably healthy. The atmosphere is dry and stimulating. The sunshine is brilliant and the skies are generally clear.

The winters are sometimes severe, but as forests are planted and winter protection provided complaints of blizzards become less. The summers and autumns are peculiarly delightful.

LARGE YIELDS OF SUPERIOR WHEAT.

As may be expected, with a highly fertile soil in a prairie country, the crop yield is immense. The State is noted for its large yield of A No. 1 wheat, while in other cereals, flax and all root crops, especially potatoes, the yield is abundant.

Next to agriculture the raising of live stock is attaining great importance and the breeding of fine grades of horses and cattle is occupying a great deal of attention. The estimated area of grazing lands is 40,000,000 acres. Naturally, closely allied to stock raising is the dairy business and this is coming considerably fast, as shown in the statistical returns relating to creameries and their products of butter and cheese.

THE STATE WELL WATERED BY RIVERS.

The State is quite well watered by rivers. The Missouri River enters in the northwest part at Fort Buford, runs southeastward and leaves the State in Emmons County, having traversed the region for

300 miles and been fed by numerous rivers in the State, among them being the Little Missouri, Knife, Heart and Cannon Ball Rivers.

The entire country next the Missouri River is underlaid with lignite coal. In fact, a large share of the entire area of the State shows the outcropping of lignite, which is excellent for heating and gas making. Many farmers have this coal on their farms and some fifty coal mines are opened in the State for commercial purposes.

GREAT ABUNDANCE OF LIGNITE COAL.

So abundant is this fuel as to cause the United States Government to investigate and consider the use of lignite in the steady production of power for pumping and irrigating the arid lands in the western part of the State.

A singular feature of Southwestern North Dakota are the so-called "Bad Lands," a region of the country following the Little Missouri River, covering an area of about one hundred miles in length by twenty-five in width. This land, once a level plain, has been cut by the branches of the Little Missouri, and the action of fire from burning lignite coal seams, forming a labyrinth of gullies, buttes and figures of all sorts in which a person traveling among them may easily get lost.

RAILROAD FACILITIES.

Two great trunk lines of railway cross the State from east to west, the Great Northern and the Northern Pacific. East of Medora, where the Northern Pacific crosses the Missouri River, the buttes are of blood red color. In places the petrified stumps and trunks of trees are brought to the surface and at a number of places coal veins are still burning beneath the surface of the ground, sending forth smoke through the fissures in the earth. This is especially a grazing region. The whole country is covered with grass and is regarded as one of the best cattle districts in the West. A special merit of the "Bad Lands," according to one writer in describing the country, is that stock can be sheltered in the ravines during the winter.

For a highly fertile soil, abundant crops, rapidly bringing wealth to farmers, the land-seeker should not forget to carefully investigate the opportunities which offer in North Dakota.

CONDENSED IMPORTANT FACTS RELATING TO NORTH DAKOTA.

Altitude. Highest in the State at Summit, Billings County, near the Montana border.

Climate. Generally healthy, clear skies, brilliant sunshine; winters cold but dry. Summer days, though warm, are followed by cold nights. The snowfall is comparatively light and the only disagreeable winds (blizzards) are those from the Northwest. Average annual temperature, at Bismarck, is 39.4 degrees above. The extremes are 106, highest, and 44 below zero, the lowest. Average January temperature, 4 above. July, 67. Average annual rainfall (rain and melted snow), 18.4 inches.

Dimensions. Length of State, north to south, 210 miles; width, east to west, 360 miles. Area, 70,795 square miles.

History. First permanent settlement made by French Canadians at Pembina, Pembina County, in 1780. The State formed a part of the Louisiana Purchase of 1803. Exploring expedition of Lewis and Clark spent the winter of 1804-05 among the Mandan Indians, near the present site of Bismarck on the Missouri River. Lord Selkirk erected a fort at Pembina in 1812. Dakota Territory, including parts of Wyoming and Montana, organized in 1861. Area reduced in 1863. Admitted to Union in 1889.

GROWING SEASON IN NORTH DAKOTA.

Average number of days required for different crops to mature.

Wheat	95 to 106	Millet	81 to 112
Oats	88 to 102	Speltz	91 to 92
Barley	82 to 94	Corn	about 100
Flax	83 to 95		

Figures taken from Government Agricultural Experiment Station, Bulletin No. 52, at Fargo.

STATE AND THE 88 COUNTIES OF OHIO

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF OHIO COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Williams.	25,198	24.....	Wyandot.	20,760	47.....	Union.	21,871	70.....	Butler.	70,271
2.....	Fulton.	23,914	25.....	Crawford.	34,036	48.....	Delaware.	27,182	71.....	Warren.	24,297
3.....	*Lucas.	192,728	26.....	Richland.	47,667	49.....	Licking.	55,590	72.....	Clinton.	23,630
4.....	Ottawa.	22,360	27.....	Ashland.	22,975	50.....	Coshocton.	30,121	73.....	Highland.	28,711
5.....	Erie.	38,327	28.....	Wayne.	38,058	51.....	Harrison.	19,076	74.....	Ross.	40,069
6.....	Lorain.	76,037	29.....	Stark.	122,987	52.....	Miami.	45,047	75.....	Hocking.	23,650
7.....	Cuyahoga.	637,425	30.....	Mahoning.	116,151	53.....	Champaign.	26,351	76.....	Vinton.	13,094
8.....	Geauga.	14,670	31.....	Columbiana.	76,619	54.....	Madison.	19,902	77.....	Athens.	47,798
9.....	Lake.	22,927	32.....	Van Wert.	29,119	55.....	Franklin.	221,567	78.....	Washington.	45,422
10.....	Ashtabula.	59,547	33.....	Allen.	56,580	56.....	Muskingum.	57,488	79.....	Hamilton.	460,732
11.....	Defiance.	24,498	34.....	Hardin.	30,407	57.....	Guernsey.	42,716	80.....	Clermont.	29,551
12.....	Henry.	25,119	35.....	Marion.	33,971	58.....	Belmont.	76,856	81.....	Brown.	24,832
13.....	Wood.	46,330	36.....	*Morrow.		59.....	Preble.	23,834	82.....	Adams.	24,755
14.....	Sandusky.	35,171	37.....	Knox.	30,181	60.....	Montgomery.	163,763	83.....	Pike.	15,723
15.....	Seneca.	42,663	38.....	Holmes.	17,909	61.....	Clark.	66,435	84.....	Scioto.	48,466
16.....	Huron.	34,206	39.....	Tuscarawas.	57,035	62.....	Greene.	29,733	85.....	Jackson.	30,791
17.....	Medina.	23,598	40.....	Carroll.	15,761	63.....	Fayette.	21,744	86.....	Lawrence.	39,488
18.....	Summit.	108,253	41.....	Jefferson.	65,423	64.....	Pickaway.	26,158	87.....	Gallia.	25,745
19.....	Portage.	30,834	42.....	Mercer.	25,536	65.....	Fairfield.	39,201	88.....	Meigs.	25,594
20.....	Trumbull.	52,766	43.....	Auglaize.	31,246	66.....	Perry.	35,396			
21.....	Paulding.	22,730	44.....	Darke.	42,933	67.....	Morgan.	16,097			
22.....	Putnam.	29,972	45.....	Shelby.	24,663	68.....	Noble.	18,691			
23.....	Hancock.	37,850	46.....	Logan.	30,084	69.....	Monroe.	24,244			
										Total	4,767,121

Ohio Cities and Villages with 1910 Populations

Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.	Towns	Loca. Pop.
A		Benton Ridge..23... 352		*Canton.....29..50,217		Crown City.....87... 295	
Aberdeen.....31... 568		Bentonville.....82... 250		Carbondale.....77... 526		Crystal Spring..29... 400	
Academia.....37... 300		Berea.....7... 2,609		Carbon Hill.....36... 600		Cumberland.....57... 609	
Ada.....34... 2,465		Bergholz.....41... 1,011		Cardington.....36... 1,349		Curtice.....4... 400	
Addison.....87... 200		Berlin.....38... 275		Carey.....24... 2,225		Custar.....13... 345	
Addyston.....79... 1,543		Berlin Center..30... 202		Carlton.....87... 228		Cuyahoga Falls.18... 4,020	
Adelphi.....74... 407		Berlin Cross		Carroll.....65... 284		Cygnat.....13... 709	
Adena.....41... 570		Roads.....85... 330		*Carrollton...40... 1,730			
Agosta.....35... 304		Berlin Heights.5... 554		Carthage.....79... 3,618		D	
*Akron.....18..69,067		Bertha.....84... 360		Carthagea.....42... 299		Dalton.....28... 609	
Albany.....77... 546		Bethesda.....58... 1,026		Cassella.....42... 266		Damascus.....31... 490	
Alexandria.....49... 414		Bettsville.....15... 486		Cassstown.....52... 265		Danville.....37... 373	
Alger.....34... 730		Beverly.....78... 720		Castalia.....5... 520		Darbyville.....64... 233	
Allensville.....76... 290		Bexley.....55... 682		Catawba.....61... 234		Dartown.....70... 300	
Alliance.....29..15,083		Bidwell.....87... 590		Catawba		*Dayton.....60..116,577	
Alvordton.....1... 402		Bigprairie.....38... 202		Island.....4... 862		Deavertown.....67... 223	
Amanda.....65... 484		Bigsprings.....46... 200		Cecil.....21... 290		Decatur.....81... 300	
Amboy.....10... 360		Birmingham...5... 392		Cedarville.....62... 1,059		Deerfield.....19... 484	
Amelia.....80... 417		Bladesburg.....37... 308		*Celina.....42... 3,493		Deer Park.....79... 360	
Amesville.....7... 267		Blanchester.....72... 1,813		Centerburg.....37... 723		*Defiance.....11... 7,327	
Amherst.....6... 2,106		Bloomdale.....63... 602		Centerville.....60... 353		Degraff.....46... 1,082	
Amsterdam.....41... 1,141		Bloomington.....72... 212		Ceylon.....5... 390		*Delaware.....48... 9,076	
Andersonville..74... 200		Bloomville.....15... 754		Chagrin Falls..7... 1,931		Delhi.....79... 872	
Andover.....10... 902		Bluestone.....7... 250		Chambersburg..60... 209		Dellroy.....40... 373	
Anna.....45... 460		Bluffton.....33... 1,953		Chandlersville.56... 300		Delphos.....33... 5,038	
Annapolis.....41... 260		Bolivar.....39... 567		*Chardon.....8... 1,542		Delta.....2... 1,698	
Ansonia.....44... 656		Boston.....18... 289		Chatfield.....19... 660		Dennison.....39... 4,008	
Antiquity.....88... 309		Botkins.....45... 579		Chatham.....25... 270		Dent.....79... 200	
Antwerp.....21... 1,187		Boweston.....51... 514		Chattahoochee.17... 1,260		Derby.....64... 290	
Apple Creek.....23... 380		Bowersville.....62... 297		Chauncey.....77... 821		Derwent.....57... 562	
Arcadia.....41... 1,361		*Bowling		Cherry Valley..10... 250		Deshler.....12... 1,515	
Archbold.....2... 1,082		Green.....13... 5,222		Chesapeake.....86... 541		Deunquat.....24... 269	
Arion.....84... 200		Braceville.....20... 200		Cheshire.....87... 360		Dexter.....88... 278	
Arlington.....23... 798		Bradford.....52... 1,844		Chesterhill.....67... 410		Dexter City.....68... 233	
Heights		Bradner.....13... 890		Chesterville.....36... 229		Diamond.....19... 250	
*Ashland.....27... 6,795		Bradrick.....86... 250		Cheviot.....79... 1,930		Dillonvale.....41... 1,519	
Ashley.....48... 706		Brandon.....37... 292		Chicago.....16... 2,950		Dixon.....32... 326	
Ashtabula.....10..18,266		Brandt.....52... 240		Chickasaw.....42... 309		Doanville.....77... 708	
Ashtabula.....64... 972		Brecksville.....7... 1,266		Chillicothe.....74... 14,508		Dodsonville.....10... 220	
Athalia.....86... 726		Bremers.....65... 925		Chilo.....80... 260		Dodgeville.....73... 225	
*Athens.....7... 5,403		Brewster.....29... 200		Christiansburg.53... 380		Dola.....39... 232	
Attica.....15... 719		Briceton.....28... 296		Churchill.....20... 290		Donnelsville.....61... 202	
Atwater.....19... 360		Bridgeport.....58... 3,974		*Cincinnati....79..363,591		Dover.....7... 309	
Augusta.....40... 320		Briggsdale.....55... 262		*Circleville.....64... 6,744		Doylstown.....28... 877	
Station.....40... 250		Brilliant.....41... 742		Claridon.....8... 806		Dresden.....56... 1,549	
Aultman.....29... 609		Brimfield.....19... 506		Clarington.....69... 784		Drill.....58... 390	
Aurora Station.19... 660		Brinkhaven.....37... 341		Clark.....50... 320		Dublin.....55... 239	
Austintown.....10... 392		Bristolville.....20... 1,220		Clarksburg.....74... 558		Dunbridge.....13... 260	
Austintown.....30... 260		Broadway.....47... 225		Clarksfield.....16... 362		Duncan Falls..56... 250	
Ava.....68... 506		Broadwell.....77... 362		Clarksville.....72... 425		Dundas.....76... 262	
Avon Lake.....6..1,098		Brookfield.....20... 990		Clay Center.....4... 300		Dundee.....39... 250	
Axline.....56... 450		Broughton.....60... 1,187		*Cleveland.....7... 560,663		Dunglen.....41... 230	
		Brownhelm.....21... 226		Cleves.....62... 1,423		Dunkirk.....34... 1,109	
B		Brownhelm.....6... 1,409		Clinton.....72... 305		Dupont.....22... 334	
Bachman.....60... 200		Station.....6... 222		Clinton.....18... 450		E	
Bainbridge.....74... 883		Brownsville.....49... 350		Clough Pike...79... 222		East Cleveland.7... 9,179	
Bairdstown.....13... 240		*Bryan.....1... 3,641		Clyde.....14... 2,813		East Fairfield..31... 360	
Bakersville.....50... 290		Buchtel.....77... 1,180		Coalburg.....20... 390		East Greenville.29... 420	
Baldie.....39... 377		Buckeye City..37... 269		Coal Grove.....86... 1,759		East	
Baltimore.....65... 551		*Buckland.....43... 304		Coal Run.....78... 220		Lewistown.....30... 230	
Bantam.....80... 290		*Bucyrus.....25... 8,122		Coldwater.....85... 1,114		East Liberty.....46... 592	
Barberton.....18... 9,410		Buena Vista.....84... 330		Colebrook.....42... 960		East Liverpool..31... 20,387	
Barnesville.....58... 4,233		Burbank.....28... 351		College Corner..10... 1,060		East Orwell.....10... 704	
Barnhill.....39... 506		Burgill.....20... 460		College Hill.....79... 1,979		East Palestine..31... 3,537	
Barryville.....29... 290		Burkettsville..41... 236		Collins.....16... 360		East Rochester..31... 250	
Bartlett.....78... 208		Burlington.....86... 390		Collinsville.....70... 260		East Sparta.....29... 250	
Barton.....58... 800		Burton.....8... 650		Columbiana.....31... 1,582		East	
Bascom.....15... 375		Burton City...28... 790		COLUMBUS		Springfield.....41... 300	
Basel.....65... 504		Butler.....26... 330		(Capitol).....55..181,511		East	
*Batavia.....80... 1,034		Byer.....85... 260		Columbus		Youngstown.....30... 4,972	
Batemantown..37... 292		Bysville.....57... 3,156		Grove.....22... 1,802		*Eaton.....59... 3,187	
Batesville.....68... 889		Byhalia.....47... 250		Commercial		Edenton.....80... 278	
Bay Junction...5... 450				Point.....64... 234		Edgerton.....1... 1,072	
Bays.....13... 220				Condit.....48... 213		Edison.....36... 387	
Beach City.....29... 671				Conesville.....50... 490		Edon.....1... 678	
Beach Park.....6... 290				Conneaut.....10... 8,319		Elfort.....86... 262	
Beallsville.....69... 564				Conover.....22... 1,074		Elba.....78... 350	
Beaver.....83... 286				Convoy.....32... 741		Eldorado.....59... 321	
Beaverdam.....33... 455				Coolville.....77... 370		Elida.....33... 417	
Bedford.....7... 1,783				Copley.....18... 243		Elizabethtown..79... 320	
Bell.....73... 266				Corpersburg...30... 250		Ellsworth.....30... 666	
Bellbrook.....58..12,946				Corping.....66... 1,564		Elmore.....4... 937	
Belle Center...46... 889				Cortland.....20... 612		Elmwood Place.79... 3,423	
*Bellefontaine.46... 8,338				*Coshocton.....50... 9,603		*Elyria.....6... 14,825	
Belle Valley...68... 689				Covington.....52... 1,848		Empire.....41... 509	
Bellevue.....16... 5,209				Cranest.....69... 290		Englewood.....60... 250	
Belleville.....26... 1,056				Crestline.....58... 1,060		Enon.....61... 249	
Belmont.....58... 572				Creston.....28... 970		Epworth.....26... 200	
Belmore.....22... 298				Cridersville....43... 526		Etna.....49... 300	
Beloit.....30... 510				Crooksville.....66... 3,028		Eucld.....7... 1,953	
Belpre.....78... 1,249				Croton.....49... 414		Euphemia.....59... 300	
Benton.....38... 362						Evansport.....11... 350	
						F	
						Fairfield.....62... 292	
						Fairhaven.....59... 260	

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Ohio Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Fairmount	7	320	Gustavus	20	250	Johnstown	49	805	Luckey	13	520
Fairport			Gypsum	4	660	Johnsville	60	262	Ludlow Falls	52	360
Harbor	9	2,263				Joyce	39	203	Luhig	77	422
Fairview	57	346	H			Junction	21	226	Lykens	25	260
Fanner	11	320	Hallsville	74	200	Junction City	66	811	Lynchburg	73	923
Farmersville	60	437	Hamden	76	1,019	Justus	29	360	Lyons	2	408
Fayette	2	915	Hamersville	81	276				M		
Fayetteville	81	310	*Hamilton	70	35,279	Kalida	22	770	*McArthur	76	1,107
Felicity	80	578	Hamlet	12	596	Kamins	7	275	McClainville	58	200
Fernbank	79	305	Hammanburg	80	250	Kansas	15	320	McClure	12	547
*Findlay	23	14,858	Hammondsburg	13	260	Kennedy Island	18	1,017	McComb	23	1,083
Fivemile	81	260	Hammondsville	41	406	Kennore	18	1,501	*McConnellsville	67	1,831
Flat Rock	15	250	Hamptden	8	290	Kennedy	79	200	McCuneville	66	362
Fletcher	52	376	Hanging Rock	46	662	Kensington	31	400	McCutchenville	24	350
Floodwood	27	450	Hanover	49	631	Kent	19	4,188	McDermot	84	228
Florenceale	37	300	Hanoverton	31	317	*Kenton	31	7,183	McGuffey	31	491
Florida	12	234	Harlem Springs	41	250	Kilbourne	48	202	Macgonia	18	562
Flushing	58	868	Harpster	21	239	Kilgore	49	360	Madachburg	78	454
Folger	6	420	Harriettsville	63	250	Killbuck	38	422	Madeira	79	550
Footville	10	250	Harrisburg	55	286	Kimberly	77	266	Madison	9	863
Foraker	34	250	Harrison	79	1,368	Kimbolton	57	247	Madisonville	79	5,193
Forest	31	1,285	Harrisonville	88	369	Kings Creek	53	222	Magnolia	29	556
Forestville	79	282	Harrisville	51	364	Kings Mills	74	750	Mahom	66	290
Fort Jennings	22	336	Harrod	35	471	Kington	74	813	Malineville	71	245
Fort Recovery	42	1,323	Harshman	69	363	Kingsville	10	666	Malinta	12	345
Poster	15	345	Hartford	20	419	Kinsman	20	960	Mallet Creek	17	350
Frankfort	74	784	Hartsgrove	19	806	Kinsman	20	326	Malta	67	971
Franklin	71	2,620	Hartshorn	61	350	Station	20	326	Malvern	40	753
Franklin			Hartwell	79	2,823	Kipling	57	320	Manchester	82	1,966
Square	31	362	Harveysburg	71	379	Kipton	57	320	*Mansfield	26	20,768
Franklin			Haskins	13	391	Kirkersville	49	350	Mantua	19	721
Station	50	250	Havana	16	260	Kirtland	9	206	Marblehead	4	1,172
Frazeysburg	56	614	Haviland	21	233	Kunkle	9	450	Marengo	36	283
Fredericksburg	3	577	Haydensville	75	426	Kyles Corners	30	225	Maria Stein	42	560
Fredericktown	3	1,021	Hayesville	21	450				*Marietta	78	12,923
Freeport	71	624	Hazelwood	79	469				*Marion	35	18,232
*Freemont	14	9,939	Hebron	49	677	LaFayette	33	500	Mark Center	11	306
Fresno	50	230	Helena	14	305	Lafayette	54	448	Marlboro	29	251
Prost	77	316	Hemlock	66	452	LaGrange	86	464	Marsellis	29	225
Fulton	36	325	Hendrysburg	58	450	Lacrosse	4	362	Marshallville	28	291
Fultonham	56	825	Hepburn	31	250	Lakeside	4	362	Martin	4	406
			Heslop	78	366	Lakeview	46	578	Martinsburg	37	252
G			Hessville	14	250	Lakewood	7	15,181	Martins Ferry	58	9,133
Gahanna	55	276	Hicksville	11	2,355	*Lancaster	65	13,093	Martinsville	72	351
Galena	48	513	Higby	71	335	Lansing	58	366	*Marysville	47	3,576
Galion	25	7,214	Higginsport	81	417	Larue	35	772	Mason	71	737
*Gallipolis	87	5,569	Highland	73	272	Latty	21	339	Massillon	29	13,879
Galloway	55	250	Hillgrove	44	250	Laura	52	302	Maumee	3	2,037
Gambler	37	637	Hilliards	55	370	Laurel	80	226	Mayfield	7	560
Garfield	39	250	*Hillsboro	73	1,226	Laurelville	75	457	Maynard	58	220
Garrettsville	13	1,001	Hinckley	17	275	Leavittsburg	29	492	Maynard	58	220
Gates Mill	7	360	Hiram	19	422	*Lebanon	71	2,698	Mechanicsburg	53	1,446
Gaysport	56	230	Hockingport	77	225	Leesburg	73	828	*Mechanicsburg	40	250
Geneva	10	2,496	Holgate	12	1,035	Leesville	25	200	*Medina	17	2,734
Genoa	4	817	Holland	5	266	Leesville Cross			Medway	61	250
Georgesville	55	306	Hollaburg	44	287	Roads	25	290	Melburn	1	360
*Georgetown	81	1,580	Hollister	5	526	Leetonia	31	2,665	Melmore	15	250
Germano	51	398	Holloway	78	786	Leipsic	22	1,173	Melrose	21	317
Germanstown	63	1,778	Holmesville	31	320	Lemoyne	13	363	Mendon	42	631
Geytsburg	37	890	Homer	49	468	Letart Falls	87	566	Mentor	42	732
Gibsonburg	11	1,864	Homeworth	31	490	Lexington	59	362	Mercer	32	320
Gilboa	42	345	Hopedale	51	391	Lewisburg	69	672	Merrill	13	360
Gillespieville	74	225	Houston	45	250	Lewis Center	48	330	Metopatia	20	820
Gilmore	39	275	Howard	37	360	Lewistown	46	290	Metamora	2	475
Girard	20	3,736	Hoysville	13	404	Lewisville	69	291	Miami	79	400
Glencoe	58	275	Hubbard	20	1,699	Lexington	26	654	Miamisburg	69	4,271
Glendale	79	1,741	Hudson	18	1,021	Liberty	60	225	Middle Bass	4	200
Glenmont	34	269	Hume	33	230	Liberty Center	12	617	Middlebranch	29	260
Glenmore	32	200	Huntington	6	650	Lightsville	44	366	Middleburg	46	288
Glenroy	85	890	Huntsburg	8	866	Lilly Chapel	54	426	Middlefield	8	610
Glouster	43	2,527	Huntsville	46	328	*Lima	33	30,508	Middle Point	32	607
Glynwood	43	206	Huron Junction	5	1,756	Lindon	17	1,015	Middleport	29	3,194
Gnadenhutten	39	560	I			Linden Heights	55	991	Middletown	70	13,152
Gomer	33	220	Iberia	36	222	Lindenville	10	808	Midland	72	327
Good Hope	63	275	Independence	7	994	Lindsey	14	501	Midvale	39	675
Gore	75	490	Irondale	41	1,136	Linndale	7	512	Midway	11	483
Goshen	89	306	*Ironton	86	13,147	*Lisbon	31	3,034	Milan	5	696
Grafton	6	955	Ivorydale	79	518	Litchfield	17	220	Milford	80	1,321
Grand Rapids	13	574				Little Hocking	78	350	Milford Center	47	685
Grand River	9	203	*Jackson	85	5,468	Lockbourne	55	307	Millbury	13	276
Grandview	78	489	Jackson Center	45	685	Lockland	79	3,439	Miller	86	350
*Granville	49	1,394	Jacksontown	49	328	Lockwood	29	362	*Millersburg	38	2,020
Gratiot	49	250	Jacksonville	77	1,285	Lodi	17	1,015	Millersport	65	259
Gratis	59	410	Jamestown	62	1,133	*Logan	75	4,850	Millersstown	53	279
Green Camp	35	308	Jasper	83	250	*London	54	3,530	Millersville	14	260
Greenfield	73	4,228	*Jefferson	10	1,461	Longstreth	75	500	Millersville	57	2,066
Greenford	30	260	Jeffersonville	63	716	Lorain	6	28,883	Milton Center	13	350
Greensburg	20	220	Jenara	23	259	Loraine	45	439	Mineral	77	312
Greenspring	15	833	Jeromesville	27	314	Lore City	57	609	Mineral City	39	1,032
Greentown	29	350	Jerry City	13	458	Loveland	29	1,678	Mineral Ridge	30	750
*Greenville	44	6,237	Jerusalem	69	242	Loveland	80	1,421	Minersville	88	980
Greenwich	16	876	Jewett	51	917	Lowell	78	381	Minerva	29	1,396
Greiton	12	260	Jobs	75	763	Lowellville	30	1,506	Mingo	53	200
Gresham	7	520	Johnson	18	366	Lower Salem	78	287	Mingo Junction	41	4,049
Groesbeck	79	350	Johnsonville	20	622	Lucas	26	272	Minster	43	1,585
Grove City	55	837				Lucasburg	57	426	Misco	66	290
Groveport	55	643				Lucasville	84	256	Mogadore	18	438
Grover Hill	21	676							Momeneetown	3	298

Ohio Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Monclova	3.	250	Newtown	79.	630	Piedmont	51.	275	Rushville	65.	257
Monday	75.	420	New Vienna	72.	793	Piermont	10.	250	Russellville	81.	266
Monfort	79.	526	New			Piketon	83.	668	Russia	45.	356
Monroe	70.	255	Washington	25.	889	Pioneer	1.	660	Rutland	88.	562
Monroe Center	10.	262	New			Piqua	52.	13,388			
Monroeville	16.	1,152	Waterford	31.	509	Pittsburg	44.	340		S	
Montezuma	42.	228	New Weston	44.	258	Plain City	54.	1,407	Sabina	72.	1,514
Montgomery	79.	797	Niles	20.	8,361	Plainfield	50.	215	Saint Barnard	79.	5,002
Montpelier	1.	2,759	Nimisila	18.	290	Plainville	79.	250			
Mount	8.	690	Norman	49.	200	Pleasant City	57.	788	Chairsville	58.	1,398
Mount	35.	334				Pleasant Hill	52.	571	Saint Henry	42.	560
Morristown	58.	274	Baltimore	13.	2,503	Pleasant Hill	70.	340	Saint Johns	43.	350
Morrow	71.	382	North Bend	79.	560	Pleasant Ridge	79.	355	Saint		
Moscow	80.	327	North			Pleasantville	65.	608	Louisville	49.	241
Mount Airy	79.	497	Bloomfield	20.	780	Plymouth	26.	1,314	Saint Marys	43.	5,732
Mount			North Bristol	20.	290	Poland	30.	367	Saint Paris	53.	1,261
Blanchard	23.	451	North Dover	7.	230	Polk	27.	250	Salem	31.	8,943
Mount Carmel	80.	206	North Fairfield	16.	560	*Pomeroy	88.	4,023	Salesville	57.	265
Mount Cory	23.	290	North			Portage	13.	450	Salineville	31.	2,403
Mount Eaton	28.	208	Georgetown	31.	240	*Port Clinton	4.	3,007	Sandrun	75.	350
Mount			Hampton	61.	406	Port Jefferson	45.	233	*Sandusky	5.	19,989
Ephriam	68.	225	North			*Portsmouth	84.	23,481	Sandyville	79.	275
Mount Gilead	35.	1,678	Industry	29.	250	Port Washington	39.	421	Santa Fe	43.	262
Mount Healthy	73.	1,799	North Jackson	30.	406	Port William	72.	298	Santoy	66.	320
Mount Liberty	37.	200	North			Powell	48.	250	Sarahville	68.	281
Mount Orab	81.	539	Kingsville	10.	420	Powhatan			Sardina	81.	534
Mount			North			Point	58.	386	Sardis	69.	375
Pleasant	41.	701	Lawrence	29.	1,150	Prairie Depot	13.	1,358	Savannah	27.	262
Mount Sterling	54.	1,071	North			Proctorville	86.	577	Saybrook	10.	250
*Mount Vernon	37.	9,087	Lewisburg	53.	793	Prospect	35.	945	Saylor Park	79.	877
Mount Victory	34.	740	North Lima	30.	360	Put-in-Bay	4.	259	Scio	51.	958
Mount			North			Pyrmont	60.	306	Scioto	84.	260
Washington	79.	574	Madison	9.	220				Scottdale	84.	1,202
Mownsytown	73.	326	Olmstead	7.	1,030	Quaker City	57.	746	Seaman	32.	473
Muchala	88.	406	North			Quincy	46.	594	Sebring	30.	2,104
Munroe Falls	18.	326	Ridgeville	6.	420				Sekitan	79.	1,120
Munson	17.	200	*Norwalk	16.	7,858				Selma	61.	266
Murray	75.	1,386	Norwood	79.	16,135				Senecaeville	57.	893
	N		Nottingham	7.	2,387				Seven Mile	70.	340
*Napoleon	12.	4,907	Nova	27.	250				Seville	17.	662
Nashville	38.	260	Novalty	8.	290				Shadyside	58.	2,066
Nashville	38.	260							Shalersville	19.	222
Navy	29.	1,357							Shandon	70.	350
Nevler	31.	430							Shenandoeville	39.	334
Nelsonville	77.	6,082							Sharonville	68.	266
Nevada	24.	889							Sharonville	68.	266
Neville	80.	290							Shawnee	66.	2,280
Now Albany	55.	215							Shelby	26.	493
New Antioch	72.	226							Shepherd	55.	403
*Newark	49.	25,400							Sheridan	86.	269
New Athens	51.	376							Sherodsville	40.	721
New Bavaria	12.	490							Sherrits	86.	262
New Berlin	29.	865							Shiloh	11.	566
New Boston	84.	1,858							Shiloh	26.	555
New Bremen	43.	1,586							Shreve	28.	1,016
New Buffalo	30.	200							*Sidney	45.	6,607
Newburg	7.	5,813							Silverton	79.	459
New									Smithville	41.	589
Burlington	72.	320							Sodom	20.	347
New Carlisle	61.	1,058							Somerdales	39.	300
New Castle	50.	390							Somerset	66.	1,286
New									Somerton	58.	201
Comerstown	39.	2,943							Somerville	70.	349
New Concord	56.	683							Sonora	56.	206
New Dover	47.	250							South		
New Garden	31.	206							Bloomfield	64.	212
New									South		
Hampshire	43.	360							Bloom'gville	75.	220
New Holland	64.	804							South		
New Hope	59.	228							Charleston	61.	1,181
New Knoxville	43.	487							South Euclid	7.	360
New Lebanon	60.	202							Southington	20.	200
New									South Lebanon	71.	626
Lexington	66.	2,559							South Newbury	8.	1,273
New London	16.	1,557							South New		
New Madison	44.	628							Lynne	10.	326
New									South Point	86.	316
Marshallfield	77.	490							South Salem	74.	311
New									South Solon	54.	420
Martinsburg	63.	220							South Vienna	61.	270
New									South Webster	84.	499
Matamoros	78.	711							South Zanes-		
New									ville	56.	853
Middletown	30.	200							Spencer	17.	560
New Moorefield	61.	225							Spencerville	33.	1,748
New Paris	59.	870							Springboro	71.	355
New									Springdale	79.	275
Petersburg	73.	220							*Springfield	61.	46,921
*New									Spring Valley	62.	443
Philadelphia	39.	8,542							Stearle	41.	412
New Pittsburg	75.	330							Steele	28.	500
Newport	73.	369							Steele	28.	500
New Richmond	46.	220							*Steubenville	41.	22,391
New Richmond	80.	1,733							Stewart	77.	339
New Riegel	15.	268							Stewartsville	58.	512
New									Stillwater	39.	225
Springfield	30.	460									
New											
Straitsville	66.	2,242									
Newtown Falls	20.	757									

Ohio Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Stockdale	83	250	U			Washington	57	366	West Toledo	3	250
Stockport	67	438	Uhrichsville	39	4,751	*Washington			*West Union	82	1,080
Stony Ridge	13	301	Union	60	250	C. H.	63	7,277	West Unity	1	980
Stoutsville	65	420	Union City	44	1,595	Washington-			Westview	7	690
Strasburg	39	835	Union Furnace	55	700	ville	31	957	West Wheeling	58	250
Streetsboro	19	200	Unionport	41	250	Waterford	78	362	Weymouth	17	366
Strongsville	7	250	Uniontown	58	210	Watertown	78	200	Wharton	24	485
Struthers	30	3,370	Unionville	9	390	Waterville	3	834	Wheelsburg	84	250
Stryker	1	1,026	Unionville			*Wauseon	2	2,650	White Cottage	56	362
Sugar Creek	39	389	Center	47	239	*Waverly	83	1,883	Whitehouse	3	506
Sugar Grove	65	368	Uniopolis	43	460	Waynesburg	29	760	Wick	10	200
Summerfield	68	489	Unity	31	332	Waynesville	71	705	Wickliffe	9	530
Summerford	54	200	*Upper			Webster	44	204	Wilberforce	62	380
Sunbury	48	485	Sandusky	24	3,779	Wellington	6	2131	Wilkesville	76	203
Superior	86	260	*Urbana	53	7,739	Wellston	35	6,875	Williamsburg	80	948
Swanton	2	1,058	Utica	49	1,729	Wellsville	81	7,769	Williamsfield	10	290
Sweden	10	1,501	V			Welshfield	8	1,026	Williamsport	64	536
Sycamore	24	853	Valley City	17	250	West			Willoughby	9	2,072
Sycamore Val-			Vanburen	23	303	Alexandria	59	1,030	Willow	7	225
ley	69	977	Vandalia	60	221	West Andover	10	366	Willshire	32	653
Sylvania	3	1,002	Vanlue	23	466	Westboro	72	350	*Wilmington	72	4,491
Syracuse	88	1,256	*Van Wert	32	7,157	West Brookfield	29	336	Wilmot	29	258
T			Vaughnsville	32	320	West Cairo	33	386	Winchester	82	937
Tallmadge	18	501	Venedocia	32	247	West			Windham	19	261
Tarlton	64	302	Vermillion	5	1,369	Carrollton	60	1,285	Windsor	10	766
Taylorville	73	495	Verona	59	250	West Chester	70	302	Winesburg	38	250
Temperance-			Versailles	44	1,580	West			Withamsville	80	382
ville	58	266	Vickery	14	200	Clarksfield	16	260	Woodington	44	336
Terrace Park	79	498	Vienna	20	368	West Dover	7	303	Woodlawn	79	250
Thomastown	18	212	Vigo	74	200	West Elkon	59	230	*Woodsville	69	2,503
Thornville	66	411	Vincent	78	250	Westerville	55	1,903	Woodstock	53	310
Thurston	65	306	Vinton	87	324	West			Woodville	14	807
*Tiffin	15	11,894	W			Farmington	20	446	*Wooster	28	6,136
Tippecanoe	51	450	Wabash	51	300	West Jefferson	54	1,043	Worthington	55	547
Tippecanoe City	52	2,038	Waco	29	200	West Lafayette	50	840	Wren	32	277
Tiro	25	321	Wadsworth	17	3,073	West Leipsic	22	253	Wyoming	79	1,893
*Toledo	3	168,497	Wainwright	39	350	West Liberty	46	1,288	X		
Tontogany	13	314	Wakeman	16	330	West			Manchester	59	445
Toronto	41	4,271	Walbridge	13	500	West Mansfield	46	913	West Mecca	20	260
Tracy	39	462	Waldo	35	319	West			Middletown	70	330
Tremont	61	450	Walkers	31	200	West Milton	52	1,205	Westminster	33	200
Trenton	70	564	Walnutrun	54	210	West Newton	33	236	Weston	13	913
Trimble	77	711	*Wapakoneta	43	5,349	West Park	7	320	West Park	7	320
Trimway	56	360	Warner	78	200	West Richfield	18	250	West Salem	28	642
Trotwood	60	348	*Warren	20	11,081	West Salem	28	642	West Sonora	59	209
Trowbridge	4	200	Warrenton	41	300	West					
*Troy	52	6,122	Warsaw	50	512						
Tuppers Plains	88	220	Warwick	18	200						
Tuscarawas	39	471									
Twinsburg	18	250									

OHIO

The Mound Builders—The Struggles of Later Generations to Establish Conditions of Prosperity in the Wealthy State.

Who the original land seekers were in all this portion of the continent is unknown. The earliest evidence of human intelligence among a people that occupied this land is seen in the earth mounds distributed in great number throughout the State. These people were evidently a religious, warlike race as shown in the relics found in their mounds, including stone altars, hatchets, hammers, arrows and ornaments of various kinds.

LESS INTELLIGENT BUT MORE WARLIKE.

The races that came afterwards were less intelligent and more warlike than their predecessors, as seen in the Indian tribes which the early explorers of America found roaming over the country.

In fact it is difficult to go anywhere or find any particular place on the American Continent that has not been traversed before by human beings.

THE FIRST INDIANS HERE.

The principal Indian tribes of the Ohio country when discovered by the French, were the Miamis, the Wyandots, the Shawnees, the Senecas and the Delawares.

The Iroquois, to whom the Senecas belonged, claimed to have subdued all the territory between the Alleghanies and the Mississippi, but the Ohio Indians repudiated their sway and had, it appears, regained the lands from which they had been driven.

By a treaty signed at Utrecht, a city in a province of the same name in the Netherlands, by representatives from France, Holland, Great Britain, Prussia, Portugal and Savoy, England obtained Gibraltar, Hudson Bay territories and Newfoundland.

land. Through that concession England claimed the right to call the Iroquois her subjects and the English based their claim to the northwest territory on the pretended conquest of the Iroquois, as well as the charter of James I. to Virginia and of Charles II. to Connecticut.

Assuming their right to possession English traders had begun to compete with the French in the fur trade of the great lakes as early as 1684.

THE FRENCH ALSO CLAIMED THIS TERRITORY

The French based their claim to the same territory on the discoveries of Joliet, Marquette and LaSalle, though in so far as the Ohio River is concerned there is no conclusive evidence that La Salle ever saw it.

The little settlement made at Sandusky, Fort Cadillac built at Detroit in 1701, and the allegiance of most of the Indian tribes, between Lake Erie and the Ohio River, practically gave France the control of the debatable ground.

From that period up to the war of the revolution it was a struggle between the French and the English to get the support of the Indians, and even up to 1799 fear of the Indians checked immigration into this region. In the meantime pioneers from Massachusetts had founded Marietta in 1788. Another colony from New Jersey laid out the town of Losantville in 1789, which name was soon changed to Cincinnati.

In 1790 French emigrants founded Gallipolis, and in the same year the first colony from Virginia came in and established Massieville, now Manchester.

Ohio Opportunities in Agriculture and Varied Enterprises

PERMANENT PEACE WITH THE INDIANS.

Instigated, it was claimed, by the British, the Indians continued to make trouble until a permanent peace was made in 1795, two-thirds of the state at that time being ceded to the whites.

FOUNDING OF THE WESTERN RESERVE.

In 1792 500,000 acres in the western part of the Western Reserve, located in the northern part of Ohio, was set aside by Connecticut as compensation to those of her citizens whose property had been destroyed by the British during the revolution; and in 1792 the first settlement at Cleveland was made.

Fear of the Indians yet checked immigration into the state and not until 1799 did the population reach 5,000, the number necessary to the establishment of a legislature.

On Sept. 23, 1799, the first legislature met at Cincinnati, and on the 25th chose William Henry Harrison as its delegate to Congress. In 1800 Indiana territory was set off, and in 1802 a constitutional convention, convened at Chillicothe, adopted a constitution, and in 1803 state officers were elected, Chillicothe and Zanesville being, at various periods, the capital of the state before it was permanently established at Columbus.

In the war of 1812-15 the young state furnished three regiments to aid in carrying it on. In 1813 General Harrison erected Fort Meigs on the Maumee and held it against two attacks of British and Indians under General Proctor. Major Croghan made a brilliant defense of a rude fort on the Sandusky, and Lieutenant, afterwards Commodore Perry, in Put-in-Bay, made his victory over the British fleet.

FIRST STEAMBOAT AND FIRST RAILROAD.

In 1812 the first steamboat descended the Ohio River, and in 1825-33 the Ohio and Maumee canals were constructed, and in 1842 the first railroad between Cincinnati and Springfield was opened. Free schools were established in 1826, and in 1842 the first regularly equipped public astronomical observatory in the United States was founded at Cincinnati. Ohio gave 5,536 troops to the Mexican war, appropriated \$1,000,000 for the defense of the Union in the Civil War, and sent 313,180 troops into the battlefield. The bounties paid to volunteer soldiers amounted to \$23,557,373.

About one-third the distance from the north to the southern part of the state is found the dividing ridge, north of which the streams flow to Lake Erie, and south of which the waters descend to the Ohio River. Lake Erie is 573 feet above the level of the sea, and yet so much below the dividing ridge, which extends from Trumbull County in the northeast part of the state to Mercer and Darke Counties in the southeast, that the Maumee, the Cuyahoga, the Black, the Sandusky, the Vermillion and the Huron rivers all empty into this lake.

The rivers flowing into the Ohio are the Muskingum, the Hocking, the Scioto and the Miamis. These rivers all run through highly fertile valleys, but it is not necessary to go to the valleys for rich land. The state is so nearly level, and has retained the fallen grasses so long upon its surface, as to produce a highly fertile soil, which like the other states of level surface make a wealthy population.

RICH SOIL ONLY A PART OF OHIO'S ADVANTAGE.

But the productions of a rich soil are but a part of the immense resources of Ohio. From this state comes the well known Hocking coal, the coal area covers 10,000 square miles, limestone is quarried in 32 counties, and sandstone, from which come the celebrated Ohio grindstone, underlies one half of the entire area of the state.

The whole of the southeast half of the state is underlaid with coal-bearing formations and the geological surveys show seven distinct veins of coal of superior quality for domestic use, or for making gas and smelting iron. The aggregate thickness of the coal beds which are convenient to work upon is about 50 feet.

One of the interesting features of the passage on the Ohio River is the view of coal mine openings seen for hundreds of miles, the tunnels running up the slopes from the river directly into the coal beds.

Iron is found in abundance in certain parts of the state, particularly in Perry, Gallia, Licking,

Lawrence, Jackson, Vinton, Meigs, Athens and Hocking counties. Some of the ore is of superior quality and adapted to the finer class of castings. Clay in all its forms is found in large quantities, carbonate of lime, quick lime, and water cement are very largely manufactured.

Natural gas is found in several sections of the state. The four oil districts yield nearly 20,000,000 barrels per annum and give to the state some \$17,000,000 annually.

Ohio is noted for its large variety of valuable agricultural production, including wool, flax, milk, butter and cheese, and for stock raising, especially in the southern part of the state, while the upper part of the state, in the lake region, is celebrated for its grapes, there being thousands of acres in vineyards in that region.

Ohio is distinguished for its large amount of cultivated land, the great crops including wheat, oats, potatoes, rye, buckwheat, hay and corn in immense quantities. Other products that deserve especial mention are maple sugar, honey, maple syrup and strawberries.

The land seeker who desires to go into a manufacturing state finds that region in Ohio. The productions include woodenware, agricultural implements, steel, iron, optical and astronomical instruments, electric materials, electrical equipment of all kinds, refining of oils, safes, deposit vaults, time locks, cooperage, woodworking machinery, wagons, trucks, wheelbarrows, railroad cars, matches, window glass, glassware, silks, cash registers, grist-mill products, clothing, furniture, distilled liquors, pressed brick, fire brick, paving brick, drain tile, sewer pipe, and many other varieties of manufactured products, the result of being in the immediate vicinity of the raw material from which all these goods can be made.

Besides the facilities for transportation 436 miles on the Ohio River, 230 miles of water frontage on Lake Erie, 100 miles of navigation on the Muskingum River, there are four canals in the interior of the state.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest in Logan County, near the middle of the western half of the state, 1,337 feet.

Climate. Average annual at Cleveland 45.87; Cincinnati, 51.37. Average January, Toledo, 26; Cincinnati, 33. July average, Toledo, 74; Cincinnati, 78. Extremes, Cincinnati, 105, and 17 below; Toledo 102 and 16 below. Annual rainfall, Cincinnati, 39.9 inches; Toledo, 30.9 inches.

Dimensions. Extreme length of the state north and south 205 miles. Extreme width east and west, 230 miles. Area 41,060 square miles.

AMERICAN ANTIQUITIES IN OHIO.

Among interesting relics of a people that once lived in the Mississippi Valley and in Ohio, were the Mound Builders. Who they were, whence they came and when they disappeared nobody knows.

Among these vestiges of a past age are numerous mounds in Ohio. One of them, is on the banks of the Little Miami River in Ohio, at Fort Hill, has a line of circumvallation nearly four miles in extent, varying in height, according to the natural strength of the point protected, from 10 to 20 feet, and embracing an area of several hundred feet. At Newark, Ohio, they cover an area of more than two miles square, and probably comprise upward of 12 miles embankment from two to twenty feet in height.

One of these, surveyed in 1846, on the banks of brush Creek, in Adams County, Ohio, is in the form of a serpent over 1,000 feet in length, extended in graceful curves and terminating in a triple coil at the tail.

These mounds were evidently burial places, and to appease the gods various objects were deposited in the graves, evidences existing of religious ceremonies and altars being found with the skeletons of those who had been buried.

Evidently great difference of opinion existed as to suitable position for placing of the bodies of the dead. Sometimes the body was laid horizontally, sometimes bent double. Often a number of bodies were piled in a common grave. Frequently a mound covered a solitary skeleton, while in another the dead laid in large numbers.

In many districts incineration was the custom, and the ashes were collected and put in urns, sometimes even in human skulls.

Oklahoma Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Carrier	17	250	Garvin	77	957	Lone Grove	68	222	*Pryor	22	1,798
Cashion	28	289	Geary	27	1,452	Lone Wolf	54	677	*Purcell	44	2,740
Castle	48	294	Glencoe	30	373	Longdale	27	296	Purdy	60	200
Catoosa	21	404	Glerpool	20	1,509	Lookaba	40	217			
Cement	40	770	Goltry	6	320	Loveland	57	306		Q	
Centrahoma	63	666	Gore	51	390	Lovell	29	230	Quapaw	13	350
Centralia	12	387	Gotebo	51	740	Lowrey	36	260	Quay	19	226
Cestos	25	200	Grandfield	57	830	Luther	42	310	Quinlan	15	355
*Chandler	31	2,024	Granite	53	1,229	Lutie	65	566	Quinton	64	697
Chant	50	882	Grant	76	416						
Chattanooga	58	471	Grayson	49	1,086		M			R	
Cherokee	49	1,683	Grove	23	888	*McAlester	64	12,954	Ralston	19	597
Chickasa	24	1,370	Guthrie	63	305	McCurtain	50	526	Ramona	10	725
*Cherokee	6	416	*Guthrie			McCloud	46	638	Randlett	58	574
*Cheyenne	24	468	(capital)	29	11,654	MacArthur	24	300	Ravida	70	554
*Chickasha	43	10,320	*Guymon	2	1,342	*Madill	74	1,564	Redfork	20	355
Chillico	8	562				Manchester	7	271	Redoxa	65	398
Choctaw	42	242		II		*Mangum	53	3,667	Redrock	18	378
Choteau	22	483	Haileyville	64	2,024	Manitou	57	412	Reesessville	35	306
Claremore	21	2,866	Harrah	42	356	Mannsville	70	515	Reintown	7	207
Clarksville	34	388	Hartshorne	64	2,963	Marmarec	19	224	Rentiesville	7	207
Cleo	16	425	Haskell	35	857	Marble City	51	342	Ringwood	16	411
Cleveland	19	1,310	Hastings	67	727	*Marietta	73	1,546	Ripley	30	368
Clinch	24	2,740	Hattenville	13	582	Mark	302	1,092	Rocky	39	378
Coalgate	63	3,255	Haworth	77	200	Marlow	59	1,065	Roff	61	1,044
Colbert	75	200	Headrick	55	270	Marshall	29	480	Roland	51	228
Collinsville	21	1,324	Heavener	66	780	Maud	46	503	Romulus	46	200
Comanche	59	1,301	Helena	6	760	Maysville	60	476	Roosevelt	56	298
Copan	10	307	Hennessey	28	1,665	Mead	75	250	Rush Springs	43	823
*Cordell	39	1,950	Henryetta	33	1,671	*Medford	7	1,110	*Ryan	67	1,207
Cornish	67	489	Hickory	69	350	Meeker	31	349		S	
Coweta	34	1,187	Hill	66	290	*Miami	13	2,907	Salina	22	250
Cowlington	66	378	Hinton	40	686	Midland	61	200	*Sallisaw	51	2,479
Coyle	29	413	Hitchcock	27	275	Midway	63	296	Saltfork	7	226
Craig	64	290	Hobart	54	3,845	Miner creek	70	626	Sans Bois	50	208
Crescent	29	205	Hobbs	77	509	Mineola	73	700	*Sapulpa	32	8,283
Cross	8	220	Hochman	49	307	Mission Mines	13	226	Sasakwa	47	241
Crowder	64	529	*Holdenville	62	2,296	Moore	45	225	Savanna	64	266
Cumberland	74	450	*Hollis	52	964	Mooreland	15	493	Sayre	38	1,881
Cushing	30	1,072	Homestead	27	300	Morris	33	387	Scipio	64	306
Custer	26	854	Hominy	9	760	Morrison	18	327	Seelig	25	352
			Hooker	2	525	Mounds	32	701	Seminole	47	476
	D		Howe	66	538	*Mountain			Sentinel	39	357
Dale	46	250	Hoyt	50	200	Park	56	449	Shattuck	14	1,231
Davenport	51	394	Hughart	50	690	Mountain View	54	855	Shawnee	46	12,474
Davidson	57	361	Hugo	76	4,582	Moyers	72	200	Short	51	209
Davis	69	1,416	Humbert	36	300	Myrtown	51	671	Skedee	19	289
Dawson	20	320	Hunter	17	341	Mullall	20	264	Skiatook	20	606
Delaware	11	662	Hydro	40	562	*Muskogee	35	25,278	Snyder	56	1,122
Depew	32	1,344				Mutual	15	264	Soper	76	233
Devol	58	300		I			N		Sparks	31	421
Dewey	10	1,341	*Idabel	77	1,493	Nardin	8	277	Spencer	42	232
Dill	39	240	Illinois	51	390	Nashville	7	348	Sprague	66	1,733
Dougherty	69	278	Independence	26	308	*Newkirk	8	1,992	Springer	68	326
Dover	28	377	Indianola	61	481	Ninnekah	43	225	Stanley	62	206
Dow	64	200	Ingersoll	6	253	Noble	45	403	Sterling	58	270
*Duncan	59	2,477	Inola	21	405	*Norman	45	3,724	Sterrett	75	575
*Durant	68	5,335		J		*Nowata	11	3,672	*Stigler	50	1,583
Durwood	68	282	Jefferson	7	281		O		*Stillwater	30	3,444
Dustin	62	579	Jenks	20	290	Oakland	74	366	Stillwell	37	1,039
	E		Jennings	19	361	Oberlin	75	206	Stonewall	61	494
Earl	70	225	Johnson	44	230	Ochelata	10	550	Stratford	60	685
Earlsboro	46	388		K		Okechara	41	402	Springtown	71	260
Edmond	42	2,090	Kanlma	50	208	Okeene	27	920	Stroud	31	1,220
El Dorado	55	926	Kansas	23	220	*Okemah	48	1,389	Sudgen	67	321
Elk City	38	3,163	Kemp	8	436	*Oklahoma	42	64,205	Sulphur	69	3,684
Elmore City	60	2,466	Kendrick	81	221	*Okmulgee	33	4,176	Sutter	66	355
*El Reno	41	7,872	Kenefic	75	260	Oklaha	35	324			
Emet	70	590	Keota	50	220	Orusto	21	235		T	
*Enid	17	13,799	Keystone	19	273	Oologah	29	240	Taft	35	352
Enterprise	50	560	Kiefer	32	1,197	Orlando	20	312	*Tahlequah	36	2,891
Erick	38	915	Kildare	8	216	Orr	73	220	Talala	21	340
Erin Springs	60	362	*Kingfisher	28	2,538	Ossage	9	665	Talihina	66	491
*Eufaula	49	1,307	Kingston	74	439	Otase	18	408	*Taloga	25	468
	F		Kinta	50	326	Owasso	20	373	Tamaha	50	493
Fairfax	9	819	Kiowa	64	1,021		P		*Tecomseh	46	1,621
Fairland	13	569	Konawa	47	761	Paden	48	419	Teller	70	206
*Fairview	16	2,020	Kosoma	62	2,884	Panama	66	310	Temple	58	852
Fallis	31	248	Krehbs	64	2,884	Paoli	60	339	Terral	67	573
Fargo	14	341	Kremmlin	17	253	*Pauls Valley	60	6,689	Terradoma	2	372
Faxon	58	215		L		*Pawhuska	9	2,766	Tesla	51	361
Fay	25	280	Lahoma	17	275	*Pawnee	19	2,161	Thomas	26	374
Flitzhugh	61	260	Lakemp	3	390	Peggs	36	263	Tipton	57	441
Fletcher	58	374	Lamar	62	360	Perkins	30	603	*Tishomingo	70	1,408
Forker	49	415	Lamont	7	635	*Perry	18	3,133	Tonkawa	8	1,776
Fort Cobb	35	1,384	Langston	29	339	Phillips	63	680	Tupelo	63	387
Fort Gibson	35	1,384	*Lawton	58	7,788	Piedmont	41	255	Tushka	71	380
Fort Reno	41	550	Lebanon	74	202	Pittsburg	64	590	Tuttle	43	794
Fort Sill	58	2,500	Ledore	63	1,380	Ponca	8	2,521		V	
Fort Towson	76	697	Lenapah	11	412	Pond Creek	7	1,113	Valliant	77	656
Foss	39	525	Lenora	25	250	Porter	34	239	Vera	10	312
Foyil	21	250	*Lehigh	63	1,380	Porum	35	548	Vendark	35	208
Francis	61	931	Lexington	45	768	*Poteau	66	1,830	Verden	43	524
*Frederick	57	3,027	Lincolnvile	13	300	Prague	31	1,025	Vian	51	794
	G		Lindsay	60	1,156	Preston	33	590	*Vinita	42	408
Gage	14	924	Loco	59	350	Price	47	508	Violet	46	291
Gans	51	351							Vireton	64	200
Garber	17	382									

Oklahoma Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
W											
*Wagoner	31	4,018	Waukomis	17	533	*Westville	37	802	Wyandotte	13	255
Wainwright	35	250	Waurika	67	2,928	Wetumka	62	1,196	Wybark	35	290
Wakita	7	405	Wayne	44	332	*Wewoka	47	1,022	Wynne Wood	60	2,002
Walter	58	1,377	Waynoka	5	1,160	Whitefield	50	350	Y		
Wanette	46	677	Weatherford	26	2,118	*Wilburton	65	2,277	Yale	30	685
Wann	11	286	Webbers Falls	35	380	Wild Cat	49	411	Yeager	62	231
Wapanucka	70	948	Welch	12	684	Williams	66	400	Yukon	41	1,018
Warner	35	291	Weleetka	48	1,229	Wister	66	498			
*Watonga	27	1,723	Weston	15	590	Woodville	74	389			
			West Tulsa	20	306	Woodward	15	2,696			

OKLAHOMA

A young State celebrated a few years ago from the rush of people who camped on its borders to be in readiness to occupy its lands as soon as opened for settlement.

Our readers will remember the excitement created a few years ago when territory forming a part of Oklahoma was opened to the public and those so fortunate as to possess a lucky ticket in a lottery drawing could go into the new land and take up a government claim on government land conditions.

DID NOT KNOW OF OTHER OPPORTUNITIES.

Those individuals who camped there for days waiting for permission to get onto the newly opened land, and those who struggled to get a farm on homestead terms there and did not succeed, evidently **did not know** that thousands of acres of irrigated fertile lands were waiting for their coming at many points **outside** of Oklahoma in the Great West. They did not know of the tens of thousands of fertile cheap lands in the Great South, where two or three crops a year can be grown on the same land. They did not know of the **hundreds** of cheap farms that are offered in New England—farms of 50, 100 and 200 acres, well located, that are offered at prices far below what the build- ings alone on these farms would cost. They did not know what **opportunities** existed for getting cheap lands on every hand, as shown in this "Guide for Land Seekers," and hence the **struggle** to get possession of Oklahoma lands.

In this we are **not saying one word** against Okla- homa. On the contrary, investigation of the pos- sibilities and actualities of this region shows that the State is all that it was anticipated to be. But what we would **emphasize** right here is that after a scramble of that kind there always will be **abundance** of opportunities left. Let the land seeker **bide his time**. In one or two years after farms have been taken and are improved large quantities of these lands will **come into** the market for sale. Deaths, removals and disappointments will work their changes and great numbers of these pioneers will be **willing and anxious** to "sell out" at a less price than even the improvements have cost.

Oklahoma properties are perhaps an exception to that rule. The soil here has been found to be very fertile and adapted to the growth of a **great variety** of products, ranging all the way from apples to peanuts, from cotton to broom corn, from melons to strawberries. In fact, agriculture is proving so profitable as to make less anxiety to sell than is found in many states. Yet with prosperous condi- tions existing throughout the State, our review of different counties shows that farm lands can be obtained at very reasonable prices.

GREATLY IN FAVOR OF OKLAHOMA.

First, greatly in behalf of Oklahoma is a very favorable climate. It is situated **far enough south** to escape the long winters of the north, and far enough **north** to escape the fevers and malaria of many southern sections. She is far enough north to escape the enervating effect of a fruitless climate without being far enough to necessitate **expensive** preparations for winter. While the snows of winter **sometimes** fall here they are but of short duration and seldom make extra care of stock necessary.

Experience of several years' settlement has proved that the **greater portion** of Oklahoma is well within the rain belt or **safe crop** region and that all east of Beacon County can be **depended upon** for wheat, oats, cotton, vegetables, alfalfa and the various for- age crops. Experience has **proven** that crops in Oklahoma are as certain and more profitable and prolific than in many of the older sections of the country. Storms are no more common here than in other central states, while periods of great drouth are much more disastrous in the valley of the Mississippi than on the prairies of this State.

OKLAHOMA FOR HEALTH.

As for healthfulness it would be hard to find a better climate than that of Oklahoma. The eleva- tion is great enough to preclude the fevers and malarial of the lowlands, while the purity of the atmosphere insures strong lungs and healthy cir- culation. The breezes of the prairie disperse the microbes of disease and keep the air healthful and invigorating, while the **sunshine** plays an important part. As the elevation is more or less associated and connected with the climate it is well to **give** the elevation or altitude of some of the leading points in the territory. Thus the altitude of Oklahoma City is 1,200 feet above sea level; Chandler, 900; Guthrie, 932; Lawton, 1,250; Enid, 1,244; Hobart, 1,528; Shawnee, 1,045; Arapaho, 1,560; Perry, 871, and Wichita Mountains, 3,000.

Oklahoma has a variety of soils, but it all appears to be productive. In some localities the deep **black loam** prevails, while in others the color is a **rich brown** or reddish hue. In some places there is a considerable proportion of sand and in others a gumbo formation like some of the rich lands of Illinois. The **bottom** lands are more generally black and on the uplands the red or mulatto soil prevails.

The **red soil** of the uplands is excellent for wheat and other small grains and grasses, but not so good for corn as the black land. However, with all the varieties of soil they are all good and there is but a small portion of the State that is not smooth enough and productive enough for profitable culti- vation.

VARIED ENOUGH TO SUIT ANY TASTE.

The surface of the country is sufficiently diversif- ied to suit all tastes. The whole area gently slopes toward the east, in which direction the streams generally run. While several large rivers cross the territory, these are fed by numerous brooks and small affluents which give **every section** an abundance of running water. Springs abound in some regions and well water can be obtained by digging to a moderate depth.

While a very **large per cent** of Oklahoma is a level or gently rolling prairie country, there are also some large areas of **timber** and here and there a range of hills. Much of the eastern portion of the State is covered with a fair growth of timber, while the **central** and western portions are more generally prairie. As a rule, the river banks are **not bordered** by bluffs, as in some States, and the land is tillable to the edge of the streams. In the western portion some of the streams are bor- dered by sand hills that look as though they may have been beds of streams in times past. A few rocky hills may be found but they are scarce. In the southwestern part of the State are found the Wichita Mountains, an irregular range of rugged hills, extending from east to west about sixty miles, and about half that from north to south. In that vicinity, but detached from the range, there are numerous isolated, rugged hills, on the otherwise level prairie, adding to the pic- turesqueness of the scene. Portions of the Wichita range reach a **height** of 2,000 feet above the level of the surrounding country. They are probably a **detached spur** of the Rocky Mountains. In this mountain range there are many **beautiful valleys**, natural parks, sparkling streams and flowing springs.

MUCH HEAVY TIMBER.

While mainly a prairie country, there are cer- tain portions of the State heavily timbered, prin- cipally with **hardwoods**. In a few years the rapidly growing trees in cultivated groves will solve the fuel problem on the prairie farms, where hedges and windbreaks are found on every hand.

Oklahoma Opportunities in Agriculture and Varied Enterprises

OKLAHOMA A YOUNG STATE.

We must remember that Oklahoma is young yet, but enough has been discovered to show that it is rich in undeveloped resources in the form of minerals, stone, gas, oil and salt. Here is asphalt needed for streets, but it takes capital and labor to prepare it for market. Cement is in demand all over the country, and the raw material is here in abundance. Vast deposits of petroleum are waiting for the refiner to prepare it for everyday use. Thousands of bales of cotton are annually shipped from the State to be made into fabrics which should be made here.

But space is too limited to tell what should and may be done here. People have been so busy in making money from the staple crops that they have not had time to look beneath the soil, to develop other enterprises which in time will be found sources of great profit.

We regret that lack of space prevents our presentation more fully of Oklahoma's agricultural conditions and manufacturing possibilities, and content ourselves with brief mention of some of the counties.

ATTRACTIONS OF VARIOUS COUNTIES.

Pottawatomie County is becoming noted as a cotton raising section, while wheat and corn flourish with equal success. The peach takes naturally to the soil and climate here, though apples and strawberries are grown with great success. Shawnee, one of the young cities in this county which had a population of 300 in 1895, and 3,462 in 1900, reported 17,300 inhabitants in 1905, with three daily and five weekly papers, and that over 400 business houses and residences were constructed in the single twelve months of 1903. Of agricultural productions nearly 1,000 carloads of potatoes, which ripen very early in this section, were shipped out of the county during May and June, 1904, the prices ranging from 60 to 70 cents per bushel on the ground.

WHAT HAS BEEN IN THE PAST.

Woods County in the northwestern part of the territory is another sample county, having, besides a fertile soil, plenty of timber, with salt, gypsum, coal and fine building stone, found in the county, but none of them yet extensively developed.

Recent transfers here show the selling price of farm lands to range from \$2 to \$4 per acre.

Grant County lands lying in the middle of the northern part of Oklahoma are selling at prices varying from \$15 to \$37.50 per acre. The farmers in this section give their attention to wheat, corn, castor beans and cattle.

The raising of cattle and hogs has proved profitable. The winter wheat fields are used for pasturing, and curiously to the seeming betterment of the wheat. The chief manufacturing industry in the county is the making of flour. There are large salt plains here capable of profitable development.

Farm lands in other counties are selling at following prices:

Garfield County, from \$13 to \$33.75 per acre. Average price, \$23 per acre.

Noble County, \$2.50 per acre up.

Blaine County, prices range firm, \$6.25 to \$28.

Average price of farm lands, \$11.74.

Kingfisher County, average \$18.61 per acre.

Logan County, \$25 to \$42.75 per acre.

Caddo County, \$10 to \$53. Average, \$20.70 an acre.

Kiowa County, \$6.50 to \$25.70. Average \$15.31.

Greer County, \$6 to \$30. Average, \$12.

Comanche County, \$7.75 to \$23.50. Average \$13.95.

Beaver County, \$2.18 to \$28.12. Average, \$6.21.

Roger Mills County, \$4 up. Average, \$11.11.

The average annual rainfall determines prices a little; thus, the rainfall in Beaver Co. is 22 inches, in Pottawatomie Co. it is 32.98, in Woods Co. 27.40 inches, Garfield Co. 29.46 inches, Noble Co. 32.45 inches, Blaine Co. 28 inches, Kingfisher Co. 30 inches, etc., etc.

The average annual temperature varies slightly from 60.1 in Pottawatomie Co. to 56.2 in Beaver Co. Extremes of temperature we give elsewhere.

CONDENSED IMPORTANT FACTS RELATING TO OKLAHOMA.

Altitude.—Highest, Wichita Mountains, Comanche Co., 2,536 feet.

Climate.—Average January temperature at Fort Sill, Comanche Co., 35. July, 82. Extremes: warmest, 107; coldest, 9 below. Annual rainfall, 31.2 inches.

Dimensions.—Extreme length north and south, 210 miles. Extreme breadth, east and west, 365 miles. Area of state, 39,030 square miles.

History.—Originally a part of the Louisiana purchase in 1803. Treaty rights of the Indians bought by U. S. in 1886. Thrown open to settlement in 1889, at which time, at the signal of a pistol shot tens of thousands of people who had camped for days on the borders of this new land rushed into file claims on the new government land. Organized as a territory in 1890. No Man's Land, including Beaver County, added in 1890. The counties of Blaine, Day, Dewey, Washita, Custer and western portions of Canadian and Kingfisher Counties added in 1892. The Cherokee Strip, including the counties of Kay, Grant, Woods, Garfield, Woodward, Noble and Pawnee, opened to the public by another rush 1893. Greer County, taken from Texas and added to Oklahoma by a decree of the Supreme Court 1896. The Kiowa, Comanche, Apache and Wichita Indian reservations opened to white settlement by a lottery drawing in which 176,000 persons participated in 1900. Another large area to be opened to white settlement is the Osage reservation in the northwestern corner of the territory.

AGRICULTURAL ITEMS RELATING TO OKLAHOMA

Taxes in Oklahoma are not high, and are decreasing.

In its clay beds Oklahoma has one of its most valuable resources.

As a region adapted to successful fruit growing Oklahoma offers attractions peculiarly its own.

Still another special line of industry with the brightest of prospects for the settler in Oklahoma is poultry raising.

The flouring-mill industry of Oklahoma has already attained sufficient proportions to give it rank as an important factor.

Angora goats thrive in Oklahoma, and the raising of them will undoubtedly become a settled industry.

Inexhaustible deposits of gypsum, from which plaster, cement, and fertilizers are manufactured are widely scattered throughout the Territory.

Wild plums grow in greater profusion and variety in Oklahoma than anywhere else in the Union, and the cultivated varieties also succeed. Plum growing is an industry capable of great development. Cherries are profitably grown for shipment.

The corn crops in the eastern and southern halves of Oklahoma have been a success from the start. In Canadian county ears of corn 14 inches in length and 10 inches in circumference were plucked at a height of eight feet from the ground.

There are still vast tracts of public land in Oklahoma—subject to homestead entry, which offer golden opportunities to the settler. The largest areas yet vacant are in the northwestern portion of the Territory—in particular Beaver county.

Sweet potatoes are excellently adapted to successful cultivation in the sandstone soils of eastern Oklahoma when these are cleared of timber.

The rainfall of Oklahoma, averaging annually about 31 inches, is not only adequate, but plentiful for the successful production of all crops.

Oil and natural gas were discovered in 1900 at the western end of the Wichita mountain range, and since that in several other locations.

There is no more favored region than Oklahoma in the world for the raising of durum (hard) wheat, more commonly known as "macaroni" wheat.

In 1904, according to the Governor's report, there were 2,095,427 acres of vacant land in Oklahoma, of which 1,838,030 acres were located in Beaver county.

In every county in Oklahoma sheep raising is carried on more or less extensively. More than one-third of the total number of sheep in the Territory, however, are found in Beaver county.

In the granite fields of Greer county, at the town of Granite, there are exposed above ground beds of the very best quality of red granite sufficient to supply the world for years to come.

The cotton-growing industry is largely confined to the counties of the central and southeastern parts of the Territory; it is also being grown with success in the southwestern counties.

Since 1900 the output of the flour mills of Oklahoma has been enormous. Oklahoma flour is shipped to Canada on the north and the Gulf States on the south, and vast quantities are exported over-sea.

STATE AND THE 34 COUNTIES OF OREGON

With Their Boundaries

LOCATION AND 1910 POPULATION OF OREGON COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Clatsop..	16,106	10.....	Morrow..	4,757	19.....	Benton..	10,663	28.....	Curry..	2,044
2.....	Columbia..	10,580	11.....	Umatilla..	20,309	20.....	Linn..	22,662	29.....	Josephine..	9,567
3.....	Tillamook..	6,266	12.....	Union..	16,191	21.....	Crook..	9,315	30.....	Jackson..	25,765
4.....	Washington..	21,522	13.....	Wallowa..	8,361	22.....	Wheeler..	2,484	31.....	Klamath..	8,554
5.....	Multnomah..	226,261	14.....	Yamhill..	18,285	23.....	Grant..	5,607	32.....	Lake..	4,658
6.....	Hood River..	8,016	15.....	Polk..	14,469	24.....	Baker..	18,076	33.....	Harney..	4,059
7.....	Wasco..	16,836	16.....	Marion..	89,780	25.....	Lane..	33,783	34.....	Malheur..	8,601
8.....	Sherman..	4,242	17.....	Clackamas..	29,931	26.....	Coos..	17,959			
9.....	Gilliam..	3,701	18.....	Lincoln..	5,587	27.....	Douglas..	19,674			
									Total.....		672,765

Cities and Villages of Oregon with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			C			D			F		
Adams	11	205	Bend	21	536	Coburg	25	613	Dufur	7	523
*Albany	20	4,275	Bridge	26	200	*Candon	9	1,004	Dundee	14	260
Amity	14	407	Brownsville	20	919	Copperfield	24	251	E		
Armitage	25	317	*Burns	33	904	*Coquille	26	1,398	Eastside	26	252
Ashland	30	5,021	Buxton	4	260	Cornelius	4	450	Echo	11	320
*Astoria	1	9,599				*Corvallis	19	4,552	Elgin	12	1,121
Athena	11	586				Cottage Grove	25	1,834	*Enterprise	13	1,242
B			Canby	17	587	Cove	12	433	Estacada	17	405
*Baker	24	6,742	*Canyon City	23	364	Creswell	25	369	*Eugene	25	9,009
Bandon	26	1,803	Carlton	14	386						
Banks	4	299	Carson	24	208						
Bay City	3	281	Cascade Locks	6	275	*Dallas	15	2,124	Fairview	26	204
Beaverton	4	386	Central Point	30	761	Dalles City	7	4,880	Falls City	15	969
			Chemawa	16	599	Dayton	14	452	Florence	25	311
			Clatskanie	2	747	Drain	27	335	Forest Grove	4	1,772

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Oregon with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	
Fort Klamath	.31	290	K			North Yamhill	.14	451	Shaniko	7	495	
Fort Stevens	..1	360		*Klamath Falls	.31	2,758	Nyssa	34	449	Sheridan	14	1,021
*Fossil	22	421	L									
Freewater	11	532										
G												
Gardiner	27	391				Oakland	27	467	Silverton	16	1,588	
Gervais	16	276				*La Grande	12	4,843	Springfield	25	1,338	
Glendale	27	646				*Oregon City	17	4,287	Stanfield	11	318	
Gold Hill	30	423				Lebanon	20	1,821	Stayton	16	703	
*Grants Pass	29	3,897				Linnnton	5	360	Summerville	12	237	
Grass Valley	8	342	M			Lostine	13	231	Sumptner	24	643	
Gresham	5	541										
H												
Haines	24	423				*McMinnville	14	2,399	T			
Halsey	20	357				Madras	21	364				
Harrisburg	20	453				Marshfield	26	2,981	*The Dalles	7	4,881	
*Heppner	10	889				Medford	30	8,841	*Tillamook	3	1,352	
Hermiston	11	647				Mill City	16	499	*Toledo	18	541	
*Hillsboro	4	2,016				Milton	11	1,281	Troutdale	5	399	
*Hood River	6	2,331				Millwaukie	17	861	Turner	16	260	
Houlton	2	347				Mist	2	251	U			
Hubbard	24	283				Mitchell	22	211	Unatilla	11	200	
Huntington	24	681				Monmouth	15	493	Union	12	1,483	
I						Monroe	19	266	V			
Imbler	12	360				*Moro	8	378	Vale	34	396	
Independence	15	1,161				Mt. Angel	16	545	W			
Ione	10	234				Myrtle Creek	27	429	Wallowa	13	793	
J						Myrtle Point	26	836	Warrenton	18	339	
*Jacksonville	30	785	N									
Jasper	25	415				New Astoria	1	557	Wasco	5	386	
Jewell	1	258				Newberg	14	2,261	Wendling	28	299	
Joseph	13	725				New Era	17	208	Weston	11	526	
Junction City	25	759				New Pine	1	200	Willamette	17	317	
						Creek	32	200	Willamina	14	376	
						Newport	18	721	Woodburn	16	1,616	
						North Bend	26	2,078	Y			
						North Powder	12	455	Yamhill	14	325	

Opportunities in Agriculture and Varied Enterprises

OREGON

Oregon's Natural Advantages, Healthful Climate and Free Land—A Chance for the City Man to Get Back to the Land. Fruit Growing, Wheat and General Farming, Stock Raising, Bee Culture, Poultry Raising, Dairying, Lumbering, Fishing, Mining, Irrigation and "Dry Farming."

From a railroad bulletin we condense the following:

Ever since Lewis and Clark made their famous expedition to the great Northwest—over one hundred years ago—thereby adding territory to our dominions, Oregon has had a magnetic fascination for the conservative Easterner. Rich in opportunity for the farmer, the stockman, the fruit-grower, the merchant and the business man; blessed with fertile plains and forested hills filled with precious metals; resplendent in natural scenery which makes it attractive to the tourist and sightseer, Oregon today offers far more and better opportunities in the twentieth century than in the days of old when the only way to reach her fertile fields was by months of tedious travel in the picturesque prairie schooner.

The history of Oregon has been one of endeavor and achievement—the result of the work of her broad-gauged, public-spirited citizens who, through their co-operative efforts, have made Oregon known the world over.

Torn into two dissimilar parts by physical barriers prior to 1909, the state of Oregon today stands united and presents the golden face of opportunity to the landless man east of the Rocky Mountains. Blood may be thicker than water, but there is no tie so strong as the steel ribbons of modern transportation which unite vast empires and bring widely-separated people and their products together. Central or Eastern Oregon, by stage or ox-cart, was formerly a wearisome seven days' journey from Portland, a longer distance in actual time and convenience than from Chicago to Portland and return by train. Central Oregon had no railroads.

LAND ENOUGH FOR A NEW STATE.

Not so long ago the people of South Central Oregon talked of forming a new state with the people of the northern portion of California, largely because of the lack of modern transportation facilities. They were isolated from the rest of Oregon by jagged mountain ranges and swift rivers. Their neighbor, California, seemed nearer, as climate and crop conditions were similar.

COMING OF THE OREGON TRUNK RAILWAY.

That was yesterday. The new state idea, with yesterday, has passed away. Today, the Oregon Trunk Railway, a modern broad-gauge line, has been rapidly built from Clark, Washington, across the Columbia River and up the Deschutes Valley through the very heart of Central Oregon, and is extending its tracks every hour. The Oregon Trunk Railway (through the Spokane, Portland and Seattle Railway, one of the affiliated connections of the Great Northern Railway) is now connecting Central Oregon with Portland and the world's markets. Central Oregon will be but seven hours from Portland instead of seven days.

The seemingly impassable barrier formed by the Cascades and other high neighboring mountain ranges has been overcome. Central Oregon—the newer, larger portion of the state—is now knit fast forever to Pacific Coast Oregon—the older and better settled part—with Portland and Astoria as ocean ports.

The world's markets are waiting eagerly for Central Oregon's wheat and grain. Western Oregon's fruits are widely known, and have made the word Oregon standard for high quality throughout the world. Today—and this is the twentieth century, when even the United States is getting overcrowded and old—Western Oregon has only been cultivated intensively in spots. Southwestern Oregon is just coming into its own. Northwestern Oregon's dairy products will astonish the country.

Not only has Central Oregon—a territory larger than the state of New York—been opened to the land-hungry world, but whole counties in Northwestern Oregon, like Tillamook, are having electric lines run to and through them, hooking them up with larger commercial centers. All through Oregon new lines of standard steam and electric transportation are being built.

OREGON NEEDS YOU.

Oregon offers an honest opportunity to the sincere man, and is a good place to live. No man need ever

move out of Oregon to go to a better place. The climatic, agricultural, educational, religious, social and business advantages are too abundant.

Throughout, Oregon is an attractive country. It has over three hundred miles of coast line on the Pacific Ocean, and mountains, rivers and waterfalls, which add charm to the landscape and also furnish power for industries.

Business in Oregon is built on the natural resources and productive ability of the country; not on speculation. Any legitimate business in Oregon is good, but the business of agriculture is perhaps the best business for a man of ordinary means. Agriculture is the basis of all wealth. A man might perhaps get along without clothes—but he must eat.

Oregon's soil produces good things to eat—so good, that the world pays top prices for the privilege of eating them. Oregon's forests produce timber for houses, factories and ships. Oregon's soil produces grain and forage crops and grasses, which feed thousands of sheep and cattle. Horses, especially blooded, heavy-draft horses, are raised profitably.

Hog raising will line the farmers' pockets. Dairying, poultry raising and bee culture are in their infancy. Oregon makes no pretense of being able to raise everything under the sun on the same acre, but enough of five or ten different crops can be raised on one farm to make the business of farming well worth while. Excepting the most favored fruit soils where, of course, the orchard is the main thing and the land too valuable, stock raising or dairying, and generally both, can be profitably undertaken on almost any arable land in Oregon. Oregon's future is bright indeed.

OREGON'S LOCATION AND LAND AREA.

By states, Washington forms the northern border, California and Nevada the southern, and Idaho the eastern border. The Pacific Ocean is the western boundary. Originally, Oregon's territory embraced what are now four large states; Washington, the lower part of British Columbia, Idaho, and the present state of Oregon.

FREE GOVERNMENT LANDS.

Oregon state is the seventh in size in the Union, having an area in square miles of 94,560; has an average width east and west of 360 miles, and an average length north and south of 260 miles, with a land area of practically 62,000,000 acres. Of this area, 17,580,573 acres is free government land, and 500,000 acres is state school land.

All the 320-acre free homesteads, and most of the 160-acre free homesteads, are located in Central and Southeastern Oregon, and are chiefly in the counties of Crook, Klamath, Lake and Harney. In round numbers the acreage of the 320-acre units not filed on June 20, 1910, in Central Oregon, was 11,000,000, but, of course, new entries are being made every day. Of the total amount of 17,580,573 acres, 13,463,734 are surveyed, but the unsurveyed land can be had by locating and settlement and complying with the simple conditions demanded by the United States Government after the land is surveyed. Of these 17,580,573 acres, however, about 11,600,000 are agricultural and grazing lands; the rest are timbered, mountainous or desert land requiring irrigation.

When a man talks glibly of a million acres of land, even if it is all arable, stop and figure it out. It won't last forever. One million acres, divided into 320-acre sections, makes 3,125 farms, or 6,250 farms of 160 acres each. These Central Oregon homestead lands will raise tremendous crops of wheat, grain, alfalfa, grasses and hardy root crops. They are not by any means all gone, but they are going fast, and once they pass into private ownership, there is no more free land with which to replace them.

STATE SCHOOL LAND.

There are approximately 500,000 acres of state school land in Oregon; most of it is located in Central Oregon. This land may be purchased by any citizen of the United States over eighteen years of age for not less than \$7.50 an acre, on time. Not more than 320 acres can be purchased by any one person, but the land need not be all together. There is good state land not far from the Oregon Trunk Railway.

Oregon Opportunities in Agriculture and Varied Enterprises

In the extent of its agricultural, mineral and forest resources, Oregon ranks very high, yet its possibilities for development have been only partially realized. The state is largely devoted to agriculture, the western part of the state, especially the Willamette, Umpqua and Rogue River valleys, having the highest cultivated farming lands. On the other hand, eastern Oregon, which has a very fertile volcanic soil, extensive areas of which, in the north-eastern part of the state, are devoted to the raising of the cereals, mostly wheat, without irrigation, and where the land is too arid for the raising of crops without irrigation, is devoted to stock grazing.

VEGETABLE AND CEREAL CROPS.

The principal farm crops are wheat, hay and forage, oats and potatoes, cereals assorted and green fruits. Wheat in 1900 brought in Oregon 54 cents a bushel, hay and forage about \$5.50 per ton, oats about 31 cents a bushel and potatoes 32 cents a bushel. In 1902 wheat brought 52 cents a bushel, and thus prices are liable to fluctuate, but the absolute certainty of large crops and their average prices relieves the farmer of anxiety in western Oregon, while in the eastern part of the state, even without the heavy rainfall, farmers are getting better returns from their lands by knowing how to cultivate the soil. Added to this the government and private companies are arranging to bring to the farms a sufficient water supply. Already the total irrigated area, as far back as 1900, in the state was 388,310 acres, and government surveys have been made for irrigating 60,000 acres in Umatilla county and 90,000 acres in Malheur county.

The mineral resources of the state comprise all the different metals, the value of the output in one of the recent average years being, gold, \$1,649,700; silver (coinage value), \$149,204; coal, \$220,000; borax, \$100,000; and stone, \$21,663. The value of gold output was increased in the next year to \$6,740,000. There are several mining districts in the Cascades, in southern and western Oregon, but the richest mineral belts seem to be the three mineral zones of eastern Oregon, which are perhaps as large as any on the American continent. One of these lies partly within the state of Idaho and fringes the eastern boundary of Union, Baker and Malheur counties, and is from ten to twenty miles in width. Another zone begins at the Eagle Mountains, northeast of Baker City, is about fifteen miles in width, and extends in a southwesterly direction a distance of about sixty-five miles. The third zone has the same general direction, begins in the Elkhorn Mountains, is about twenty miles wide, and extends a distance of 100 miles. The principal districts in eastern Oregon are in these zones, tributary to Baker City and Sumpter.

THE TIMBER REGIONS.

The great natural resource of Oregon is its timber, which is located largely on the west side of the Cascade Mountains where the rainfall is the greatest and the climate mild. The manufacture of this timber into lumber leads all other industries in the value of its output, which in 1900 amounted to \$10,352,167. Large tracts of timber stand in the Rogue river and Umpqua valleys, and along the Coast range and the Cascades to the Columbia river, as well as a fine body on the east side of the Cascades, at the head of the Des Chutes river, and several other points on the eastern slope of the Cascades, and in the Blue Mountains in the northeastern part. The estimated standing timber is 225,000,000,000 feet, of which 150,000,000,000 consists of fir. The damage by fire, the indiscriminate waste and the need of reservoir sites, has induced the government to set aside forest reserves, and 4,500,000 acres along the higher Cascades now constitute the reserves for this state.

From our general description of states the reader will see where government land is yet open for homesteading, but for persons interested in Oregon it is well to get the best and latest railroad maps of the state and then go through to central points and investigate. Examination will show that the interior of the state is yet without much railroad transportation, and with new lines established the lands in those sections must rapidly increase in value. This may be judged from the fact that in Baker county farm land is worth from \$20 to \$40 an acre, in Vernon county from \$30 to \$40 per acre, in Wallowa county from \$8 to \$10 per acre.

DIFFERENT PRICES OF LAND.

In Umatilla county improved land brings from \$10 to \$40 per acre and stock range land \$1 to \$5 per acre. Wheat land in Morrow county ranges from \$6 to \$15 per acre, while in Inn county, in the Willamette valley, improved prairie can be had for \$30 an acre and in the foothills at \$5.

Land seekers should look up the probable opening up of new seaports on the Oregon coast, such as Coos Bay and other points in that state facing on the Pacific ocean.

RAILROADS WHICH SERVE CENTRAL OREGON.

The Spokane, Portland and Seattle Railway, popularly known as the North Bank Road, was built from Portland to Spokane and completed in 1909. The North Bank Road not only connects with the Oregon Trunk Railway (Central Oregon's latest agent of development), but also furnishes the Great Northern Railway with a short line from Spokane to Portland.

Portland and Astoria are the two important ocean ports of Oregon. Astoria is at the mouth of the Columbia, at the ocean's edge, and is connected by water grade with Central Oregon via the Astoria and Columbia River Railroad; the North Bank Road (S. P. & S. Ry.) and the Oregon Trunk Railway. These three railroads, in connection with the Great Northern Railway, will give Central Oregon not only local and interstate transportation, but transcontinental and international connections, both rail and ocean. These roads are all broad-gauge, standard railroads.

Through merchandise package cars are run from Portland and other commercial centers to St. Paul, Minneapolis, Chicago, and other large cities in the East.

In the Pacific Northwest special fast fruit trains have been run from fruit-growing sections direct to Eastern markets, and the Great Northern Railway endeavors to help the farmer and fruit-grower market their products to the best advantage by furnishing them such transportation facilities as the growth and development of the community warrant.

No state, happy in a fine climate and a fertile soil, has ever waited long for settlers after the railroads came. The people of Oregon are fully alive to their good fortune and have a keen appreciation of the possibilities of their state. Newcomers are welcomed—for they want and need you in working out their destiny.

MILITARY-ROAD-GRANT LANDS.

One of the greatest obstacles to the development of a large portion of Oregon has been removed, now that what is known as the Military-Road-Grant Lands have been purchased from the French syndicate and put on the market in small tracts. There are 800,000 acres of this land now for sale in Central Oregon, which can be purchased in small tracts, if desired.

Originally, the Willamette Valley and Cascade Mountain Road Corporation built a military and wagon highway from Santiam Pass across the Cascade Range and through Central Oregon in an easterly direction. After this road was built and land grants obtained, various syndicates and corporations repurchased the grants, which were finally secured by the Oregon and Western Colonization Company, of St. Paul, Minn., which is capitalized at \$12,000,000. This company has for sale 800,000 acres of land in Crook, Harney and Malheur Counties, which were carefully selected on account of their more than average fertility. The grants allowed the old company to take their pick of the sections along the road. This Central Oregon land is most suitable for wheat and grain-raising, cattle, horse, sheep and hog raising. A special booklet describing these lands will be sent free on request.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest, Mount Hood, in the Cascade Mountains, in Clackamas County, 11,934 feet; Mount Jefferson, 10,200 feet.

Climate. Varies with localities and elevations. West of the Cascade Mountains, heavy winter rainfall. Average July temperature 67 at Portland; January temperature, 39 above; extreme, 2 below; highest, 102; at Umatilla, Umatilla County, average January, 32; July, 73; extreme, highest, 110; lowest, 24 below; yearly rainfall 9.7 inches; yearly rainfall at Portland, 46.8 inches.

Dimensions. Extreme length, north and south, 290 miles; extreme width, east and west, 375 miles. Area of state, 96,030 square miles. Columbia river on north side of Oregon extends 300 miles. Portland located on Willamette river, twelve miles from its junction with the Columbia and 110 miles from the ocean.

History. Visited by Drake in 1558; mouth of Columbia River explored by Captain Gray, 1792; visited by Lewis and Clarke, 1804-5; trading post founded at Astoria, 1811; Oregon Territory, including present states of Washington and Idaho, organized 1848. Admitted to Union 1859.

STATE AND THE 67 COUNTIES OF PENNSYLVANIA

With Their Boundaries

LOCATION AND 1910 POPULATION OF PENNSYLVANIA COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Erie..	115,517	19... Wyoming..	15,509	36.. Allegheny..	1,018,463	52.... Fayette..	167,449			
2.... Crawford..	61,565	20 Lackawanna..	259,570	37... Westmore-		53.... Somerset..	67,717				
3.... Warren..	39,573	21... Lawrence..	70,032	land..	231,304	54.... Bedford..	38,879				
4.... McKean..	47,868	22.... Butler..	72,689	38.... Indiana..	66,210	55.... Fulton..	9,703				
5.... Potter..	29,729	23.. Armstrong	67,880	39.... Cambria..	166,131	56.... Franklin..	59,775				
6.... Tioga..	42,829	24... Jefferson..	63,000	40.... Blair..	108,858	57... Cumberland..	54,479				
7.... Bradford..	54,529	25... Clearfield..	93,768	41... Huntingdon..	38,304	58.... Adams..	34,319				
8 Susquehanna..	37,716	26.... Center..	43,724	42.... Millin..	27,785	59.... York..	136,405				
9.... Wayne..	29,236	27.... Union..	16,249	43.... Juniata..	15,013	60.... Lebanon..	59,565				
10.... Mercer..	77,699	28. Northumber-		44.... Snyder..	16,800	61.. Lancaster..	167,029				
11.... Venango..	56,359	land..	111,420	45.... Perry..	24,136	62.... Berks..	183,222				
12.... Clarion..	36,638	29.... Montour..	14,868	46.... Dauphin..	136,152	63.... Chester..	109,213				
13.... Forest..	9,435	30.... Columbia..	48,467	47... Schuylkill..	207,894	64.... Delaware..	117,906				
14.... Elk..	35,871	31... Luzerne..	343,180	48.... Lehigh..	188,832	65 Montgomery..	169,590				
15.... Cameron..	7,644	32.... Carbon..	52,856	49 Northampton..	127,667	66.... Bucks..	76,530				
16.... Clinton..	31,545	33.... Monroe..	22,941	50... Washing-		67 Philadelphia..	1,549,008				
17... Lycoming..	80,813	34.... Pike..	29,729	ton..	143,680						
18.... Sullivan..	11,293	35.... Beaver..	78,353	51.... Greene..	28,882	Total.....	7,665,111				

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			Adelaide	52.....	526	Allens Mills....	24.....	202	Ambler	65.....	2,619
Aaronsburg	26.....	309	Adrian Mines..	24.....	209	Allensville	42.....	285	Ambridge	33.....	5,205
Abbottstown	58.....	402	Aitch	41.....	202	*Allentown	48.....	51,913	Amity	50.....	250
Abington	63.....	409	Akron	61.....	719	Allenwood	27.....	305	Amityville	62.....	231
Academia	43.....	240	Albion	1.....	1,534	Allison Park....	36.....	350	Amsbury	39.....	200
Ache Junction..	52.....	200	Alburtis	48.....	909	Allport	25.....	406	Anandale		
Ackermanville..	49.....	352	Aldan	64.....	661	Almedia	30.....	208	Station	22.....	209
Acosta	53.....	202	Alden Station..	31.....	262	Alton	4.....	380	Andalusia	66.....	303
Adah	52.....	506	Alderson	31.....	420	Altoona	40.....	52,127	Anita	24.....	3,965
Adamsburg	37.....	366	Alexandria	41.....	432	Alum Bank	54.....	218	Anville	60.....	1,283
Adamstown	61.....	675	Alipouipa	35.....	1,741	Alverton	37.....	662	Ansonville	25.....	450
Adamsville	2.....	262	Allen	57.....	350	Ambersons			Antes Fort	17.....	256
Addison	53.....	225	Allenport	50.....	1,502	Valley	56.....	450	Antrim	6.....	1,506

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Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Apollo	23	3,006	Belsena Mills	25	228	Brooklyn	8	320	Cherry Tree	38	439
Appewold	23	300	Ben Avon	36	1,828	Brookston	13	502	Cherry Valley	50	1,401
Aquashicola	32	302	Bendersville	58	355	*Brookville	24	3,003	Cherryville	49	302
Aram	58	250	Benezett	14	490	Brownfield	36	2,066	Chester	64	38,537
Arcadia	38	1,402	Bennington	40	202	Brownstown	52	1,522	Chester Hill	25	648
Archbald	20	7,194	Burnace	40	202	Brownstown	39	1,356	Cheswick	36	317
Ardara	37	409	Bens Creek	39	306	Brownstown	61	626	Cheyney	21	301
Arden	50	409	Benson	53	387	Brownsville	62	236	Chickies	61	253
Ardmore	65	3,502	Bentleyville	50	1,922	Brownsville	52	2,324	Chickora	22	1,103
Arendtsville	58	383	Benton	30	719	Bruceton	36	562	Chinchilla	20	252
Argentine	22	506	Berlin	53	1,336	Bruin	22	539	Choconut	8	251
Aristes	30	406	Berlinsville	49	406	Brumfieldville	62	317	Christiana	61	934
Arnold	37	1,818	Bernice	18	666	Brunnerville	61	509	Churchtown	61	301
Arnot	6	3,508	Bernville	62	308	Bryn Mawr	65	3,026	Churchville	66	202
Arona	37	683	Berrysburg	46	377	Buckgen	30	220	Clairton	36	3,326
Arrow	53	300	Berwick	58	5,357	Buck Mountain	47	330	Clarendon	3	933
Arroyo	14	209	Berwick	58	1,332	Buena Vista	36	620	Claridge	37	2,011
Artz	17	302	Berwyn	63	1,066	Buffalo Mills	54	236	*Clarion	12	2,612
Ashbourne	65	650	Bessemer	21	560	Bulger	50	1,206	Clarksburg	51	208
Asherton	28	202	Bethayres	65	350	Bunola	36	330	Clarksburg	10	216
Ashland	47	6,855	Bethlehem	49	12,837	Burdine	36	366	Claussville	48	322
Ashley	31	5,691	Bigler	25	466	Burgettstown	50	1,268	Claysburg	40	203
Ashville	39	384	Biglerville	58	386	Burnham	42	766	Claysville	50	1,045
Askam	31	686	Big Run	24	1,032	Burnside	25	493	Clayton	62	317
Aspinwall	36	2,592	Bingen	49	206	Bute	52	1,222	Claytonia	22	252
Aston Mills	61	429	Binkley	61	250	*Butler	22	20,738	*Clearfield	25	6,851
Atglen	63	516	Blue Hand	61	250	Buttontown	17	236	Clearmont	4	301
Athens	7	3,796	Birdsboro	62	2,930	Buztown	49	226	Clifford	8	202
Atlantic	2	202	Birdville	50	292	Byers	63	262	Clifton	36	301
Atlas	28	1,063	Bishop	50	509	Byrnedale	14	630	Clifton Heights	64	3,155
Attleboro	66	514	Bismarck	60	575				Clinton	36	302
Auburn	47	921	Bitumen	16	426	Cabot	22	200	Clinton	9	251
Audenried	32	5,092	Blackhorse	63	321	Caledonia	14	260	Clintonville	11	335
Aughwick			Black Lick	38	1,500	California	50	2,230	Cleo	24	202
Mills	41	526	Blacklog	43	202	Callensburg	12	203	Clymer	38	1,753
Austin	5	291	Blackwells	6	250	Callery	22	335	Coal Bluff	50	503
Avalon	56	1,177	Blain	45	326	Cambridge	37	508	Coal Center	50	816
Avella	50	506	Blain City	25	534	Springs	2	1,514	Coal Castle	47	201
Avis	16	796	Blair Station	36	466	Camden	36	326	Coaldale	54	311
Avoca	31	1,634	Blairsville	38	3,572	Cameron	15	320	Coaldale	47	5,154
Avon	60	402	Blakeslee	33	220	Cammal	17	760	Coal Glen	22	302
Avondale	66	668	Blakely	50	5,345	Campbelltown	60	275	Coalmont	41	228
Avonia	1	262	Blandburg	39	1,802	Camp Hill	57	875	Coalport	32	3,548
Avonmore	37	1,262	Blandon	62	508	Camptown	7	225	Coalport	25	876
Axemann	26	226	Bloomfield	2	762	Canadensis	33	250	Coalridge	31	203
			Junction	45	772	Candor	50	262	Coalrun	53	251
Bachmanville	46	260	Bloomingdale	31	260	Canconito	35	320	Coal Valley	36	252
Baden	35	601	Blooming Glen	66	320	Canoe Run	15	362	Coatesville	63	11,084
Baggaley	37	1,022	*Blossburg	30	7,413	Canonsburg	50	3,891	Coburn	26	201
Bainbridge	61	862	Blossburg	6	2,303	Canton	7	1,637	Cochran	2	695
Baird	50	326	Blue Ball	61	202	Carbon	37	601	Cochranville	63	253
Bakers	37	528	Blue Ball	25	525	Carbondale	20	17,404	Cochranville	59	379
Bakers			Blythedale	36	866	Cardiff Mines	14	301	Coffetown	49	502
Summit	54	200	Bodines	17	200	Cardington	61	409	Cogan House	12	401
Bakersown	36	326	Boiling Springs	57	562	*Carlisle	57	10,303	Cogan Station	17	203
Bakerton	39	1,026	Bolivar	37	518	Carmichaels	51	478	Cohn	27	204
Bald Eagle	40	302	Boston	36	826	Carnegie	36	10,009	Cokeburg	50	1,302
Bangor	49	3,568	Boswell	53	1,878	Carnot	36	209	Cokeville	37	409
Banksville	36	1,302	Bowers	62	226	Carr	36	290	Colebrookdale		
Banning	52	206	Bowmansdale	57	238	Carriack	36	6,117	Station	62	251
Barbara	40	200	Bowmantown	32	408	Carrtown	39	1,412	Coleburg	5	203
Barclay	7	506	Bowmansville	61	250	Carter	22	3,438	College Hill	35	1,787
Bardwell	19	220	Boyers	22	236	Cartwright	14	1,096	Collegeville	65	627
Bareville	61	213	Boyetown	62	2,433	Carverton	31	266	Collingdale	64	1,361
Barnes	3	350	Bracken	39	460	Cassandra	39	306	Cona	35	1,003
Barnesboro	39	3,535	Brackenridge	36	3,134	Castle			Columbia	61	11,454
Barnesville	47	222	Bradock	36	19,357	Shannon	36	2,526	Roads Cross	7	203
Barree	41	237	Bradenville	37	1,010	Catasauqua	48	5,250	Columbus	3	346
Bart	61	213	Bradford	4	14,544	Catawissa	30	1,930	Colwyn	64	1,584
Bartonville	63	247	Brady	12	1,493	Cato	12	220	Concordville	64	400
Bartville	61	204	Bradys Bend	23	562	Cayuga	20	301	Conestoga	61	602
Bath	49	1,057	Braeburn	37	233	Cecil	50	1,506	Confluence	53	891
Beach Haven	31	462	Branch	37	408	Cedarville	63	201	Conifer	24	302
Beachlake	9	250	Branch Dale	47	750	Celia	35	202	Conneaut Lake	2	725
Beachly	53	226	Brandonville	47	222	Cementon	48	1,802	Conneautville	2	921
Beadling	36	726	Brandt	8	436	Center Hall	26	506	Station	2	867
Beallsville	50	407	Brandywine			Center Square	65	320	Connellsville	52	12,845
Beaver Lake	3	221	Summit	64	226	Center Valley	48	550	Conoquenessing	22	402
*Beaver	35	3,456	Breslau	19	236	Centerville	50	1,413	Conrad	5	361
Beaverdale	39	1,202	Briar Creek	31	220	Centerville	41	261	Conshohocken	35	7,480
Beaver Falls	35	12,191	Brickerville	61	232	Central	30	2,429	Conway	35	1,483
Beaver			Bridgeport	65	3,860	Centralia	30	2,048	Corryngham	31	406
Meadows	32	1,530	Bridgeton	66	250	Cetronia	48	280	Coopersburg	48	623
Beavertown	44	820	Bridgeton	59	506	Chadds Ford	61	308	Coplay	48	2,671
Beaver Valley	30	560	Bridgeville	36	1,983	Chalfort	66	303	Coral	38	702
Bechtelsville	62	417	Brighton	35	1,562	*Chambersburg	56	11,802	Coraopolis	36	5,252
Beckersville	62	250	Brinton	36	426	Chandlers	38	662	Cornplanter	3	202
*Bedford	54	2,235	Bristol	25	459	Valley	3	202	Cornwall	60	2,602
Beechcliff	26	320	Broad Ford	52	9,256	Chapman	44	319	Cornwells	66	241
Beech Creek	16	584	Broadtop	41	478	Quarries	49	253	Corry	1	5,991
Beechview	36	1,520	Brockport	14	315	Charleroi	50	9,615	Corsica	24	301
Belfast	49	1,445	Brockton	47	362	Cheat Haven	52	220	Cortez	20	202
*Bellefonte	26	4,145	Brockwayville	24	1,898	Cheltenham	55	426	Corydon	3	502
Belle Vernon	52	2,372	Brodeheads	33	554	Cherry Run	12	250	Coryville	4	302
Belleville	42	420							Costello	5	1,201
Bellevue	36	6,323									
Bells Landing	25	226									
Belwood	40	2,277									
Belsano	39	226									

Pennsylvania Cities and Villages with 1910 Populations

Towns.	Loca.	Pop.	Towns.	Loca.	Pop.	Towns.	Loca.	Pop.	Towns.	Loca.	Pop.
*Coudersport	.36.	3,100	Dunbar	.52.	1,971	Ellwood City	.21.	3,902	Footedale	.52.	801
Couters	.35.	501	Duncannon	.45.	1,474	Elmer	.5.	201	Forbes Road	.37.	401
Courtdale	.31.	549	Duncansville	.40.	1,263	Elmhurst	.20.	379	Force	.14.	351
Courtney	.50.	601	Dunkard	.51.	201	Elrama	.50.	204	Ford City	.23.	1,850
Covington	.6.	340	Dunlevy	.50.	301	Eloyr	.65.	251	Fordham	.24.	607
Covode	.38.	202	Dunlo	.39.	2,501	Elton	.39.	250	Forest City	.8.	5,749
Cowaneseque	.6.	321	Dunmore	.20.	17,615	Elverson	.63.	351	Forest Lake	.8.	251
Cowanshannock	.23.	202	Dupont	.31.	201	Elysburg	.28.	202	Forkston	.19.	261
Cowansville	.23.	202	Durand	.36.	15,372	Emaus	.48.	3,501	Fort Hunter	.46.	625
Crabtree	.37.	1,501	Durham	.66.	201	Emigh	.39.	201	Fort Loudon	.56.	322
Crafton	.36.	4,583	Duryea	.31.	7,434	Emerald	.48.	203	Fort Pitt	.36.	350
Craigsville	.23.	275	Dushore	.18.	813	Emigsville	.59.	201	Fort Washington	.65.	601
Cranesville	.1.	651	Dutch Hill	.12.	251	Emonton	.11.	1,110	Fortyfort	.31.	2,353
Creasy	.30.	601	Dysart	.39.	201	*Emporium	.15.	2,916	Foster	.8.	366
Creekside	.38.	563				Emsworth	.36.	1,510	Fountain Dale	.58.	253
Creighton	.36.	602	Earlston	.54.	501	Endeavor	.13.	402	Fountain Hill	.48.	1,388
Crenshaw	.24.	401	Eagleview	.26.	551	English Center	.17.	701	Foxburg	.12.	578
Cresco	.66.	301	Earlville	.62.	301	Enhaut	.40.	453	Foxchville	.47.	3,118
Cresman	.66.	301	East Altoona	.40.	1,202	En Valley	.21.	351	Frank	.36.	502
Cresson	.39.	1,470	East Bangor	.49.	1,186	Enterprise	.36.	1,466	*Franklin	.11.	9,767
Cressona	.47.	1,837	East Bellevue	.36.	251	Ephrata	.61.	3,192	Franklin	.39.	2,102
Cross Fork	.5.	801	East Benton	.20.	202	Epton	.36.	301	Franklin		
Crossland	.52.	802	East Berlin	.58.	672	Equinunk	.9.	402	Franklin		
Crum Lynne	.61.	601	East Brady	.12.	1,493	Erden	.39.	902	Franklin		
Cumbola	.47.	367	East Hancock	.21.	201	*Erie	.1.	66,525	Franklin		
Curry Run	.25.	201	East Butler	.22.	501	Ernest	.38.	1,002	Franklin		
Curwensville	.25.	2,501	East Cone-			Eshbach	.62.	202	Franklin		
Custer City	.4.	201	maugh	.39.	5,046	Espy	.30.	551	Franklin		
Cymbria Mines	.39.	301	East Coventry	.63.	301	Etters	.36.	5,833	Franklin		
			East Hickory	.13.	350	Euclid	.22.	351	Franklin		
			East Down-			Evansburg	.22.	1,339	Franklin		
Daguscahonda	.14.	202	ington	.63.	3,006	Evans City	.22.	1,501	Franklin		
Dagus Mines	.14.	801	East Freedom	.40.	327	Everett	.54.	1,725	Franklin		
Dahoga	.14.	202	East Greenville	.65.	1,235	Everson	.52.	1,759	Franklin		
Daisytown	.39.	302	East Hanover	.60.	331	Ewingville	.36.	351	Franklin		
Dalhart	.20.	285	East McKees-			Excelsior	.28.	1,601	Franklin		
Daleville	.20.	251	port	.36.	2,118	Exchange	.29.	251	Franklin		
Dallas	.31.	576	East Mauch			Exeter	.31.	3,537	Franklin		
Dallastown	.59.	1,884	Chunk	.32.	3,548	Borough	.31.	1,948	Franklin		
Dalmatia	.28.	347	East Nantmeal	.63.	201	Expedit	.39.	1,502	Franklin		
Dalton	.20.	767	East New			Export	.37.	3,002	Franklin		
Danielsville	.49.	1,002	Castle	.21.	200	Eynon	.20.	351	Franklin		
*Danville	.29.	7,517	*Easton	.49.	28,523				Franklin		
Darby	.64.	6,305	East						Franklin		
Darlington	.35.	1,502	Petersburg	.61.	602				Franklin		
Darrach	.47.	1,411	East Pittsburg	.36.	5,615	Factoryville	.19.	750	Franklin		
Dauphin	.46.	545	East Prospect	.59.	316	Fairbank	.52.	403	Gaines	.6.	1,002
Dawson	.52.	848	East Rochester	.35.	718	Fairchance	.52.	1,762	Galeton	.5.	4,027
Dayton	.23.	809	East Salisbury	.53.	1,202	Fairdale	.8.	403	Gallatin	.36.	301
Dean	.39.	373	East Side	.25.	220	Fairfield	.58.	373	Gallitzin	.39.	3,504
Deegan	.22.	401	East Smithfield	.7.	301	Fairhaven	.36.	801	Gans	.52.	202
Deemston	.50.	477	East Springfield	.1.	348	Fairhope	.53.	565	Gap	.61.	802
Defiance	.54.	325	East			Fairmont City	.12.	702	Gardenville	.66.	201
Delancy	.39.	1,003	Stroudsburg	.33.	3,330	Fairoaks	.36.	302	Garland	.3.	302
Delano	.47.	1,363	East Texas	.48.	803	Fairview	.1.	349	Garret	.53.	848
Delaware Water			East Titusville	.2.	201	Station	.1.	201	Gascoia	.36.	402
Gap	.33.	446	Eastvale	.35.	322	Fallingtimber	.39.	204	Gastonville	.50.	503
Delmont	.37.	502	East			Falling Springs	.45.	872	Gates	.52.	402
Delta	.59.	881	Vandercrift	.37.	1,852	Falls Creek	.25.	1,204	Gayespout	.40.	917
Dents Run	.14.	403	East			Fallsallington	.66.	301	Gazzam	.25.	252
Denver	.61.	933	Washington	.50.	1,300	Fallston	.35.	555	Geigers Mills	.62.	325
Deodate	.46.	202	East			Falmouth	.61.	210	Geigertown	.62.	325
Derrick City	.4.	202	Waynesburg	.51.	906	Farmettsburg	.56.	316	Gelatt	.8.	303
Derry	.37.	2,354	East Clear	.22.	347	Farmville	.61.	356	Gelertown	.5.	351
Derry Church	.46.	251	*Ebensburg	.39.	1,978	Farrandsville	.16.	331	Gonora	.3.	202
Desire	.24.	502	Ebenvale	.31.	567	Fawn Grove	.59.	240	Georgetown	.35.	269
Devon	.63.	301	Eclipse	.50.	501	Fayette City	.52.	2,005	Germania	.5.	302
Dewart	.28.	251	Economy	.35.	1,204	Fayetteville	.56.	601	*Gettysburg	.58.	4,030
De Young	.14.	302	Eddington	.66.	201	Feasterville	.66.	201	Gibraltar	.62.	401
Diamondville	.38.	202	Edgelystone	.64.	1,167	Federal	.36.	1,003	Gibson	.8.	251
Dickerson Run	.52.	501	Edenborn	.52.	1,201	Felton	.59.	241	Gibsonston	.37.	303
Dickinson	.57.	801	Edenburgh	.12.	616	Ferndale	.66.	224	Gilberton	.47.	5,401
Dickson City	.20.	9,331	Edge Hill	.65.	651	Fernside	.66.	224	Gilbertsville	.65.	502
Dickson City	.20.	4,948	Edgewood	.36.	2,596	Fernwood	.64.	803	Gilmerville	.52.	1,062
Dillingham	.59.	853	Edgewood			Fernwood	.25.	251	Gillett	.7.	204
Dingmans			Park	.36.	1,139	Ferris	.22.	201	Gipsy	.38.	302
Ferry	.34.	351	Edgworth	.36.	1,129	Fieldmore			Girard	.1.	1,165
Dixmont	.36.	1,201	Edinboro	.1.	666	Fields Station	.17.	201	Girard Manor	.47.	204
Doe Run	.63.	251	Edinburg	.21.	351	Filler	.10.	201	Girardville	.47.	4,396
Donaldson	.47.	958	Edri	.38.	502	Finleyville	.59.	614	Gladden	.36.	301
Donora	.50.	8,174	Edwardville	.31.	8,407	Fisher	.12.	203	Gladdens	.53.	401
Dormont	.36.	1,115	Egypt	.48.	1,002	Fishers	.50.	614	Glade Mills	.22.	301
Dorranceton	.31.	4,016	Ehrenfeld	.59.	44	Fishing Creek	.30.	223	Gladerton	.3.	604
Dorseyville	.36.	501	Elco	.50.	944	Fitzwaterstown	.65.	318	Gladwin	.36.	1,202
Dover	.59.	556	Elderton	.23.	285	Fivepoints	.10.	201	Glasgow	.39.	203
Downieville	.22.	201	El Dorado	.40.	304	Fleetville	.20.	253	Glasgow	.35.	201
Downingtown	.63.	3,326	Eldred	.4.	1,235	Fleetwood	.62.	1,394	Glassmere	.36.	1,204
*Doylstown	.66.	3,304	Eleanor	.24.	505	Fleming	.26.	343	Glassport	.36.	5,540
Dravosburg	.36.	1,895	Elkinsport	.17.	401	Flemington	.16.	1,022	Gleasonston	.16.	492
Dreherstown	.47.	414	Elizabeth	.36.	2,311	Florence	.36.	501	Glenburn	.20.	319
Dresher	.65.	201	Elizabethtown	.61.	2,587	Florence	.50.	325	Glen Campbell	.38.	1,999
Drifton	.31.	2,301	Elizabethville	.46.	1,039	Florin	.61.	804	Glendale	.36.	502
Driftwood	.15.	517	Elk Lake	.8.	201	Flourtown	.65.	502	Glenon	.38.	823
Drums	.31.	901	Elkland	.6.	1,175	Floyd	.11.	225	Glenfield	.36.	301
Drum Run	.36.	261	Elk Lick	.53.	1,201	Fogelsville	.48.	401	Glenhazel	.14.	504
Dublin	.66.	661	Elliotts Mill	.21.	501	Fontana	.60.	202	Glenhope	.25.	237
Dubois	.25.	12,623	Ellsworth	.50.	2,084				Glenholy	.31.	2,255
Duboisstown	.17.	682							Glen Mills	.61.	278
Dudley	.41.	441							Glen Olden	.64.	1,151
Duke Center	.4.	601									

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Glen Richey	25	527	Hazzard	50	301	Irvinton	33	238	Lafayette Hill	65	502
Glen Riddle	64	325	Hecktown	49	201	Irvona	25	802	Ladine	31	328
Glen Rock	59	1,263	Hecia	37	1,501	Irwin	37	2,886	Lahaska	66	202
Glenaside	65	1,801	Hegins	47	325	Iselin	38	2,001	Lairdsville	17	301
Glenwhite	40	201	Heidelberg	36	1,848	Ivanhoe	50	501	La Jose	25	354
Glenwilde	36	401	Heildersburg	58	301	Ivyland	66	247	Lake Ariel	9	101
Globe Mills	44	350	Heilwood	38	1,001				Lake Como	9	201
Godfrey	23	662	Helfenstein	47	201				Lakemont	40	1,202
Goldsboro	59	434	Hellam	59	301	Jackson	8	251	Lamar	16	225
Goodville	61	201	Hellertown	49	915	Jackson Center	10	269	Lambertton	52	602
Gordon	47	1,185	Helvetia	25	201	Jacksonville	48	252	Lamb Creek	6	201
Gordonville	61	401	Hepburn	17	769	Jacksonville	37	502	Lancaster	61	47,227
Gouldsboro	9	251	Hermine	37	801	Jacobs Creek	37	252	Landenberg	63	701
Gowen	31	503	Herrndon	28	621	Jacobus	59	261	Lander	3	301
Gowen City	28	304	Herrickville	7	275	James City	14	451	Landingville	47	268
Gracedale	31	301	Hershey	61	301	James Creek	41	211	Landisburg	45	252
Graceton	38	701	Hetterville	30	251	Jamestown	39	501	Landis Valley	61	251
Grampan	25	666	Hickman	36	501	Jamison City	10	822	Landisville	61	601
Grand Tunnel	31	201	Hickory	50	205	Jarrettown	65	501	Landrus	6	501
Grand Valley	3	290	Hickory	13	351	Jeanesville	31	1,201	Lansdale	53	200
Grandville	42	200	Hicks Run	15	301	Jeannette	37	8,077	Lanshorne	8	771
Grassflat	25	1,002	High Spire	46	1,669	Jeddo	31	377	Lansdale	65	3,551
Gratz	46	536	Hillards	22	201	Jefferson	51	357	Lansdowne	64	4,066
Gratztown	37	201	Hillsdale	38	401	Jefferson	59	347	Lanse	25	501
Gray	17	202	Hillsgrove	18	805	Jeffersonville	65	374	Lansford	32	8,321
Grays Landings	52	1,003	Hillsville	21	201	Jenkintown	65	2,968	Laplume	20	258
Great Bend	8	788	Hites	36	301	Jenners	53	1,637	*Laporte	18	245
Greely	31	201	Hoboken	36	702	Jenningsville	19	201	Laquin	7	201
Greencastle	56	1,919	Hobokendauqua	48	802	Jerome	20	3,158	Large	36	301
Greene	61	203	Holden	24	301	Jersey Mills	53	1,002	Larimer	37	1,501
Greenfield	10	302	*Hollidaysburg	40	3,734	Jersey Shore	17	5,381	Larksville	31	9,288
Green Lane	65	372	Hollisterville	9	301	Jerseytown	30	201	Larys Creek	17	308
Greenock	36	751	Hollsopple	53	451	Joanna	62	502	Lash	37	252
Greensboro	51	442	Holtz	59	202	Job	36	402	Latrobe	37	8,777
*Greensburg	37	13,012	Homer City	38	985	Johnetta	23	662	Lattimer Mines	31	1,031
Greentree	36	1,143	Honestead	36	18,713	Johnsonburg	14	4,334	Laurel Run	31	701
Green Village	56	297	Homesdale	35	201	Johnstown	39	55,182	Laurelton	27	307
Greenville	10	509	*Honesdale	39	2,945	Johnville	66	201	Laurys Station	48	202
Greenwood	7	302	Honey Brook	63	581	Joliet	47	203	Lavelle	47	602
Greythorne	57	251	Honey Grove	43	251	Jones Station	36	302	Lawn	60	201
Grill	62	201	Honor	21	201	Josephine	60	603	Lawrenceville	6	519
Grindstone	52	501	Hookstown	35	250	Julian	38	1,501	Layton	52	301
Grovania	29	202	Hoopesville	65	251	Julia	26	201	Leacock	61	351
Grove City	10	3,674	Hop Bottom	8	364	Jumonville	52	351	Lebanon	60	19,241
Grovedale	36	3,134	Hopwood	61	201	Juniata	40	5,285	Leckrone	52	501
Grover	7	301	Hopewell	54	592	Juniataville	52	751	Leconte Mills	25	301
Groveton	36	391	Hopwood	52	801	Justus	20	201	Leechburg	23	3,624
Gulf Mills	65	801	Horatio	24	1,002				Leeper	12	251
Guthrieville	63	717	Horsham	65	213				Leesburg	10	201
Guths Station	48	301	Hostetter	37	801				Lees Cross	57	418
Guys Mills	7	301	Houston	50	793				Roads	57	418
			Houtzdale	25	1,434				Leesport	62	1,801
II			Howard	26	667				Leetonia	6	302
Haas	47	251	Hoytdale	35	402				Leetsdale	36	1,904
Hackett	50	501	Huxville	6	561				Leighton	32	5,316
Hadley	10	302	Hydon	31	2,001				Lehman	31	202
Hagersville	66	301	Huey	12	252				Leith	52	851
Hahlgstown	37	1,091	Huffs Station	37	651				Lemont Furnace	52	1,101
Halifax	36	745	Hughstown	31	3,024				Lemoyne	37	1,393
Hallam	59	422	Hughsville	17	1,650				Lenni Mills	67	483
Hallstead	44	1,538	Hulmeville	5	361				Leolyn	6	302
Halltown	44	501	Hulten	65	468				Le Raysville	59	233
Hamburg	62	2,301	Humbert	53	301				Lewisberry	59	233
Hamill	38	202	Hummelstown	16	2,128				*Lewisburg	27	3,081
Hamilton No. 1	53	201	Hunlock Creek	31	521				Lewis Run	4	502
Hamlin	9	201	*Huntingdon	41	6,861				*Lewistown	12	8,166
Hammett	1	402	Huntingdon	65	251				Lewisville	63	302
Hannastown	37	801	Huntington	31	351				Lewisville	5	579
Hanover	59	7,037	Huntsdale	57	301				Lexington	61	301
Hanover Junction	59	201	Hutchins	4	201				Liberty	6	253
Harford	8	301	Hyde	25	351				Lichty	62	201
Harlansburg	21	252	Hyde Park	37	413				Lickdale	62	201
Harleigh	31	544	Hydettown	54	1,164				Lickingville	32	302
Harleysville	65	351	Hyndman	16	214				Light Street	30	301
Harmarville	36	772							Ligonier	37	1,575
Harmony	22	673							Lilly	39	1,638
Harrisburg									Lima	64	507
(Capital)	46	61,186							Limerick	65	401
Harrison City	37	247							Lime Ridge	30	401
Harrison Valley	5	691							Limestone	12	251
Harrisville	22	352							Lincoln	61	451
Harrod	59	1,004							Lincoln Place	36	1,002
Harley	59	250							Lincoln		
Harveys	51	251							University	63	302
Harveysville	31	278							Lincolnton	2	251
Hastings	39	2,125							Linden	17	351
Hathoro	65	962							Line Lexington	66	501
Hathfield	65	705							Linesville	2	833
Hauto	32	501							Linfeld	65	402
Haverford	65	581							Lingstown	46	702
Hawk Run	25	688							Linwood Station	64	902
Hawley	9	2,018							Lionville	63	252
Hawthorn	36	569							Listie	53	502
Hays	12	1,885							Listonburg	53	251
Haynie	12	201							Littitz	61	2,082
Hazeldell	21	1,168							Little Britain	61	201
Hazel Hurst	4	1,003							Little Gap	32	201
Hazelkirk	50	502									
Hazelton	31	25,152									

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Little Marsh.	6	225	Marietta	61	2,079	Mont Clare	65	666	Newberrytown	59	302
Littletown	58	1,347	Marion	56	254	Monterey	12	601	New Bethelchem	12	1,625
Liverpool	45	596	Marion Center	38	366	Montgomery	17	1,491	*New Bloom-		
Llanerch	64	201	Marion Heights	28	1,562	Montoursville	17	1,904	field	45	772
Llanwellyn	64	401	Markelsville	45	251	Montrose	36	201	New Boston	47	635
Llewellyn	47	501	Markelsburg	41	211	*Montrose	8	1,914	New Bridgeville	59	202
Lloydell	39	801	Markleysburg	52	227	Moore	64	1,801	New Brighton	35	8,329
*Lock Haven	16	7,772	Mars	32	1,215	Moorheadville	1	301	Newburg	57	241
Locustdale	47	1,001	Marshall's Creek	33	224	Moose	20	3,964	Newburg	41	375
Locust Gap	28	1,701	Marshallton	63	501	Mooween	38	201	*New Castle	21	36,281
Lofty	47	201	Marshwood	20	351	Morann	25	1,001	New Castle	47	801
Logans Ferry	36	202	Marsteller	39	1,001	Morea Colliery	47	823	New Chester	58	251
Loganton	16	375	Martin	52	801	Moreland	17	201	New Columbia	27	401
Logansville	59	298	Martinsburg	40	921	Morgan	36	3,001	Newcomer	52	1,051
Loleta	14	201	Martins Creek	49	301	Morgans Station	52	251	New Cumber-		
Long Branch	50	273	Marysville	45	1,693	Morgantown	62	201	land	57	1,472
Longwamp	62	202	Masontown	52	891	Morganza	50	1,001	New Derry	37	345
Lookout	9	301	Masten	17	301	Morrell	40	201	New Eagle	50	402
Lopez	18	1,202	Matamoras	34	1,388	Morris	6	701	Newell	52	402
Lubery			Mattawana	42	215	Morrisdale			New England	36	452
Junction	47	302	*Mauch Chunk	32	3,952	Mines	25	669	New Enterprise	51	209
Loretto	39	246	Maud	66	241	Morris Run	6	2,301	New Florence	37	717
Lost Creek	47	1,501	Maxatavny	60	201	Morrisville	66	2,002	Newfoundland	9	901
Lottsville	3	201	Mayburg	13	201	Morton	64	1,071	New Freedom	59	826
Lovejoy	38	401	Mayfield	20	3,662	Mortonville	63	200	New Freeport	51	201
Lowber	37	701	Maytown	61	702	Moscow	20	651	New Galilee	35	453
Lower			Meadowbrook	65	251	Moslem	62	201	New Geneva	52	285
Providenc	65	212	Meadow Lands	50	3,001	Mosgrove	23	201	New German-		
Loyalhanna	37	901	*Meda	2	12,781	Mosierstown	7	201	town	45	202
Loyalsock	17	817	*Mechanicsburg	57	4,469	Mount Actna	62	325	New Haven	65	504
Lovysburg	54	308	*Media	64	3,562	Mountaineale	39	351	New Holland	61	1,106
Lucinda	12	301	Medix Run	14	401	Mountainhome	33	201	New Hope	66	1,083
Ludlow	4	701	Mehoopany	19	597	Mountain Park	31	601	New Jerusalem	62	251
Lumber City	25	363	Meiser	44	351	Mountaintop	31	961	New Kensington	37	7,707
Lumberville	66	251	*Mercer	10	2,026	Mountainville	48	601	New Kingstown	57	325
Luthersburg	25	364	Mercersburg	56	1,411	Mount Bethel	49	401	Newlin	30	201
Luxor	37	201	Merion	65	1,201	Mount Braddock	62	1,002	Newmanstown	60	612
Luzerne	31	5,426	Merion Station	65	601	Mount Carbon	47	252	New Milford	8	654
Lykens	46	2,943	Mertztown	19	701	Mount Carbon			New Millport	25	252
Lyb	18	1,978	Mesopotamia	19	331	Mount Junction	47	335	New Oxford	58	838
Lyndora	22	3,001	Messmore	52	201	Mount Carmel	28	17,532	New Paris	54	200
Lyon Station	62	537	Mexico	43	213	Mount Etna	40	201	New Phila-		
M			Meyersdale	53	3,741	Mount Holly			delphia	47	2,512
McAdoo	47	3,389	*Middleboro	1	207	Springs	57	1,272	Newport	45	2,009
McAlisterville	43	536	*Middleburg	44	531	Mount Jackson	21	601	Newport	21	302
McCall Ferry	61	501	*Middleport	47	1,101	Mount Jewett	4	1,771	Newportville	66	302
McCa	37	526	Midlestown	46	5,374	Mount Joy	61	2,166	New Providence	61	202
McChellandtown	52	801	Midland	35	1,241	Mount Lebanon	36	502	New Ringgold	47	266
McClure	44	201	Midway	50	941	Mount Morris	51	382	Newry	40	381
*McConnells-			Mill	43	885	Mount Oliver	36	424	New Salem	52	424
burg	55	579	Millburg	17	1,550	Mount Penn	63	785	New Salem	59	248
McConnells-			*Millintown	43	954	Mount Pleasant	37	5,812	New Sheffield	35	202
town	41	308	Millinville	30	601	Mount Pleasant			New Stanton	37	302
McDonald	50	2,543	Milanville	9	201	Hill	44	251	Newton Hamil-		
McElhattan	16	247	Mildred	18	201	Mount Pocono	33	201	ton	42	341
McEwensville	28	509	Milesburg	26	531	Mount Sterling	52	501	Newtown	66	1,675
McGees Mills	25	251	Milesville	36	201	Mount Union	41	3,338	Newtown	47	350
McKean	35	351	*Milford	31	872	Mountville	61	803	New Tripoli	48	502
McKearsburg	47	317	Millburne	64	322	Mount Wolf	59	201	Newville	57	1,449
McKees Half			Mill City	19	351	Mount Zion	60	501	New Wilming-		
Falls	44	251	Mill Creek	42	398	Moyer	52	601	ton	21	758
McKeesport	36	42,694	Millersburg	46	2,394	Muddy Creek			Nichols	18	892
McKees Rocks	36	14,702	Millersburg	22	993	Forks	59	201	Nickel Mines	61	202
McKinley	65	602	Millerstown	45	549	Muncy	17	1,904	Niles Valley	61	202
McLaughlin	36	225	Millersville	61	1,241	Muncy Valley	18	301	Nineveh	51	252
McLeans	65	664	Millerton	6	451	Munhall	36	5,185	Noblestown	36	1,002
McMahon	37	813	Millgrove	30	701	Munston Station	25	501	Noelne	22	502
McSherrystown	58	1,724	Mill Hall	16	1,043	Murrell	61	251	*Norristown	65	27,875
McSparran	21	701	Mill Hill	16	1,043	Murrysville	37	231	Northampton	49	1,501
McVeytown	42	514	Millhelm	26	626	Mustard	36	301	North Belle-		
Station	42	215	Mill Run	52	201	Mysterstown	37	881	vernon	37	1,522
McVeytown			Mills	5	350	Myra	39	401	North Bend	16	802
Station	42	215	Millstone	14	301	N			North Braddock	36	11,824
Macbeth	53	1,001	Millvale	36	7,861	Nansen	14	301	North Cata-		
Macungie	48	772	Mill Village	1	291	Nanticoke	31	18,877	sauka	49	2,030
Madeline	38	301	Millville	30	611	Nantmeal			North East	1	2,672
Madera	25	1,201	Millwood	37	401	Village	63	201	North Girard	1	751
Madison	37	421	Milroy	42	1,501	Nanty Glo	39	1,001	North Charleroi	50	1,008
Mahaffy	25	754	Milton	28	7,461	Narberth	65	1,791	Northampton	49	8,729
Mahanoy City	47	15,936	Milton Grove	61	201	Natalie	28	251	Heights	49	1,037
Mahanoy Plant	47	1,801	Mina	5	501	Natrona	36	4,002	North Irvin	37	646
Mahoning	23	201	Mineral Point	39	251	Nauvoo	6	201	North		
Mainville	30	601	Miners Mills	31	3,159	Nazareth	49	3,978	Mehoopany	18	302
Malby	31	301	Minersville	47	7,241	Nebraska	13	251	North Mountain	17	202
Malvern	63	1,123	Mines	40	201	Neffs	48	201	North Pine		
Mammoth	37	1,001	Minooka	20	3,001	Neffsville	61	401	Grove	12	201
Manchester	59	547	Mitchells	25	401	Negley	36	225	North Sewickly	35	302
Manheim	61	2,202	Mitchells Mills	38	201	Nelson	6	448	Northstar	36	501
Manns Choice	54	341	Mohnton	62	1,536	Nescopeck	31	1,578	North Towanda	7	753
Manoa	64	501	Mohrsville	62	237	Neshannock	10	801	Northumberland	28	3,517
Manor	23	1,039	Mollenauer	36	501	Nesquehoning	32	2,007	North Wales	65	1,711
Manorville	23	545	Monaca	35	3,376	Nettleton	39	251	North Warren	3	632
Manow	36	501	Monessen	37	11,775	Nevilton	36	300	North		
Mansfield	6	1,645	Monocacy	62	255	New Albany	7	413	Washington	22	202
Mapleton Depot	41	752	Monongahela	50	7,598	New Alexandria	37	505	North Water		
Maplewood	9	201	Monroeton	7	403	New Bedford	21	201	Gap	33	202
Marcus Hook	64	1,573	Mont Alto	56	638	New Berlin	27	527	North York	59	1,902
Marguerite	37	501	Montandon	28	574	New Berlinville	62	302	Norwich	4	1,002
Marianna	50	1,363									
Marienville	13	1,201									

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Norwood			Pennsylvania			Quakertown	..66..	3,801	Rosemont	..65..	1,001
Station	..61..	1,668	Furnace	..41..	301	Quarryville	..61..	739	Rose Point	..21..	245
Nowrytown	..38..	502	Penryn	..61..	201	Queen Junction	..22..	201	Roseto	..49..	201
Noxen	..18..	802	Pensyl	..30..	501	Quincy	..56..	501	Rossett	..38..	3,001
Numidia	..30..	302	Pequea Creek	..61..	200				Rothsville	..61..	451
Nuremberg	..47..	702	Percy	..52..	500				Roulette	..11..	451
			Perkasie	..66..	2,779				Rouseville	..11..	618
O			Perkiomenville	..65..	235	Radnor	..64..	301	Rouzeville	..56..	301
Oakbottom	..61..	302	Perryopolis	..52..	600	Railroad	..59..	308	Rowland	..34..	301
Oakbrook	..62..	202	Perrysville	..36..	300	Ralston	..17..	301	Rowles Run	..52..	601
Oakdale	..36..	1,353	Perrysville	..24..	350	Ramey	..25..	1,045	Roxbury	..56..	808
Oak Hall			Petersburg	..41..	705	Ramsaytown	..24..	600	Royalton	..46..	1,033
Station	..26..	202	Petersburg	..61..	201	Rankin Station	..36..	6,042	Royer	..40..	200
Oak Hill	..61..	301	Petroleum			Ranshaw	..38..	201	Ruffs Dale	..65..	3,073
Oakland	..23..	361	Center	..11..	200	Raricks	..47..	201	Ruff	..37..	501
Oakland	..10..	201	Petrolia	..22..	301	Rathmel	..24..	1,001	Rupert	..30..	501
Oakland	..8..	915	*Philadelphia	..67..	1,549,008	Rattigan	..22..	201	Rupp	..30..	501
Oakmont	..36..	3,436	Phillipston	..26..	3,585	Rauchton	..16..	201	Rural Valley	..23..	763
Oak Ridge	..23..	901	Phoenixville	..12..	501	Ravenrun	..47..	501	Russell	..3..	412
Oak Station	..36..	251	Picture Rocks	..63..	10,743	Rayne	..47..	301	Russell	..14..	301
Oakview	..64..	402	Pillow	..46..	359	*Reading	..62..	96,071	Russellton	..36..	801
Obelisk	..65..	251	Pine Bank	..51..	200	Reamstown	..26..	251	Ruthland	..6..	301
Obelin	..46..	551	Pine Glen	..26..	201	Rebersburg	..26..	251	Rutledge	..64..	523
Obold	..62..	251	Pine Grove	..47..	1,352	Rebuck	..28..	401			
Odenthal	..39..	301	Pinegrove			Red Hill	..65..	664	S		
Ogdensburg	..6..	302	Furnace	..57..	301	Redington	..49..	354	Sabbath Rest	..35..	381
Ogontz	..65..	301	Pine Grove			Red Lion	..59..	2,092	Sabinsville	..6..	601
Ogontz School	..65..	303	Mills	..26..	325	Redman Mills	..36..	501	Sabula	..25..	1,301
Chiopyle	..52..	535	Pine Station	..16..	201	Redstone			Sadsburyville	..63..	301
Oil City	..11..	15,657	Pitcairn	..36..	4,975	Junction	..52..	1,001	Saegertown	..2..	712
Olanta	..25..	301	Pittman	..47..	208	Reed	..38..	701	Safer Harbor	..61..	251
Old Forge	..20..	11,324	Pittsburg	..36..	533,905	Reedsville	..42..	307	Sagamore	..23..	2,001
Oliphant			*Pittsburgh	..36..	533,905	Rehersburg	..62..	509	Saginaw	..59..	201
Furnace	..52..	201	Pittsfield	..31..	16,267	Reimsburg	..12..	855	Sagon	..28..	300
Oliver	..52..	1,001	Plainfield	..57..	252	Reinre	..50..	251	Saint Benedict	..39..	500
Olyphant	..20..	8,505	Plaingrove	..21..	655	Reissing	..30..	351	Saint Bonifacius	..39..	500
Oneida	..47..	1,001	Plains	..31..	1,201	Rendham	..20..	501	Saint Clair	..47..	6,455
Onnalinda	..39..	502	Plainsville	..31..	206	Renfrew	..22..	501	Saint Claire	..36..	5,640
Onondaga	..24..	501	Plateau	..1..	220	Rennerdale	..36..	301	Saint Davids	..64..	201
Option	..36..	251	Pleasant Gap	..26..	401	Reno	..11..	351	Saint Marys	..14..	6,346
Orangeville	..30..	400	Pleasant Mount	..37..	625	Renovo	..16..	4,621	Saint Michael	..39..	251
Orbisonia	..61..	501	Pleasant Unity	..37..	625	Republic	..52..	1,001	Saint Nicholas	..47..	1,200
Oregon	..40..	202	Pleasant Valley	..37..	300	Reynoldsville	..24..	3,189	Saint Peters	..63..	500
Oremine	..52..	1,601	Pleasantville	..11..	702	Rhems	..61..	251	Saint Petersburg	..12..	453
Ormsby	..4..	302	Plumsteadville	..66..	601	Rhodes	..30..	251	Saint Thomas	..56..	501
Orstown	..56..	247	Plumville	..38..	414	Rhone	..31..	201	Salemy	..12..	300
Orson	..9..	525	Plymouth	..31..	16,996	Riches Landing	..51..	671	Salina	..11..	200
Orviston	..26..	501	Plymouth			Richboro	..66..	225	Salina	..37..	801
Orwigsburg	..47..	1,801	Meeting	..65..	801	Richland	..43..	251	Salisbury		
Orwin	..47..	301	Point Marion	..52..	1,389	Richland Center	..60..	722	Junction	..53..	885
Osburn	..36..	425	Point Pleasant	..66..	301	Richlandtown	..66..	562	Salix	..39..	201
Oscola	..6..	591	Polk	..11..	2,066	Richkettis	..18..	251	Salladasburg	..17..	281
Oscola	..25..	2,437	Pomeroy	..63..	300	Riddlesburg	..54..	225	Salona	..16..	401
Oscola Mills	..25..	301	Pond Creek			*Ridgeway	..14..	5,408	Saltillo	..41..	410
Oshanter	..25..	401	Pond Junction	..31..	201	Ridley Park	..64..	1,761	Saltsburg	..38..	1,044
Oswayo	..5..	382	Pond Eddy	..34..	201	Ridley	..64..	1,761	Salunga	..61..	301
Ottsville	..66..	301	Portage	..39..	2,954	Rimersville	..66..	701	Sample Run	..38..	301
Oval	..17..	212	Port Allegany	..4..	1,972	Rimersburg	..12..	855	Sanatoga	..65..	351
Oxford	..63..	2,391	Port Carbon	..47..	2,678	Ringtown	..47..	733	Sandy Lake	..10..	639
Oxford Valley	..66..	251	Port Clinton	..47..	491	Rising Springs	..26..	301	Sandy Ridge	..26..	401
			Port Griffith	..31..	201	Rittersville	..48..	250	Sandy Run	..22..	324
P			Port Kennedy	..65..	1,001	Riverside	..28..	429	Sarver	..22..	1,124
Packerton	..32..	502	Portland	..49..	649	Riverview	..23..	401	Saukerton	..39..	687
Paint	..53..	1,000	Portland Mills	..14..	751	Rixford	..4..	501	Savan	..38..	301
Palmerston	..32..	1,002	Port Matilda	..26..	307	Roaring Branch	..17..	451	Sawyer City	..4..	201
Palmyra	..60..	1,308	Port Perry	..36..	1,001	Roaringcreek	..30..	701	Saxman	..39..	300
Palo Alto	..47..	1,873	Port Providence	..65..	301	Roaring Spring	..40..	1,903	Saxonburg	..22..	345
Panic	..63..	241	Port Royal	..43..	535	Robertsdale	..41..	601	Saxton	..54..	1,195
Paradise	..61..	403	Port Royal	..37..	401	Robinson	..62..	401	Sayre	..7..	6,425
Pardee	..27..	201	Port Trevorton	..44..	451	Rochester	..38..	601	Scalp Level	..39..	1,424
Pardee	..10..	401	Potter Brook	..6..	201	Rochester	..35..	5,903	Scenery Hill	..50..	301
Pardus	..24..	251	Potters Mills	..26..	315	Rochester Mills	..38..	301	Sceneytown	..60..	701
Parker Ford	..63..	201	Pottstown	..65..	15,599	Rockdale	..61..	500	Scheib	..46..	200
Parkers			Pottstown			Rock Glen	..34..	301	Schellburg	..50..	314
Landing	..23..	1,244	Landing	..63..	200	Rockhill			Schnecksville	..48..	231
Parkers Station	..12..	250	*Pottsville	..47..	20,236	Furnace	..41..	504	Schoeneck	..61..	301
Parkburg	..63..	2,522	Powell	..7..	302	Rockland	..11..	516	Schoellard	..10..	201
Park Place	..47..	251	Powells Valley	..46..	231	Rockledge	..65..	879	Schuylkill		
Parassus	..37..	2,578	Pognelle	..9..	525	Rock Point	..35..	561	Haven	..47..	4,747
Parryville	..32..	591	Prescottville	..24..	301	Rockville	..46..	625	Schwenkville	..65..	381
Parsons	..31..	4,338	Presto	..20..	200	Rockwood	..53..	1,301	Scotia	..26..	201
Passmore	..62..	251	Priceburg	..20..	935	Rockgrove	..11..	501	Scotland	..56..	223
Patterson			Pricedale	..37..	1,001	Rodney	..36..	251	Scottdale	..37..	5,456
Heights	..35..	367	Pricetown	..62..	412	Rodney	..37..	201	Scott Haven	..37..	801
Patton	..39..	3,907	Primrose	..50..	201	Roeleofs	..37..	201	Scranton	..20..	129,867
Paulton	..37..	501	Princeton	..21..	301	Rogersville	..51..	401	Seabrook	..53..	600
Faxtonville	..41..	204	Pringle	..31..	301	Rogersstown	..52..	835	Seelyville	..47..	638
Peale	..25..	801	Proctor	..17..	351	Rohrerstown	..61..	601	Seisholtzville	..62..	406
Peckville	..29..	3,915	Progress	..46..	297	Rohrsburg	..30..	200	Seitzland	..59..	202
Pen Argyl	..49..	1,467	Prompton	..9..	263	Rolfe	..14..	301	Selinsgrove	..44..	1,473
Penbrook	..46..	1,462	Prospect	..22..	346	Rome	..7..	222	Sellersville	..66..	1,572
Pencoyd	..65..	801	Prospect Park	..31..	201	Romola	..26..	201	Seneca	..11..	251
Pennfield	..25..	801	Pulaski	..21..	401	Ronco	..52..	1,001	Sevenpoints	..28..	218
Penn	..37..	1,048	Punxsutawney	..24..	9,058	Roscks	..61..	201	Seven Valleys	..59..	365
Penn Run	..38..	201	Puritan	..37..	450	Roscoe	..20..	1,451	Seward	..37..	548
Pennsburg	..65..	1,141	Quakake	..47..	501	Roscoe Station	..52..	1,001	Sewickley	..36..	4,479
Penns Station	..37..	1,500				Rose Bud	..25..	1,001	Shade Creek	..53..	600
Pennsville	..52..	300				Rosedale	..39..	419	Shaft	..47..	1,600
									Shafton	..37..	343

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Shamokin	28.	19,588	South			Thomasville	59.	401	Venetia	50.	501
Shamokin Dam.	44.	500	Williamsport	17.	3,734	Thompson	8.	322	Verona	36.	2,819
Shaners	37.	400	Spangler	39.	2,701	Thompsontown	43.	293	Versailles	36.	1,437
Shanksville	53.	708	Spartansburg	2.	460	Thornbury	36.	230	Village Green.	64.	237
Sharon	10.	15,270	Speers	50.	383	Thornhill	36.	401	Villanova	64.	201
Sharon Hill.	64.	1,401	Springboro	2.	614	Three Springs.	41.	248	Vintage	61.	300
Sharpsburg	36.	8,153	Spring City.	63.	2,801	Throop	20.	5,133	Vintondale	39.	1,411
Sharpsville	10.	3,234	Spring Creek.	48.	301	Tidwite	3.	1,324			
Shartlesville	62.	600	Spring Creek 3.	3.	301	Tioga	3.	533			
Shawmut	14.	500	Springdale	36.	2,000	Tiona	3.	301			
Shearers Cross			Springet	59.	400	*Tionesta	13.	803	Wakefield	61.	215
Roads	37.	200	Spring Garden.	36.	1,000	Tipton	40.	401	Walford	21.	501
Sheffield	3.	1,500	Spring Grove.	59.	1,152	Titusville	2.	8,533	Walkers Mills.	36.	501
Shenandoah	47.	25,774	Spring Mill.	65.	959	Tohyanna	33.	601	Wall	36.	1,962
Shepton	47.	1,001	Spring Mills.	66.	301	Tomhicken	31.	201	Wallacetown	35.	324
Sheridan	60.	257	Spring Mount.	65.	250	Topton	62.	809	Walnut Bottom.	57.	251
Sheridan	47.	1,000	Springtown	66.	300	Toughkenamon	63.	241	Walnut Port.	49.	401
Sherman	9.	200	Spring Valley.	43.	350	*Towanda	7.	4,281	Walmuttown	62.	1,039
Sherman Dale.	45.	450	Springville	8.	201	Tower City.	47.	2,325	Walston	24.	1,001
Sheshequin	7.	207	Spruce Creek.	41.	218	Townville	2.	317	Waltersburg	52.	501
Shickshinny	31.	1,917	Standing Stone.	7.	201	Trafford	37.	1,959	Walters Park.	62.	201
Shields	36.	301	Stanton	24.	201	Trainer	64.	201	Wampum	21.	980
Shillington	62.	1,427	Starford	38.	401	Transfer	10.	401	Wanamansville	31.	1,592
Shingehouse	5.	1,598	Starjunction	52.	3,001	Trappe	65.	398	Wapwallopen	31.	301
Shippensburg	57.	3,457	Starners	57.	201	Trauger	37.	1,201	*Warren	3.	11,080
Shippensburg	12.	378	Starrucca	9.	318	Tredyfrin	63.	401	Warrondale	36.	1,001
Shiremanstown	57.	515	State College.	26.	1,435	Treichlers	49.	250	Warrensburg	17.	701
State Lick	41.	201	State Line.	56.	411	Tremont	37.	2,067	Warrior Run.	28.	1,251
Stocks Mills.	61.	301	Stauffer	33.	501	Tresckow	37.	501	Warriors Mark.	41.	301
Shoemakersville.	62.	502	Steamburg	2.	201	Trestle	36.	201	Warwick	63.	250
Shrewsbury	59.	598	Steckman	54.	201	Treveskyn	36.	2,590	*Washington	50.	18,778
Shrewsbury			Steeltown	46.	14,246	Trevorton	28.	1,500	Washington		
Station	59.	308	Sterling	9.	401	Trexelertown	18.	475	Boro	61.	560
Shunk	18.	301	Sterling Run.	15.	411	Tripoli	48.	501	Washington		
Siegersville	48.	250	Stevens	61.	385	Trout Run.	17.	281	Mine	52.	3,001
Siegfried	49.	2,801	Stevensville	7.	301	Troutville	25.	261	Washingtonville.	29.	212
Silver Creek.	47.	2,512	Stewartstown	59.	674	Troutville	25.	261	Watford	1.	724
Silverdale	66.	332	Stickney	4.	201	Truaxville	31.	201	Water Gap.	33.	416
Silver Spring.	61.	201	Stiles	48.	301	Trueman's	13.	201	Waterside	54.	201
Simpson	20.	2,201	Stockdale	50.	761	Trumbauersville.	61.	611	Watsonville	28.	1,951
Sinking Spring.	62.	601	Stockertown	49.	426	Tryonville	2.	201	Watters	22.	201
Sinmahoning.	15.	701	Stockton	31.	201	Tullytown	66.	622	Wattsburg	1.	283
Sirwell	23.	601	Stoneboro	10.	1,074	Tulpehocken	62.	287	Waverly	20.	515
Sively	11.	1,616	Stonerstown	54.	250	*Tunkhannock	19.	1,598	Waymart	9.	412
Six Mile Run.	54.	348	Stormstown	26.	301	Tunnelhill	39.	661	Waynesboro	64.	2,750
Skinner's Eddy.	19.	201	Stouchsburg	62.	401	Tunnelton	38.	201	Waynesboro	64.	2,750
Skippack	65.	359	Stoyestown	53.	355	Turbotville	28.	365	*Waynesburg	51.	545
Slate Dale	48.	701	Strait	63.	201	Turtle Creek.	36.	4,995	Weatherly	32.	2,501
Slate Run.	17.	350	Strangford	14.	301	Tuscarora	47.	701	Weavers Old		
Slatington	48.	4,454	Strasburg	61.	885	Twilight	50.	468	Stand	37.	350
Silgo	12.	754	Strattonville	12.	376	Tyler	25.	1,501	Weaversville	49.	200
Slippery Rock.	22.	870	Straustown	62.	401	Tylersburg	12.	250	Webster	37.	1,001
*Smethport	4.	1,817	Strong	28.	701	Tylersport	65.	354	Weedville	14.	301
Smicksburg	38.	230	*Stroudsburg	33.	4,379	Tyrene	40.	7,176	Wehrum	38.	601
Smithdale	36.	478	Sturgeon	35.	1,201				Weissport	32.	638
Smithfield	52.	749	Suedberg	47.	504				Weldbank	3.	201
Smithmill	25.	250	Sugargrove	3.	459				Weldons	65.	300
Smith Ferry.	35.	500	Sugarloaf	31.	201				Wellersburg	53.	200
Smithton	37.	784	Sugar Notch.	3.	439				*Wellsville	6.	3,183
Smock	53.	1,001	Sugar Run.	7.	201				Wellsville	53.	300
Smokerun	25.	301	Sugar Run.	7.	201				Wellsville	59.	308
Smyser	59.	365	Sumerhill	39.	863				Wendel	37.	1,001
Snow Shoe	26.	643	Summerville	24.	609				Wernersville	62.	361
Snyderstown	28.	288	Summit	39.	208				Wertz	40.	200
Soldier	24.	800	Summit Hill.	32.	4,209				Weskit	23.	500
*Somerset	53.	2,612	Summit Mills.	53.	201				Wesleyville	1.	500
Sonestown	18.	301	Summeytown	65.	275				West Alexander.	50.	426
Sonman	39.	601	*Sunbury	28.	13,770				West Apollo.	37.	501
Soudersburg	65.	214	Susquehanna	8.	3,478				West Bangor.	59.	300
Southampton	66.	300	Sutersville	37.	917				West		
South Allentown.	48.	1,814	Suter	37.	917				Brownsville	50.	2,036
South			Swarthmore	64.	1,900				*West Chester.	63.	11,767
Bethlehem	49.	19,973	Swedeland	65.	551				West Consho-		
South			Sweet Valley	31.	201				hocken	65.	2,202
Bethlehem	23.	439	Swissale	36.	7,381				West Coplay		
South			Swoyers	31.	5,396				Junction	48.	1,001
Brownsville	52.	3,943	Sybertsville	31.	5,396				West Decatur.	49.	525
South			Syran	36.	1,501				West Easton	49.	1,033
Gettysburg	50.	876	Sykes	24.	1,756				West Elizabeth.	36.	841
South			Sykesville	24.	1,756				West End.	11.	495
Canonsburg	50.	1,697	Sylvan	56.	201				West Fairfield.	37.	206
South			Sylvania	7.	217				West Fairview.	57.	950
Connellsville	52.	201							Westfield	6.	1,207
South Danville.	28.	429							West Finley	50.	201
South Fork.	39.	4,592							West Freedom.	12.	301
South									Westgrove	63.	1,261
Greensburg	37.	1,748							West Hamburg.	62.	201
South Heights.	35.	365							West Hanover.	46.	401
South Newcastle.	21.	551							West Hazleton.	31.	4,715
South									West Hickory.	13.	351
Phillipsburg	26.	434							West		
South Renovo.	16.	805							Homestead	36.	3,009
South Sharon.	10.	10,190							West Kittanning.	23.	589
South Sterling.	9.	350							Westland	50.	501
South Waverly.	7.	1,084							West Leetsport.	62.	436
Southwest	37.	1,500							West Leisenring.	52.	1,201
Southwest									West Liberty	22.	200
Greensburg	37.	2,127							West Manayunk.	65.	500
									West Midlesex.	10.	1,157

Pennsylvania Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
West Middle-town	50	274	White	38	201	Windgap	49	832	Y		
West Milton	27	375	Whitdeer	37	351	Windham	7	301			
West Monessen	51	600	White Haven	31	1,438	Windsor	59	697	Yardley	66	894
West Monterey	12	601	Whitemarsh	65	300	Winfield	22	301	Yates	31	433
Westmont	39	1,468	White Mills	9	1,500	Winfield	22	301	Yatesboro	23	2,001
West Newton	37	2,880	Whiteline	17	500	Winterburn	25	201	Yatesville	31	573
Westover	25	569	Whitney	37	880	Winterstown	59	238	Yeadon	64	882
West Moor	31	400	Wickboro	23	2,775	Winton	20	5,280	Yeagertown	42	532
West Pittsburgh	36	1,000	Wiconisco	43	2,900	Wireton	37	1,000	Yerkes	65	201
West Pittsburgh	21	501	Wigton	25	350	Witmer	61	301	Yoe	59	567
West Pittston	31	6,846	Wilcox	14	1,037	Womelsdorf	62	1,301	Yohogany	37	400
West Point	65	250	Wilgus	38	250	Woodbury	54	255	*York	59	44,730
Westport	16	248	*Wilkes-Barre	31	67,105	Woodland	25	1,201	Yorkkana	59	500
West Reading	62	2,064	Wilkinsburg	36	18,924	Woodlawn	35	1,396	Yorkhaven	59	793
West			Williams	53	200	Woods Run	50	944	Salem	59	221
Reynoldsville	24	933	Williamsburg	40	1,523	Woodville	36	501	York Springs	58	300
West Salisbury	53	701	Williams Grove	25	400	Woodward	26	401	Youngstown	37	323
West Springfield	1	280	*Williamsport	17	31,860	Woodrich	16	251	Youngsville	3	1,406
West Sunbury	22	283	Williamstown	46	2,904	Wormleysburg	57	809	Youngwood	37	1,881
West Telford	65	664	Wilock	36	500	Worthington	23	436	Yukon	37	1,001
West View	36	1,626	Willow Grove	65	800	Wrightsville	59	2,051	Z		
Westville	24	501	Willow Street	61	200	Wurttemberg	21	500			
West Winfield	22	501	Wilmerding	36	6,133	Wyalusing	7	580	Zehner	31	201
West Wyoming	31	1,631	Wilmore	39	311	Wyano	37	300	Zellenople	2	1,388
West York	59	2,435	Wilpen	37	200	Wyncote	65	260	Zerbe	47	301
Wheatland	10	955	Wilson	36	1,108	Wyndmoor	65	200	Zeigleville	65	400
Whitaker	36	1,547	Winburn	25	1,500	Wyoming	31	3,010	Zion Grove	47	201
			Windber	53	8,013	Wyomissing	62	985			

PENNSYLVANIA

A Remarkable State Which Stands First in the Production of Many Important Commodities.

Undoubtedly one of the best states for the land seeker is that which has the **greatest number** of resources, so that if agriculture and the purchase of land is not immediately possible, some other industry can be followed, until the **opportunity** for getting a home and land comes forward.

While not the largest in area Pennsylvania is remarkable for having within its borders such great amount and variety of **raw material** pertaining to the necessities of life. The people of this state are to be commended also for the utilization of their natural resources in such great degree. To illustrate:

Water is a **raw material** and the enterprise of Pennsylvania changes it from fluid to solids in such great quantity that the state, in one of the late average years produced ice to the value of \$2,038,504.

GREAT IRON MANUFACTURING CENTER.

In **iron and steel** Pennsylvania was **first** with products valued at \$434,445,200, or 54 per cent of **all iron** produced in the United States.

This state stood **first** in the manufacture of **coke**, Pennsylvania reporting annual products valued at \$22,282,358, or 62.6 per cent of all coke manufactured.

This was the state **most prominent** in the making of **glass**, its annual products being worth \$23,274,113.

With anthracite coal area of **480 square miles** and bituminous **9,000 square miles**, it is not surprising that its coal product in 1905 was valued at \$127,534,895, exceeding **more than 50 per cent** of all the other output of coal in the United States.

In a late year the state stood **first** also in **leather**, its product being valued at \$55,615,009.

In the construction of steam and street railroad cars Pennsylvania stood **first** with annual products worth \$63,570,599.

In **petroleum refining** this state is **first**, with annual product valued at \$34,977,706.

It stands **first** in the production of natural gas, with a value of \$5,528,610. Salt springs, yielding over 300,000 barrels of salt annually, limestone, sandstone quarries, and fire clay production are among the growing industries being developed.

Pennsylvania leads in production of **Portland cement**. The output in 1897 was 1,200,000 barrels, value \$1,740,000, and since then greatly increased annually.

Prosperous manufacturing centers are Philadelphia with **over 18,000 factories** and over 300,000 **operatives**. Pittsburg, one of the most important

cities in the world, in brass, iron, steel, copper, glass and paper, and with the **natural gas** region around it.

Another great advantage pertaining to the state is that of **transportation**. On June 1, 1905, Pennsylvania had 11,155.84 miles of railroad, and canal and slack water navigation of 725 miles. Erie possesses one of the best harbors on Lake Erie, with a coast line of 45 miles, and has a large **export and import** trade, and Philadelphia has **four lines** of European steamers, affording outlet to all parts of the world. Thus it is seen that being near the **great central markets**, the abundant facilities for quickly and cheaply reaching them, healthy climate and great agricultural product, indicating fertile soil, the land seeker will be able with his family to get a **support** in this state, and cannot go far amiss if he makes Pennsylvania his abiding place.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Highest in the state, Allegheny Range has an elevation of from 2,000 to 2,800 feet.

Climate.—Average January temperature at Philadelphia, 32; July 76; extreme warmest 103; coldest 6 below. Annual rainfall 39.8 inches. Average January temperature at Pittsburg 30; July 74; extreme warmest 103; coldest 20 below. Yearly rainfall 36.7 inches.

Dimensions.—Extreme length of the state from north to south, 180 miles; width from east to west, 300 miles.

History.—First visited by Henry Hudson in Delaware Bay, 1609. Lord De la Warr from whom the bay was named, entered its mouth 1610. Fort Nassau built by the Dutch on Delaware river in 1623. First actual settlement by Swedish colonies at Tinicum Island 1643. Whole territory between Delaware and Hudson river taken by Dutch of New Amsterdam 1655. Conquered by the English 1664. Recovered by Dutch 1673. Reverted to British 1674. Charter granted for Pennsylvania Territory to William Penn, who located at New Castle Oct. 27, 1682, and founded Philadelphia. Penn's humane treatment of the Indians and colonists caused prosperity in the colony. Over 300 houses in Philadelphia in 1684; with a population of 2,500. Penn returned to England in 1701 and died there in 1718. Boundary dispute with Maryland settled by establishment of Mason and Dixon's line 1767. First Continental Congress met in Philadelphia 1774. Constitution of the United States adopted and ratified December 12, 1787. Was one of the 13 original states and the second to enter the Union.

STATE AND THE 5 COUNTIES OF RHODE ISLAND

With Their Boundaries

Location and Population
of
RHODE ISLAND
COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1....	Providence..	328,683
2....	Kent.....	29,976
3....	Washington..	24,151
4....	Bristol.....	18,141
5....	Newport....	32,599
Total.....		512,610

CITIES AND VILLAGES
OF RHODE ISLAND
WITH 1910 POP-
ULATIONS

Towns	Loca.	Pop.
A		
Abbottrun	1....	250
Adamsville	5....	475
Albion	1....	850
Anthony	2....	2,800
Apponaug	2....	1,290
Arctic	2....	3,066
Arlington	1....	1,226
Arnold Mills.....	1....	303
Ashaway	3....	306
Ashland	1....	275
Ashton	1....	2,620
Auburn	1....	3,592
B		
Barrington		
Center	4....	512
Belleville	3....	200
Block Island.....	5....	1,273
Bridgeton	1....	666
*Bristol	4....	8,565
C		
Carolina	3....	250
Centerdale	1....	1,250
Central Falls.....	1....	22,751
Chepachet	1....	1,425
Clayville	1....	330
Coimicut	2....	200
Coventry	2....	820
Cranston	1....	21,107
Crompton	2....	1,866
D		
Diamond Hill	1....	250
E		
*East Greenwich..	2....	3,420
East Providencel..	15,808	
East Providence		
Center	1....	306
Esmond	1....	566
F		
Fiskville	1....	2,500
Forestdale	1....	426
Foster	1....	380
Foster Center	1....	650
G		
Georgiaville	1....	1,066
Glendale	1....	370
Grants Mills.....	1....	326
Greene	2....	830
Greenville	1....	730
Greystone	1....	862
H		
Harrisville	1....	2,205
Hillsgrove	2....	1,202
Hope	1....	1,260
Hope Valley	3....	402
Howard	1....	420
Hughesdale	1....	450
J		
Jamestown	5....	1,337

CITIES AND VILLAGES OF RHODE ISLAND WITH 1910 POPULATIONS

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
K			O			S		
Kenyon	3....	250	North Tiverton..	5....	1,650	Saylesville	1....	1,500
*Kingston	3....	200	Norwood	2....	650	Shannock	3....	209
L			P			T		
Lafayette	3....	390	Oakland	1....	490	Thornton	1....	706
Lakewood	2....	650	Oakland Beach..	2....	506	Tiverton	5....	3,240
Lime Rock	1....	490	Oak Lawn	1....	826	Tiverton Four Corners	5....	350
Little Compton..	5....	1,232	R			V		
Longmeadow	2....	350	Pascoag	1....	2,425	Valley Falls.....	1....	4,102
Lonsdale	1....	3,509	Pawtucket	1....	51,622	W		
Lymansville	1....	766	Pawtuxet	1....	2,700	Wakefield	3....	1,066
M			Peace Dale	3....	1,062	Warren	4....	6,585
Manville	1....	4,062	Phenix	2....	4,150	Warwick	2....	350
Mapleville	1....	607	Phillipsdale	1....	790	Washington	2....	880
Meshanticut	1....	462	Pinchill	3....	310	West Barrington..	4....	770
Middletown	5....	1,581	Point Judith	3....	200	Westerly	3....	9,000
N			Pontiac	2....	1,902	West Greenwich ..		
Narragansett			Portsmouth	5....	2,371	Center	2....	474
Pier	3....	1,066	Potter Hill	3....	422	White Rock	3....	309
Nasonville	1....	545	Providence			Wickford	3....	1,502
Natick	2....	11,950	(capital)	1,224,326		Woonsocket	1....	38,125
Nayatt Point	4....	641	Prudence	5....	290	Wyoming	3....	320
*Newport	5....	27,149	R					
New Shoreham..	5....	1,273	River Point	2....	3,420			
Niantic	3....	250	Riverside	1....	1,602			
Nooseneck Hill..	2....	200	Rockland	1....	408			
North Scituate..	1....	1,060	Rockville	3....	250			
			Rumford	1....	509			

Explanation: Index to Towns. First Column. Names of Towns; Second Column. Number the Same as Number of the County Where Town is Located; Third Column. Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Opportunities in Agriculture and Varied Enterprises

RHODE ISLAND

Smallest in Area of Any One of the United States—Location of the First Cotton Factory in the Union and the Leading Center for Print Cloths

Should the land seeker ask concerning the **inducements** for settlement in Rhode Island, the reply may be that an old manufacturing region like this affords **ample opportunity** for getting employment, if not on land, then certainly in some one of the many factories that abound in this state.

It is a fact that must always be understood, that in any region it takes a little time to get fixed in the right place. Whether in a Western territory or in an old New England State, there are vacancies occurring, from time to time, in the various avenues of enterprise and employment which call for **every kind** of brain and hand. With the tens of thousands of different men it is impossible that **all** can be kept **continually** in the same groove. By death, restlessness, discharge, accidents and otherwise, one officer after another, one mechanic after another, one laborer after another, will fall out of the ranks and his place must be filled.

While that is true in the field of mechanics and clerical employ, it is **true** in the domain of agricultural enterprise and ownership. However desirable locations and neighborhoods may be for gardening or farming, lands always will be offered for sale in choice localities, and the land seeker has only to visit such places as **fancy and judgment** may select, bide his time, watch the opportunity and **obtain** what is desired.

CENTRAL POINT FOR DISTRIBUTION.

Examination shows that Rhode Island is very favorably located for **commercial advantage**. It has a good climate, with an annual average temperature of about 48 at Providence, and 50 at Newport, with a yearly rainfall of 44.81 inches at Providence. While not a **mountainous** region it is hilly, with a soil, to the West of Narragansett Bay, naturally better adapted to grazing than to the growing of cereals and vegetables. And yet, through fertilization, and through **cultivation**, the small farms and market gardens in the vicinity of the cities afford **liberal support** for their owners.

That the people of Rhode Island are attached to their farms, their gardens, and their factories, is shown in the fact that instead of **emigrating** to other parts of the world, where agricultural conditions would **seem** to be better, they continue to remain—they, their children, and their children's children—right here in Rhode Island until population is so dense as to give over 508 persons to the square mile.

NATURAL MANUFACTURING POINT.

Investigation shows that while agriculturists and horticulturists do well here, it is **not** the **soil** which holds them. In fact, census returns show that less than one-fifth of the people engage in agriculture, but that the great majority are employed in factories and manufacturing. Though the streams generally are small they furnish such an **abundance** of power as to make the state, with its accessibility to markets, aided by railroads and Narragansett Bay, which extends up 28 miles into the state, an **ideal** region for manufacturing, and shipment of goods to the nearby great markets.

BEGUN IN THIS STATE.

It was here at Pawtucket, on Pawtucket River, where the first cotton factory in America was erected in 1790. It is near here, at Providence, that the great Corliss engine works are located. Providence, with its immense woolen and cotton mills, is widely celebrated as being the leading market for print cloths in the United States.

As a general manufacturing point **Providence** is a center for **silverware, jewelry, hardware and sewing machines**; Pawtucket for its extensive print, **dyeing and bleaching works**, files and cardboard; Woonsocket, for its cotton manufactures; Valley-Falls its **horseshoes**, and Bristol its **rubber works**, and its **torpedo boats, launches and yachts**.

The shell fisheries are important. The commerce is chiefly domestic. Providence, being so far up in

the interior by water navigation, up Narragansett Bay, and river, Providence receives large quantities of coal and cotton for neighboring states as well as for the home supply, and ships manufactured goods. Being a very central inland seaport, much merchandise is received and shipped from here for the Boston trade.

WHY TWO CAPITALS FOR THE STATE.

People will query why **so small a state** should find it necessary to have had so long two state capitals. It is the old story of two families living in one house. While they could pleasantly visit each other from distant points, moving in together made a familiarity that bred **contempt**, which resulted in quarrel.

The differences here date back to 1636 when Roger Williams was banished from Massachusetts for too much **liberality** in religion and took up his residence in this state at the head of a colony. William Codrington came in 1639 at the head of another colony, located on the island where Newport and Portsmouth are situated, followed by John Greene and Samuel Godin, who headed a settlement at Warwick in 1643.

In the meantime Roger Williams went to England and obtained a patent for the united government of the settlements. Following this patent, which expired in 1663, a charter was secured from Charles II of England incorporating the colony of Rhode Island and the Providence Plantations, which was the only constitution of government for 180 years. This old charter of 1663 during the 180 years, brought old conditions up to 1843, when Providence, Pawtucket and other towns, dissatisfied with their small representation in the legislative councils, though many times larger than Newport, had a constitutional convention called and secured the necessary votes to make Providence the seat of government. State officers were elected, but in the attempt to secure the capital for Providence the party in power claimed that the **old charter** was in force, that the election was **illegal**, that the attempt to take the reins of government was **rebellion**, and when the people met to enforce the provisions of the **new election** they were met with a military force and dispersed. Not only that, but the **newly elected governor** was arrested as a traitor and imprisoned for a time.

ENDEAVOR TO GET ONE CAPITAL.

As a compromise a new state constitution was prepared and adopted by the people which made Providence and Newport each alternately the capital of the state, and such was the condition since 1843 until the adoption of an amendment to the state constitution in 1900 which caused Providence to become the capital of the state.

The story is **much longer** than we have told it here as to the cause of the two capitals, but this was the case in brief. Land seekers will not worry, however, about old history. On the contrary, they will act wisely when they **investigate** why so many people can live and prosper in so small a space. The result may be that they will find here what they want.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest, Poscoag Hill, in northwest corner of Providence County, 394 feet.

Climate. Average yearly, Providence, 47.91; Newport, 49.39. Average January, 30; July, 70. Highest, 92. Lowest, 8 below. Annual rainfall, 50.0.

Dimensions. Length of state, from north to south, 50 miles. Width from east to west, 35 miles. Area of the state, 1,250 square miles.

History. One of the 13 original states. Ratified the United States Constitution and entered the Union, 1790. First settlement made at Providence by Roger Williams, 1636. Charter for Rhode Island and Providence obtained from Charles II of England in 1663. Portsmouth and Newport settled 1638 and 1639.

STATE AND THE 43 COUNTIES OF SOUTH CAROLINA
With Their Boundaries

LOCATION AND POPULATION OF SOUTH CAROLINA COUNTIES

<i>Loca.</i>	<i>County</i>	<i>Pop.</i>	<i>Loca.</i>	<i>County</i>	<i>Pop.</i>	<i>Loca.</i>	<i>County</i>	<i>Pop.</i>	<i>Loca.</i>	<i>County</i>	<i>Pop.</i>
1.....	Oconee	27,337	13....	Abbeville	34,804	24.....	Lexington	32,040	35...	Georgetown	22,270
2.....	Pickens	30,347	14.....	Lauderdale	34,550	25.....	Richland	35,145	36....	Barnwell	34,209
3.....	Anderson	49,568	15.....	Greenwood	34,225	26.....	Sumter	38,472	37....	Bamberg	18,544
4.....	Greeneville	68,377	16.....	Newberry	34,586	27.....	Florence	35,671	38....	Dorchester	17,891
5.....	Spartanburg	83,465	17.....	Fairfield	29,443	28.....	Marion	20,396	39.....	Berkeley	23,487
6.....	Cherokee	26,179	18.....	Kershaw	27,094	29.....	Horry	26,995	40.....	Hampton	25,146
7.....	Union	29,911	19.....	Lee	25,818	30.....	Aiken	41,849	41.....	Colleton	25,390
8.....	York	47,718	20.....	Darlington	36,027	31.....	Orangeburg	55,892	42.....	Beaufort	30,355
9.....	Chester	29,125	21.....	Dillon	22,615	32.....	Calhoun	16,634	43....	Charleston	88,594
10....	Lancaster	26,650	22.....	Edgefield	28,281	33.....	Clarendon	32,188			
11....	Chesterfield	26,301	23.....	Saluda	20,943	34....	Williamsburg	37,626			
12....	Marlboro	31,189							Total.....		1,515,400

South Carolina Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			Arial	28	508	Bessie	4	250	Branchville	31	1,471
*Abbeville	13	4,459	Arkwright	5	560	Bethune	18	317	Brandon	4	302
Adams Run	43	200	B			*Bishopville	19	1,659	Brunson	40	610
*Aiken	30	3,911	*Bamberg	37	1,937	Blacksburg	6	1,119	Bucklick	17	490
Alcoota	33	458	*Barnwell	36	1,324	Blackville	36	1,278	Buffalo	7	2,062
Allen	29	200	Batesburg	24	1,995	Blenheim	12	228	C		
Allendale	36	1,453	Bath	30	560	Bluffton	42	577	Calhoun	2	215
*Anderson	3	9,654	*Beaufort	42	2,486	Bordeaux	13	326	Calhoun Falls	13	296
Arcadia	5	306	Belton	3	1,652	Bowman	31	327	*Camden	18	3,569
Ardelta	5	390	*Bennettsville	12	2,646	Bradley	15	279	Cameron	32	421

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

South Carolina Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Campobello	5	255	Gourdin	34	200	Lynch	27	1,013	*St. Matthews	32	1,377
Carlisle	7	367	Grahamville	43	293	Lynchburg	19	466	St. Stephen	39	408
Cartersville	27	314	Graniteville	30	2,520				Salley	30	311
Catechee	2	390	Gray Court	14	284			M	*Saluda	23	610
Central	2	886	Great Falls	9	226	McClellanville	43	974	Sampit	35	200
Chapin	24	345	Greeleysville	34	630	McClall	12	1,628	Sandyrton	32	1,610
*Charleston	43	58,833	*Greenville	4	15,741	McConnellsville	8	279	Scranton	27	458
Cheraw	11	2,873	*Greenwood	15	6,614	McCormick	13	613	Sellers	28	338
Cherokee Falls	6	591	Greer	4	1,673	Madison	1	208	Seneca	1	1,313
*Chesterfield	11	618			H	*Manning	33	1,854	Shandon	25	795
*Chester	9	4,754	Hamburg	30	484	*Marion	28	3,844	Sharon	8	374
Clemson College	1	496	*Hampton	49	748	Mary Bluff	27	450	Silver	33	200
Clifton	5	6,066	Hardeeville	42	649	Maryville	43	473	Simpsonville	4	521
Clinton	13	2,752	Hartsville	20	2,365	May	26	290	Smooks	43	290
Clio	12	780	Heath Springs	10	452	Mayesville	26	551	Snelling	36	338
Clover	8	1,207	Helena	16	425	Mcgett	43	1,090	Society Hill	20	580
Cokesbury	15	756	Hendersonville	41	319	*Monks Corner	39	506	South Lynch-		
Colemans	23	3,009	Hickory Grove	8	285	Moultrieville	43	1,011	burg	19	275
Colliers	22	2,062	Highland	4	200	Mount Carmel	13	264	*Spartanburg	5	490
Columbia			Hix	31	602	Mt. Pleasant	43	1,346	*Springfield	31	438
(capital)	25	26,319	Hodges	15	266	Mullins	28	1,882	Star	3	261
Converse	5	1,098	Holly Hill	31	342			N	Steedman	24	220
*Conway	29	1,228	Honca Path	31	1,763	Navy Yard	43	1,660	Stillwood	40	206
Cottageville	41	418	Huntersville	4	250	*Newberry	16	5,028	Stokesbridge	19	2,121
Cowpens	5	1,101			I	New Brookland	24	926	Summerton	33	678
Crocketville	40	200	Inman	5	474	Newry	41	920	Summersville	38	2,355
Cromer	16	2,223	Irmo	24	267	Neyles	41	360	*Sumter	26	8,109
Cross Anchor	5	200	Iva	3	894	Ninety-six	15	758	Swansea	24	523
Cross Hill	14	558			J	North	31	561			T
		D	James Island	43	2,022	North Augusta	30	1,136	Tatum	12	225
*Darlington	20	3,789	Jefferson	11	390	Norway	31	315	Timmons ville	27	1,708
Denmark	37	1,075	Johns Island	43	1,900			O	Townville	3	255
*Dillon	21	1,757	Johnston	23	943	Olanda	27	230	Trenton	22	257
Donalds	13	268	Jonesville	7	969	Olar	37	350	Troy	15	233
Drayton	5	208	Jordan	33	362	Oldpoint	8	250	Tucapau	5	866
Due West	13	672			K	*Orangeburg	31	5,906			U
Dunklin	4	220	Kathwood	30	208			P	*Union	7	5,623
		E	Kershaw	10	682	Pacolet	5	410			V
Easley	2	2,983	*Kingstree	34	1,372	Pageland	11	360	Varnville	40	542
Eastover	25	237	Kline	36	220	Paris Island	42	306	Vaulcuse	30	850
Eau Claire	25	1,234			L	Pelham	4	306			W
Ebenezer	27	1,190	Ladies Island	42	3,026	Pelzer	30	6,620	Wagener	30	362
*Edgefield	27	1,771	Lake City	27	1,074	Pendleton	3	822	*Walhalla	1	1,595
Edisto Island	43	4,066	Lamar	20	592	*Pickens	2	897	*Walterboro	41	1,677
Ehrhardt	37	315	*Lancaster	10	2,098	Piedmont	4	3,602	Wando	33	250
Elenton	30	367	Lando	9	296	Pinewood	33	421	Warrenville	30	326
Elliott	19	562	Landrum	30	1,500	Pinopolis	39	200	Wedgfield	26	250
Elloree	31	540	Langlely	21	1,358	Pomaria	16	220	Welford	5	370
Enoree	5	2,100	Latta	35	232	Port Royal	42	363	Westminster	1	1,576
Enterprise	43	2,026	Laurel	14	4,818	Prosperity	16	737	West Union	1	328
Estill	40	460	Leeds	9	350			Q	Whitehall	18	847
Eutawville	31	405	Leesville	24	980	Quick	11	260	Westville	40	566
Exchange	43	396	Lenud	34	250			R	White Pond	39	250
		F	Levys	42	209	Reedy River	4	220	Whitmire	16	1,045
Fairfax	36	499	*Lexington	24	709	Factory	38	205	Wilkins	42	3,060
Fairforest	5	306	Liberty	4	1,058	Richburg	9	245	Wilksburg	9	326
Fingerville	5	320	Liberty Hill	18	262	Ridgeland	42	330	Williamston	3	1,957
*Florence	27	7,057	Lisbon	4	420	Ridge Spring	23	505	Willington	13	365
Forkshoals	4	360	Little Moun-	16	440	Ridgeway	38	328	Williston	36	624
Fort Lawn	9	204	tain	16	440	Rockhill	17	370	Windsor	30	200
Fort Mill	8	1,616	Lockhart	7	2,096	Rowesville	31	508	*Winnboro	17	1,754
Fort Motte	32	392	Lodge	41	202	Rural	19	490	Woodruff	5	1,880
Fountain Inn	4	979	Loris	29	229			S	Woodward	17	396
		G	Lowndesville	13	350	*St. George	38	957			Y
*Gaffney	6	4,767	Lowryville	9	343	St. Helena	42	7,747	Yemassee	40	250
*Georgetown	35	5,530	Lumber	20	328	Island			*Yorkville	8	2,326
Gilbert	24	450	Lydia	20	1,513				Yonges Island	43	226
Glendale	5	800									
Goldville	14	204									
Golightly	5	326									

SOUTH CAROLINA

A State That Raises Tea, Pays Expense of Bringing Immigrants from Foreign Countries to Southern Ports, Entertains New Arrivals with Cordial Welcome, and Finds Them Good Positions on Farms or in Manufacturing Employment

One of the very favorably situated states, located on the south Atlantic coast is South Carolina, the state authorities in which are exhibiting a **great amount of enterprize** in advertising its advantages.

To inform land seekers of the face of the country, climate and soil we take the following from Hill's General Cyclopedia.

"The area of the state comprises 30,961 square miles. It is 180 miles long, from north to south, and 160 miles wide, from east to west.

"The surface may be about equally divided into high, middling and low land, the last named rising from the seacoast, where it is flat and level, and gradually increasing in elevation toward the in-

terior, where it attains an average of about 250 feet, continuing to the north line where, after varying from 300 to 800 feet, it reaches an elevation of 1,000 feet at **Table Mountain** in Pickens County.

LOW MARSHY LAND NEAR THE COAST

"The land along and near the coast is low, marshy and swampy, especially on the river banks, rolling and diversified toward the center, and undulating near the mountain slope, but in places abrupt. King's Mountain rising almost perpendicularly 500 feet.

"The land is well drained by numerous rivers, the largest of which, the Santee, formed by the Saluda, Congaree, Catawba and Wateree, uniting at the center of the state. There are several smaller

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rivers the power on which is being developed for manufacturing.

CLIMATE OF SOUTH CAROLINA

"The climate is mild and genial, snow falling in the mountains but rarely in the middle sections, and seldom or never along the coast. The average yearly temperature at Charleston is 65. The rainfall ranges from 60 inches on the coast to 40 inches in the mountains, with 48 inches in the interior.

"The soil in the low country is remarkably fertile, the several swamps and reclaimed marshes, being admirably adapted to the cultivation of rice, while the sandy loam of the sea islands and surrounding mainland, produces the finest long staple black seed, or sea island cotton of silky fiber. Abundant crops are raised of wheat, rye, corn, oats, barley, buckwheat, peas, beans, sugar, tobacco, indigo, sorghum, broom corn, sunflower, Guinea corn, sweet and Irish potatoes, hemp, flax and hops.

WHAT KINDS OF ORCHARDS HERE

"Numerous orchards all over the state furnish quantities of apples, pears, quinces, plums, peaches, nectarines, apricots, cherries, and along the coast, figs, oranges, lemons, olives and pomegranates. The raspberry, blackberry, mulberry and whortleberry are produced. The strawberry is extensively cultivated along the coast. The grape grows wild in many portions of the state and in great varieties. The gardens and farms produce, in abundance, turnips, beets, parsnips, carrots, artichokes, mustard, benne, rhubarb, arrowroot, water and musk melons, cucumbers, cabbages, kale, lettuce, cayenne pepper, squashes, okra, pumpkins, onions, leeks, beans, radishes, celery, green peas and tomatoes.

"The forests consist of long and short leaved pine, magnolia, sweet and black gum, white, water, live and red oak, black walnut, elm, hickory, maple, sycamore, ash, cypress, chestnut, beech, locust, persimmon, dogwood and poplar.

MINERALS OF SOUTH CAROLINA

"Minerals are liberally diffused over the state. The gold belt extends from the north Carolina line in a southwesterly direction. Granite is abundant in many counties. But the most important mineral product of South Carolina is the famous deposit of phosphate rock extending about 70 miles from the mouth of the Broad River, near Port Royal, to the headwaters of the Wando, north of Charleston.

"Manufactures are growing in importance, chief among them being cotton yarn and cloth, flour, lumber, turpentine and fertilizers. The cotton seed industry is one of the thriving lines of industry."

FISHERY BUSINESS

The fisheries of South Carolina are of considerable importance, but the warm climate, fertile soil, abundant rainfall all indicate that one of the most important industries in the near future will be truck business and market gardening in the vicinity of the towns and cities of the state. It is seen from our enumeration of the different fruits and vegetable products, which can be grown in this climate, that this state has an excellent future for the agriculturist and the horticulturist.

Knowing the abundant resources of the state, the authorities of South Carolina have entered upon a vigorous advertising of the state for the purpose of bringing in a new population. To that end they have arranged with a certain transportation line to run their steamers from Europe direct to the South Carolina seaports, bringing in a class of people of their own selection in European countries.

THE STATE SENDS A COMMISSION DIRECT TO EUROPE

To begin the work of upbuilding the state systematically, the state legislature organized the South Carolina State Department of Agriculture, Commerce and Immigration, and to carry forward the work rightly an enterprising capable man has been appointed commissioner, who agrees with the Federal government to bring immigrants into South Carolina and not violate labor laws.

To carry the immigration scheme through he personally goes to European countries, arranges with foreign governments to allow their people to emigrate, sorts out such people as will make good citizens in the United States, pays their fare when necessary, hunts up freight enough coming over and going back to make it an object for the steamer to come direct to a southern port, besides carrying passengers, sees to the reception of these immigrants when they get here, aids them in getting

into the back districts where their assistance is required in farming districts, and into cotton mills, and other factories where their help is imperatively necessary.

GREATLY HELPS IMMIGRANTS

The result is the immigrants who come, receive better pay than in their own country, they come into better conditions for themselves and families, and in developing the resources of the South their labor is adding just so much to the wealth and taxable values of the country. While not competing with the laboring classes they are benefiting everybody who has occasion to buy any product that comes from the South.

The South Carolina Immigrant Commissioner does not stop at this. He has gathered lists of farm properties for sale, with prices in all parts of the state, puts into pamphlet form these properties for sale, conditions of climate, soil, cost of living in South Carolina, educational advantages, etc., and any one who will write to the Commissioner of Immigration, Columbia, S. C., will receive instructive literature that will prove the superior opportunities offered in this state for land seekers, people that want to buy land, hire land, work for others or work land on shares.

RAISING TEA PROFITABLY IN SOUTH CAROLINA

This South Carolina immigration literature illustrates how they are raising tea in South Carolina, where in 1911 they produced 10,000 pounds, worth one dollar a pound; how they produce silk, glassware, paints, fertilizing materials, oranges, etc., etc. Tells how one man in Marlboro county grew 255 bushels of corn from a single acre, how a couple of Rhode Islanders, who came in here, settled at Beaufort, went into the trucking business, planted 36 acres in radishes; took off a crop, and planted again in radishes, realizing \$10,000 from the two crops. The next year they planted the same ground in beets; took off a good crop and followed this with cucumbers, making a good yield. After cucumbers, corn was planted making over 50 bushels to the acre.

Five (5) crops on the same ground in the same year, in rotation were gathered. A picture is given in the pamphlet showing these grounds, accompanied by the statement that these men knew but little of farming at the beginning.

HOW NEWCOMERS ARE SUCCESSFUL HERE

This literature details how a poor man at Neggett, S. C., began working for small wages in 1891, and is now the largest shipper of cabbage in the world from his 1,000 acres. The cultivating of that crop costing him \$110,000. Gives the case of another man at Yonge's Island who is the largest shipper of cabbage plants. Ships 40,000,000 plants worth \$35,000. Sends out 100,000,000 plants in 100 cars. Began a poor man.

The largest pecan grower in existence is claimed to be at Mount Pleasant, S. C., having one grove of 600 acres, and two smaller groves with 10,000 trees in each. His annual product is ten tons.

But the South Carolina Immigrant Commission does not stop at simply sending out advertising matter. They want everybody—every land seeker, who wishes to change position or improve his condition, to write to the commissioner, who will immediately send back word telling the cheapest and best way to get here. And that is not all, when the newcomer arrives a reception committee will meet him, entertain him, show him at the permanent State Exhibit at Columbia the resources of the state, and when he decides what he wants to do and where in the state he wants to locate he will be aided to get there, permanently and profitably settled.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE

Altitude—Highest point in the state, Table Mountain in the Blue Ridge mountains in Pickens county.

Climate—Yearly average, at Charleston, 66.3. January average, 49; July 82; extremes: warmest, 104; coldest, 7 above; yearly rainfall, 56.7 inches.

Collection of Debt—Open accounts outlaw in 6 years; promissory notes in 6 years; judgments in 20 years. Legal interest 7 per cent, allowable rate 8 per cent. Limit of jurisdiction of justice of the peace \$100. Exempt from forced sale, home worth \$1,000 and personal property \$500.

Dimensions—Length of the state from north to

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south 215 miles, width from east to west 235 miles. Total area of the state 30,570 square miles. Ocean shore line 200 miles.

History—One of the 13 original states, ratified National Constitution 1788. Port Royal Harbor discovered and named by Ribault, a French Huguenot, who built Fort Carolina on an island there

in 1562, but the colonists soon rebelled and returned to Europe. In 1670 a party of English under William Sayle founded Port Royal, but 10 years later moved to the present site of Charleston. Separated from North Carolina 1700, became a royal colony 1729. First state constitution, 1776. Present constitution adopted 1896.

INFLUENCES WHICH PRECIPITATED THE REBELLION JOHN C. CALHOUN OF SOUTH CAROLINA.

"John C. Calhoun, the third son of his parents, was born just at the close of the Revolutionary struggle. He showed himself from early boyhood grave and thoughtful, ardent and persevering. At the age of 13 he took to reading history and metaphysics. His father died about this time, leaving his family in moderate circumstances.

"Continuing with his mother, John C. lived upon the farm until the age of 19, when he commenced a course of reading, having in contemplation the profession of law.

"In June, 1800, he entered the private academy of his brother-in-law, Dr. Waddell, a Presbyterian clergyman, and two years afterward joined the Junior class of Yale College. He graduated with the highest distinction. Dr. Dwight, the president of the college, remarked, after a discussion with him on the origin of political power, 'That young man has talent enough to be president of the United States.'

"The next three years he devoted to the study of law, eighteen months of it in the law school at Litchfield, Conn., then the only institution of its kind in the country.

"He was soon afterward chosen a member of the State Legislature, and in 1811 was elected to Congress. Marrying in 1811, he settled in Bath, S. C., a few miles distant from his former home in Abbeville and there continued his place of residence when absent from Washington.

"From the time of his first election to Congress he was almost continuously actively employed as a southern representative in Congressional legislation, his contemporaries in Congress, among others, being Henry Clay and Daniel Webster, with whom he had many controversies on matters affecting the admission of new states and their attitude on the subject of slavery.

"Tall, dignified, an eloquent speaker and a very forceful reasoner, it is not surprising that he was a man of large influence in the councils of the Nation.

CALHOUN IN PRIVATE LIFE.

Concerning Calhoun as a citizen in private and domestic life, his biographer continues:

"As a private citizen Calhoun was highly amiable and exemplary, enjoying the devoted love of his own family and dependents and the entire respect and sincere regard of his neighbors. He had ten children, three daughters who died in early infancy, and five sons and two daughters who survived him. His political views were often gloomy; but in private life he was uniformly cheerful. He entered into the enjoyments of those around him with a sympathy and kindness that endeared him to all. He was fond of promoting innocent mirth, and, though no jester himself, laughed heartily at the jests of others.

"He was fond of reading, and in his youth devoted much of his leisure to it, but neither his multifarious occupations nor his cast of mind permitted him to be a general reader. He, however, enjoyed good poetry, good novels, and able reviews. He was not wealthy, but his pecuniary means under his excellent management were amply sufficient for the wants of his family. Though not musical, he was fond of Scotch and Irish songs and ballads.

"He rose early and devoted his mornings to writing. He walked a great deal over his plantation, personally superintending its minutest operations. He was the first or one of the first in that region to cultivate successfully small grain and cotton for market; and he not only had the finest melons, figs, peaches and other southern fruits, but his berries, etc., were equally excellent.

"He was not only fond of agriculture, but an eminently good and successful planter. His servants were, in all respects, well treated. They came to him as umpire and judge. Of their private crops he purchased what he wanted at the highest market price, and gave them every facility for disposing of the rest. His rigid justice regulated his conduct towards them, which they repaid by devoted

affection; and this system of management was so successful that to have been an overseer at Fort Hill was a high recommendation. His countenance at rest was strikingly marked by decision and firmness; in conversation or when speaking, it became highly animated and expressive. His large, dark, brilliant, penetrating eyes strongly impressed all who encountered their glances. When addressing the Senate he stood firm, erect, accompanying his delivery with an angular gesticulation. His manner of speaking was energetic, ardent, rapid and marked by solemn earnestness which inspired strong belief in his sincerity and deep conviction."

"We have turned aside thus to dilate on one of the most distinguished characters in Southern life, in order to reveal why the people of South Carolina were led into the rebellion.

Mr. Calhoun was born in the midst of pro-slavery sentiment. Masters and slaves were everywhere about him. He had no occasion to study the subject of anti-slavery. All his association was with pro-slavery element, and his legal support came from slave owners.

Being elected to Congress by pro-slavery interests, it was natural that he should espouse the pro-slavery cause. His advent into Congressional Legislation was at a time when new states were asking for admission to the Union and Congress was to determine whether they should be free or slave states. At this juncture Calhoun came to the front as the champion of pro-slavery. This was demonstrated in the speech he made in Congress in 1848 on the question of admitting Oregon as a free state. In this speech he strenuously opposed the admission of Oregon as free territory.

At that period the anti-slavery sentiment of the North was becoming more and more aggressive, causing Congressmen from the South to threaten the dissolution of the Union if the North continued to interfere with the property rights of the South on the subject of slavery.

To protect the slave interests Calhoun entered upon the advocacy of state rights—the right of a state to separate from a union of other states, that the American revolution was precipitated by a determination to separate from the mother country and equally should it be the privilege of the South to go by itself to protect its rights.

It was extremely natural for an able advocate like Calhoun—a strong man of blameless life, a brilliant orator speaking from conscientious motive, to make an audience believe in the right of secession. And so Calhoun carried the people with him up to the point of firing upon Fort Sumter, as they did on April 12-13, 1861, in Charleston Harbor, South Carolina. Although Calhoun at that time had been dead eleven years, his advocacy of the right of a state to secede had finally borne fruit.

DANIEL WEBSTER'S OPINION OF CALHOUN.

In memorial address, in the Senate of the United States, Webster gave his estimate of Calhoun, from which we extract the following:

"The eloquence of Mr. Calhoun was a part of his intellectual character. It grew out of the qualities of his mind. It was plain, strong, wise, condensed, concise, sometimes impassioned, still always severe. Rejecting ornament, not often seeking illustration, his power consisted in the plainness of his propositions, in the closeness of his logic and in the more respectful to others; no man carried himself with greater decorum; no man with superior dignity. I have not in public or in private life known a more assiduous person in the discharge of his duty. * * * His colloquial talents were singular and eminent. There was a charm in his conversation not often found. He delighted especially in the conversation and intercourse with young men. I suppose there has been no man among us who had more winning manners in such an intercourse and such conversation with men comparatively young. * * * He has the basis, the indisputable basis of all high character, unspotted integrity and honor unimpeached."

STATE AND THE 66 COUNTIES OF SOUTH DAKOTA

With Their Boundaries

LOCATION AND 1910 POPULATION OF SOUTH DAKOTA COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Harding..	4,228	18.....	Potter..	4,466	35.....	Custer..	4,458	52.....	Aurora..	6,143
2.....	Perkins..	11,348	19.....	Faulk..	6,716	36.....	Washington.....		53.....	Davison..	11,625
3.....	Corson..	2,929	20.....	Spink..	15,981	37.....	Washabaugh.....		54.....	Hanson..	6,237
4.....	Campbell..	5,244	21.....	Clark..	10,901	38.....	Mellette..		55.....	McCook..	9,589
5.....	McPherson..	5,791	22.....	Codington..	14,092	39.....	Lyman..	10,848	56.....	Minnehaha..	29,031
6.....	Walworth..	6,488	23.....	Grant..	10,303	40.....	Buffalo..	1,589	57.....	Gregory..	13,061
7.....	Edmonds..	7,654	24.....	Pennington..	12,453	41.....	Jerauld..	5,120	58.....	Charles Mix..	14,899
8.....	Brown..	25,867	25.....	Stanley..	14,975	42.....	Sanborn..	6,607	59.....	Douglas..	6,400
9.....	Marshall..	8,021	26.....	Sully..	2,462	43.....	Miner..	7,661	60.....	Hutchinson..	12,319
10.....	Day..	14,372	27.....	Hughes..	6,271	44.....	Lake..	10,711	61.....	Turner..	13,840
11.....	Roberts..	14,897	28.....	Hyde..	3,307	45.....	Moody..	8,695	62.....	Lincoln..	12,712
12.....	Butte..	4,933	29.....	Hand..	7,870	46.....	Fall River..	7,763	63.....	Bonhomme..	11,061
13.....	Lawrence..	19,694	30.....	Beadle..	15,776	47.....	Shannon..		64.....	Yankton..	13,135
14.....	Meade..	12,640	31.....	Kingsbury..	12,560	48.....	Bennett..		65.....	Clay..	8,711
15.....	Ziebach..		32.....	Hamlin..	7,475	49.....	Todd..		66.....	Union..	10,676
16.....	Dewey..	1,145	33.....	Deuel..	7,768	50.....	Tripp..	8,323			
17.....	Armstrong..	647	34.....	Brookings..	14,178	51.....	Brule..	6,451	Total.....		583,888

Cities and Villages of South Dakota with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A						C					
*Aberdeen	8	10,753	Beresford	66	1,117	Canastota	55	409	Colton	56	407
Alcester	66	409	Bigstone City	23	751	Canova	43	311	Columbia	8	235
*Alexandria	51	935	Blunt	27	566	*Canton	62	2,103	Conde	30	592
Alpena	41	417	Bonesteel	57	563	Cartier	50	390	Corona	11	290
Andover	10	446	Bowdle	7	671	Carthage	43	554	Corsica	59	286
Arlington	31	791	Bradley	21	351	*Castlewood	32	594	Cottonwood	25	250
*Armour	59	968	Bridgewater	55	934	Cavour	30	408	Cresbard	19	320
Artas	4	200	Bristol	10	444	Centerville	61	971	*Custer	35	602
Artesian	42	593	*Britton	9	901	Central City	13	296			
Ashton	20	430	*Brookings	34	2,971	*Chamberlain	51	1,275	Dallas	57	1,277
Aurora	34	236	Bruce	34	262	Claremont	8	296	*Deadwood	13	3,653
Avon	63	451	Bryant	32	645	Claremont	25	826	Dell Rapids	56	1,367
			Buffalo Gap	35	280	*Clark	21	1,226	Delmont	59	369
B			Burke	57	311	*Clear Lake	33	704	*De Smet	31	1,063
Baltic	56	278	Bushnell	34	208	Colman	45	362	Doland	20	581
*Bellefourche	12	1,352	Butler	10	208	Colome	50	275	Draper	39	211

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of South Dakota with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
E			Hoven	18	209	*Mitchell	53	6,515	Stickney	52	310
East Sioux			*Howard	43	1,026	Mobridge	6	1,200	Stockholm	23	209
Falls	56	268	Hudson	62	404	Montrose	55	442	Stratford	8	300
Edgemont	46	816	Humboldt	56	590	Morristown	3	222	*Sturgis	14	1,739
Egan	45	516	Hurley	61	506	Mt. Vernon	53	614	Summit	11	545
*Elk Point	66	1,206	*Huron	30	5,791	Murdo	39	372			
Elkton	34	742									
Emery	34	416	I			N			T		
Erwin	31	230	*Ipswich	7	810	Northville	20	392	Tabor	63	273
Estelline	32	509	Irene	65	263				Terraville	13	560
Ethan	53	312	Iroquois	31	578	O			Terry	13	506
Eureka	5	961				*Oacoma	39	235	Timber Lake	16	211
F			J			Oldham	31	355	Toronto	33	424
*Fairfax	57	590	Java	6	473	*Onida	26	319	Trent	45	200
*Faulkton	19	802	Jefferson	66	407				Tripp	60	675
Ferney	8	266				P			Tulare	20	250
*Flandreau	45	1,184	K			*Parker	61	1,224	Turton	20	240
Forence	22	270	Kadoka	25	222	Parkston	60	970	*Tyndall	63	1,107
*Fort Pierre	25	792	Kennebec	39	252	Phillip	25	578			
Frankfort	20	408	Keystone	24	250	Pierpont	10	314	V		
Frederick	8	433	Kimball	51	713	Pierre	27	3,656	Valley Springs	56	331
Freeman	60	615				Plankinton	52	712	*Vermilion	65	2,187
G			L			*Platte	58	1,115	Viborg	61	410
Garden City	21	300	Lake Andes	58	920	Pollock	4	304	Vienna	21	453
Garretson	56	668	Lake Norden	32	202	Presho	39	635	Volga	34	568
Gary	33	477	Lake Preston	31	1,007				Volin	64	286
Gayville	64	257	Lamro	50	350	Q			W		
Geddes	58	701	Lane	41	294	Quinn	24	225	Wagner	58	964
*Gettysburg	18	936	Langford	9	463	R			Wakonda	65	326
Greenwood	58	390	Lead	18	8,392	*Rapid City	24	3,854	Wallace	22	207
Gregory	57	1,142	Lebanon	18	460	Raymond	21	241	*Watertown	22	7,010
Groton	8	1,108	Le Beau	6	210	*Redfield	20	3,060	*Waubay	10	803
			Lennox	62	745	Revilo	23	332	*Webster	10	1,713
			*Leola	5	484	Rockham	19	286	Westworth	44	329
			Lesterville	64	279	Roscoe	7	357	Wessington	30	576
			Letcher	42	402	Running Water	63	200	*Wessington		
			Little Eagle	3	490				Springs	41	1,093
H			M			S			White	34	468
Harrold	27	230	*McIntosh	3	409	St. Lawrence	29	305	Whitehorse	16	960
Hartford	56	648	*Madison	44	3,137	Salem	55	1,097	White Lake	52	507
Hazel	32	229	Marion	61	402	Scotland	63	1,102	White Rock	11	368
Hecla	8	462	Meckling	65	208	*Selby	19	558	Whitewood	13	390
Hickory	22	414	Mellette	20	472	Seneca	19	321	Willow Lake	21	437
Herrick	57	412	Menno	60	621	*Sioux Falls	56	14,094	Wilmot	11	427
Hetland	31	223	Midland	25	210	*Sisseton	11	1,397	Winifred	44	243
*Highmore	28	1,184	*Milbank	23	2,015	South Shore	22	335	*Winner	50	360
Hill City	24	271	*Miller	29	1,202	Spearfish	13	1,130	Wolsey	30	436
*Hot Springs	46	2,140	Missionhill	64	200	Spencer	55	506	*Woonsocket	42	1,027
Hosmer	7	217				Springfield	63	675			
Hitchcock	30	259							Y		
									*Yankton	64	3,787

SOUTH DAKOTA

Celebrated for its Former "Indian Wars," Its "Hot Springs," Its "Deadwood" and Its "Black Hills."

In the investigation of a region of the country with a view to permanent settlement therein it is necessary that care be observed not to let rumors, sentiment or prejudice influence the individual.

A newspaper report of yellow fever prevailing in a certain region will deter thousands of people from contemplated emigration into that section. The report may be mere rumor, but even, if true, yellow fever is but a temporary affliction which time will remedy. Many thousands of people refused to locate in Chicago in an early day because cholera was there at one time.

A case of smallpox in a town through sensational advertising in the newspapers, will so frighten people from going to the town where the case is said to exist as to injure business for weeks and months in that town, whereas possibly the scare was only from a rumor, but even if smallpox did exist it was only a temporary matter.

ABOUT BLIZZARDS.

And so from time to time the papers will convey to the people in large headlines the startling information that blizzards, deep snows and coal famine have overcome the people of Dakota and thousands are perishing. Many people are liable, from these reports, to believe that a country thus subject to terrific winds and cold, is unfit for habitation. And so as many people turned aside from Chicago, because of cholera and went around Indiana because of fever and ague, and lost the opportunity for profitable investment so people, on mere rumor, and large headings in news items will become so unfavorably impressed with a region of country or a state as to cause them to often lose golden opportunities. This is particularly true of both North and South Dakota. The two states comprise an empire within themselves, 18 times larger than Massachusetts. In all that immense territory there is liable to be unusual weather, sometimes, and delay in transportation which people should understand is but temporary.

WHAT THE HOME-SEEKER WANTS.

What the land-seeker is searching for is a region of the country where health may be maintained, and where a reasonable profit may be obtained from the soil which he buys.

It is the ambition of most men to get situated on a tract of land that will afford a good support for the family and something more. That "something more" is largely a matter of imagination. It means certainly a sufficiency of food, dress, a comfortable home, education, reasonable amusement and some travel. All this should come out of the farm. That farm is what the land-seeker is after.

WHAT OUR READERS NEED.

It is for that reason that we lay before the reader the merit, and the opportunities which exist in all regions, that he may have the largest possible chance to make a good selection of soil, climate, location, manufacturing opportunities as an aid in getting ahead and general advantages in acquiring wealth.

South Dakota is so large a state as to have great variety of soil and it is so young yet as to give many opportunities for the acquisition of wealth. For example: The Missouri River flows nearly through the middle of the state from north to southeast, and all that portion of the state west of that river, is unopened as yet to much white settlement. That area of the state west of the Missouri, comprises about 40,000 square miles—a state within itself, 190 miles wide and 245 miles in length from north to south.

All that part of South Dakota has yet to be opened to close settlement, and that was just beginning in 1907 by the Northwestern railway running a new line from Pierre, the capital of the state, a distance of about 160 miles. This road begins in Stanley county and ends in Pennington county.

South Dakota Opportunities in Agriculture and Varied Enterprises

OPENING A NEW REGION TO SETTLERS.

This new line opens up a new region that contains thousands of square miles of grazing land of the **finest quality**, and places it in **immediate** connection with the outside world.

It is a fact, conceded by the best authorities, that this open range west of the Missouri river, has a greater rainfall, richer soil, milder winters, more pleasant summers and **natural resources** of greater extent than are available in portions of Europe, in which dwell 100,000,000 of people, and where farm lands are worth from **\$100 to \$800** per acre.

The area of the region to be opened up by the new line of railway is extensive, there being in Stanley county **alone** more than **forty-eight** hundred square miles.

The general surface of the country is **rolling**, and throughout the **high rolling** region are beautiful level plateaus. The small streams are much more **numerous** than in any other part of the state. The Cheyenne river and the Bad river traverse this section from west to east.

NEW RAILROAD STATIONS AND NEW TOWNS.

There will be **sixteen** new stations opened on the new line between Pierre and Rapid City, and at a large number of these points new towns will be opened under the auspices of the railroad company.

The company announce in the establishment of these new towns, that as fast as the construction of the road is completed, town lots will be disposed of at low rates and attractive opportunities offered for establishing various lines of business.

We advise the reader in search of **new lands** and openings for **business** to keep an eye on the operations of the Chicago and Northwestern Railroad in Dakota, and if no desirable opportunity for **immediate** investment offers go through to Rapid City on the new line and see what chances are presented in the irrigation works which are reclaiming and irrigating over 100,000 acres of land, in the Belle Fourche River Valley a little north-east of the Black Hills.

This land being irrigated is thrown open to settlement under the United States Homestead Laws, the settler paying **\$3.20 per acre** for ten successive years, gains **full title** to the land and **perpetual title**. The government will sell 80-acre farms at that rate, but within one mile of a town site they sell but 40-acre tracts.

EXCELLENT MARKETS IN WHICH TO SELL.

Land seekers should understand that the thickly settled Black Hills mining district always will be one of the best markets to be found in the United States.

The Black Hills cover an area **60 miles wide by 100 miles long** and are called **black** because covered with a dark Norway pine. They are a black-blue, and in the shadow of a cloud they turn to an intense black.

This **mystic region** thrown up in the midst of the plains by some giant upheaval of past ages, has been known since the time of the **earliest** aborigines for its health giving air and medicinal waters.

ABOUT THE BLACK HILLS.

So far as **known** the region was not visited by white men until after 1825, but prior to that time roaming Indians, who came to white settlements, told wondrous stories of the Black Mountains or spoke of the "Shining Hills" and the "Happy Place" and the richness of the grass and abundance of the **game** found there. They also told of gold and silver, and of treasure that their ancestors had guarded for centuries, all of which were, according to their descriptions, isolated from the surrounding country by a vast and dangerous desert. Their tales served but to arouse the intense desire of the restless frontiersmen to reach and investigate this wonderful region.

In the meantime, through all these disclosures, the whites were **warned** that the Indians closely guarded their treasures, and that it would be **dangerous** for them to trespass on these Indian lands. Notwithstanding these warnings, the records show that a party of **seven prospectors** in 1833, visited the region and were stealthily followed by the Indians, who massacred all the number but one. This man was finally caught and killed near the present site of Spearfish and his gold sold to the Hudson Bay Company for \$18,000.

WARS AMONG INDIAN TRIBES.

But however much the **white man** is disposed to kill to obtain gold, the **Indian** is just as much so,

even among his own race. From time immemorial the Cheyennes held the Black Hills, but finally in a tremendous **three days'** hand-to-hand conflict on Battle Mountain, overlooking the vale of Minne-katahta, in which Hot Springs is located, the Sioux practically **annihilated** their old-time enemies, men, women and children, and held for their own until the white man came, a territory of some **43,000 square miles**, with the Black Hills as a center.

The first organized **exploring party** to visit the Black Hills was that under **General Harney** in 1855; succeeding which **General Custer**, with about 1,000 U. S. troops, from Abraham Lincoln Fort on the Missouri river, made a sixty-day **exploring expedition** to the Hills in 1874.

GENERAL CUSTER'S DEATH.

In the expedition of **General Terry** against the Sioux Indians in Montana, in 1876, Custer divided his regiment at the Little Big Horn river, in order to attack the Indians on two sides, but he and his whole regiment were **killed** June 25, 1876. Custer became the name of a town in the Black Hills and **several counties** of the new states in the west bear that name.

Three years after Custer's expedition to the Hills **General Crook**, in behalf of the government, gave the Indians \$4,500,000 for their rights and **Sitting Bull** and his warriors were removed to other territory.

FIRST GOLD FROM THE BLACK HILLS.

The first gold in the Hills was panned July 3, 1874, at a point about one mile east of the present town of Custer, by H. N. Ross, a resident of Custer, who at that time was General Custer's chief of scouts. Today there are more than **200 mining companies** operating in the Hills, employing more than **5,000 miners**, whose annual earnings exceed **\$6,000,000**, while in the industrial branches connected with mining and other interests, are **7,500 more**, including about **1,500** engaged in the lumber industry.

Since 1876 the gold production of this district, up to 1905, was \$140,000,000 and still there is **no cessation** in the discovery of new and legitimate properties. Output, 1911, \$7,625,500.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude. Highest in the state, Harney's Peak in Bennington county in the Black Hills, 7,368 feet.

Climate. Average annual temperature at Deadwood, 42.1; at Pierre, 45. Average January at Yankton, Yankton county, 13 above; July, 74; in the Black Hills, June, July and August, 62, and 332 sunny days during the year. Extremes of temperature at Yankton, warmest, 107; coldest, 34 below. Yearly rainfall 26.8 inches.

Dimensions. Length of the state, from north to south, 245 miles; breadth, from east to west, 380 miles. Area, 77,650 square miles.

History. Territory originally a part of the Louisiana purchase of 1803. Explored by Lewis and Clarke in 1804-5. Fort Pierre built by Pierre Choteau of St. Louis, near present site of Pierre, 1829. Settlements made at Sioux Falls, 1856, and at Yankton, 1859. First legislature at Yankton, 1859. Dakota made two states, North and South Dakota, 1888. Admitted to the Union, 1889.

THE BLACK HILLS, SOUTH DAKOTA.

From Circular Issued by C. & N. W. R. R. Pass. Dept. In the southwest corner of South Dakota and the northeastern portion of Wyoming, their sides covered with dark pines and their surface crossed and recessed by the many streams which unite to form the two forks of the Cheyenne River, are the Black Hills. Their picturesque slopes, **dark and shining**, rise in striking contrast to the vast and rolling prairie which surrounds them on all sides, and enclose a region **rich in gold and silver**, well timbered, well watered, and possessed of a climate unusually attractive, free from extremes of heat or cold, with a bracing and invigorating air that is famous for its health-giving properties.

In fact, in addition to its mining interests, the Black Hills region forms one of the **greatest natural sanitariums** in the world.

The pure air and happy combination of right altitudes with medicinal waters, join to make it a **noted health resort**. It is but thirty-seven hours' ride from Chicago and that places it within easy reach of the principal centers of population.

This **mystic region**, thrown up in the midst of the plains by some giant upheaval of past ages, has been known since the time of the earliest aborigines. It

South Dakota Opportunities in Agriculture and Varied Enterprises

occupies an area about sixty miles wide and one hundred miles long. Surrounding it on the north, east and south are prairie lands whose succulent grasses make them especially suitable for the grazing of cattle, and of such extent that their outer rim encloses an area greater than that of Great Britain, Germany and France; a region which is rich in promise to the farmer, cattleman and ranchman. It is estimated that the water supply available in this region is sufficient for the irrigation of millions of acres of lands. Much irrigation development work is now being done, the government irrigation at Belle Fourche being especially important.

This rolling prairie land surrounding the hills is broken here and there by square and flat-topped buttes, with the grass land stretching far away to the mountain eminences. The streams which cross the levels or break down through the gorges are clear as crystal. Many of the lesser buttes near these streams are turfed over their summits, and the table-lands raise high their surfaces covered with nutritious pasturage.

WHY THE HILLS ARE CALLED "BLACK."

Beyond this level district are the Hills, clothed with Norway pine that gives them a color of deepest blue, the blue of the California plum; hills so dark that a cloud before the sun will turn them to an intense black against a sky that seems to twinkle with electric flashes. On these beautiful hills one may stand and, looking far across the plains, see in the distance the buttes of Bear, Slave, Crow, Deer's Ears, Topknot and Lodge, while nearer at hand one valley rises above another, each turfed and green, forming long serpentine belts that stretch their way among the trees of darker foliage.

THE HISTORY OF THE HILLS.

Black Hills history dates back more than three centuries to the time when the Cheyennes jealously guarded the region as a hunting resort, and as a place where the Great Spirit had mysteriously bestowed health-giving powers on the air and had given unusual medicinal value to the water. The natural formation of the region made the Hills well-nigh impregnable, and the Indians held the place in great awe, guarding with jealous care the health-giving springs, the wonderful pine-covered slopes and the stores of precious metal contained within the mountains.

The Cheyennes held the Black Hills as their own until after a tremendous hand-to-hand conflict on Battle Mountain, overlooking the Vale of Minnekahta, in which Hot Springs is located. Here the Sioux practically annihilated their old time enemies, and held for their own, until the white men came, a territory of some 43,000 square miles, with the Hills as a center, driving from their newly won empire the fur traders who had trapped and traded along the small streams which form the Cheyenne.

FIRST EXPLORATION.

The first organized exploring party to visit the Black Hills was that under Gen. Harney in 1855, in which year it was followed by that of Lieut. Warren, of the U. S. Topographical Engineers, who made three surveys of the Hills.

After Gen. Harney's visit, interest in the Black Hills grew rapidly, until, under instructions from Gen. Sheridan, Gen. Custer left Fort Abraham Lincoln, on the Missouri River, opposite the present site of Bismarck, N. D., June 2, 1874, and with about 1,000 U. S. troops made a sixty-day exploring expedition. Returning, he issued a report as to the natural wealth of the region, which, while couched in the most conservative terms, created intense interest in the west and the following winter found several parties of prospectors in the Hills, including some of those who had accompanied Custer's party.

Finally, three years after Gen. Custer's expedition, Gen. Crook compromised with the Indians as to the purchase of their lands, and the Government paying them \$4,500,000 for their rights, Sitting Bull and his warriors were removed to other territory and the cavalry forces withdrawn. The trail of the mountain sheep and the path of the Indian were widened into wagon roads, the region thrown open to white settlement, and the way opened for the building of the North-Western Line, the pioneer railway into the Hills.

There must be pioneer railways as well as pioneer explorers, and as soon as the development of the region justified, the North-Western Line pushed into the heart of the Hills, reaching them in 1885 and completing the line to Rapid City in 1886, and to Deadwood and Hot Springs in 1890. Thus was the entire region made readily accessible to the traveler

from Omaha, Council Bluffs, Sioux City and Chicago, St. Paul and Minneapolis, St. Louis and Kansas City, and railway trains traversed the gulches where Sitting Bull's braves had camped and where scouts and prospectors had made their courageous way in the days gone by.

This pioneer line of railway has developed steadily until now it is one of the great arteries of western travel. A new line has also been added to the North-Western's direct connection with the Hills, extending from Rapid City across Dakota, crossing the Missouri at Pierre and forming a direct route to St. Paul, Minneapolis and Duluth, and to Chicago and Milwaukee.

CLIMATE.

The climate of the Black Hills district is equable, abounding in sunshine; and with a fine natural drainage, there is unusual freedom from dampness. The air is invigorating, being surcharged with ozone from the surrounding pine forests. The elevation of about 3,000 feet above the sea level adds to the desirability of the climatic conditions. The dryness of the air is particularly marked—so much so, that the eye of the visitor is at once attracted by the clear and scintillating qualities of the atmosphere. It is to this especial dryness and purity that the blueness of the skies, equal to that of Italy, is attributed.

The summer, with its clear days and cool nights, extends into the late autumn, and it is not uncommon for camping parties to remain out in the sheltered nooks of the mountains until late in October. Sleeping under blankets is the invariable rule, even during July and August; and during the summer a day without sunshine is practically unknown.

The principal rainfall usually occurs early in the season, so that one may plan with a reasonable degree of certainty upon consecutive days and weeks of fair weather.

Because of the height of the Hills and the protection afforded by them, the region is never troubled with wind storms; only the most moderate breezes prevail within the boundaries of this enchanted land.

TROUT FISHING.

Throughout the entire Hills country are numbers of mountain streams in which there is excellent trout fishing. Brook trout, rainbow and salmon trout are caught by the fisherman regularly throughout the season, which extends from the first of May to the first of November.

Excellent fishing may be found within a day's drive of one's hotel and on the upper reaches of the Bear Butte, Castle Creek, Big and Little Rapid, Spearfish and other streams, picturesque and inviting places are found where summer camps may be made, cabins built and fishing indulged in under the most favorable conditions of out-door life.

HUNTING.

The mildness of the winter season makes the Hills a paradise for the hunter. There are deer, bear, wild cats and other big game in season, and partridge, pheasants, plover, ducks and geese are fairly abundant. For deer and elk the open season extends from the first to the thirtieth of November. With the excellent protection afforded by the game regulations now in force, the deer are steadily increasing in number, and a hunter of even mediocre ability should be able to bag his quota of three.

One may also find wolves, silver foxes, coyotes and an occasional bear.

The season for ducks and geese opens on September 10th and closes on April 10th.

HOT SPRINGS.

Hot Springs and its surroundings call for special attention from the visitor to the Black Hills.

The town, with a summer population of about 3,500, is situated at an altitude of 3,400 feet above the sea.

Almost one hundred thermal springs found here have formed the central feature of the place for more than three centuries; an ancient Indian village, it is said, formerly having been located in the valley near the site of the present town.

At the Minnekahta Spring a stone bath tub, moccasin shaped, is shown, which is said to have belonged to the Indians in the days of their supremacy, when they used the water for their ailments without really understanding how or why speedy cures were effected. The Indians are still fond of this spot once their own, and parties of them are often permitted to spend a few days here away from the reservation, to the great delight of interested tourists and sight-seers.

STATE AND THE 96 COUNTIES OF TENNESSEE

With Their Boundaries

LOCATION AND 1910 POPULATION OF TENNESSEE COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Lake..	8,704	26.....	Dickson..	19,955	51.....	Hickman..	16,527	75.....	Wayne..	12,062
2.....	Obion..	29,946	27.....	Cheatham..	10,540	52.....	Lewis..	6,033	76.....	Lawrence..	17,569
3.....	Weakley..	31,929	28.....	Davidson..	149,478	53.....	Williamson..	24,213	77.....	Giles..	32,620
4.....	Henry..	25,435	29.....	Wilson..	25,394	54.....	Maury..	40,456	78.....	Lincoln..	25,908
5.....	Stewart..	14,869	30.....	Smith..	18,548	55.....	Marshall..	16,872	79.....	Bedford..	22,667
6.....	Montgomery..	33,672	31.....	Jackson..	15,036	56.....	Rutherford..	33,199	80.....	Moore..	4,800
7.....	Robertson..	25,466	32.....	Overton..	15,854	57.....	Cannon..	10,825	81.....	Coffee..	15,635
8.....	Sumner..	25,621	33.....	Putnam..	20,023	58.....	De Kalb..	15,434	82.....	Franklin..	20,491
9.....	Trousdale..	5,874	34.....	Fentress..	7,746	59.....	White..	15,420	83.....	Warren..	16,534
10.....	Macon..	14,559	35.....	Morgan..	11,458	60.....	Cumberland..	9,327	84.....	Grundy..	8,322
11.....	Clay..	9,009	36.....	Anderson..	17,717	61.....	Roane..	22,860	85.....	Marion..	18,820
12.....	Pickett..	5,087	37.....	Union..	11,414	62.....	Loudon..	13,612	86.....	Van Buren..	2,784
13.....	Scott..	12,947	38.....	Grainger..	13,888	63.....	Knox..	94,187	87.....	Sequatchie..	4,202
14.....	Campbell..	27,387	39.....	Hamblen..	13,650	64.....	Jefferson..	17,755	88.....	Bledsoe..	6,329
15.....	Claiborne..	23,501	40.....	Greene..	31,083	65.....	Cocke..	19,399	89.....	Hamilton..	89,267
16.....	Hancock..	10,778	41.....	Washington..	28,968	66.....	Blount..	20,809	90.....	Rhea..	15,410
17.....	Hawkins..	23,587	42.....	Carter..	19,839	67.....	Sevier..	22,296	91.....	Meigs..	6,131
18.....	Sullivan..	28,120	43.....	Unicoi..	7,201	68.....	Tipton..	29,459	92.....	Bradley..	16,336
19.....	Johnson..	13,191	44.....	Lauderdale..	21,105	69.....	Shelby..	191,439	93.....	McMinn..	21,016
20.....	Dyer..	27,721	45.....	Haywood..	25,910	70.....	Payette..	30,257	94.....	Polk..	14,116
21.....	Gibson..	41,630	46.....	Crockett..	16,076	71.....	Hardeman..	23,011	95.....	Monroe..	20,716
22.....	Carroll..	23,971	47.....	Madison..	39,357	72.....	Chester..	9,090			
23.....	Benton..	12,452	48.....	Henderson..	17,030	73.....	McNairy..	16,356			
24.....	Houston..	6,224	49.....	Decatur..	10,093	74.....	Hardin..	17,521			
25.....	Humphreys..	13,908	50.....	Perry..	8,815						
									Total.....	2,184,789	

Tennessee Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
	A										
Adams	7.....	542	Baxter	33.....	220	Burns	26.....	220	Coalfield	35.....	362
Adamsville	73.....	709	Beardstown	50.....	260	Butler	19.....	499	Coalmont	84.....	250
*Alamo	46.....	366	Bear Spring..	5.....	562				Collierville	69.....	802
Alexandria	58.....	866	Bellbuckle	49.....	466	Cainsville	29.....	202	*Columbia	54.....	5,754
Allardt	34.....	325	Bells	40.....	753	Calhoun	94.....	222	Concord	63.....	530
Allens Creek	75.....	490	Bemis	47.....	650	*Camden	23.....	692	*Cookeville	33.....	1,848
Altonpark	89.....	462	*Benton	95.....	290	*Carthage	30.....	904	Copper Hill..	95.....	1,520
Anderson	82.....	302	Bethel Springs..	73.....	290	Carville	14.....	250	Cornersville..	55.....	290
Arcadia	18.....	206	Big Sandy..	23.....	380	Cedar Hill..	7.....	590	Cottagesgrove	4.....	215
Arlington	69.....	477	Binghamton..	69.....	1,673	*Celina	11.....	312	*Covington	68.....	2,990
Arthur	15.....	202	Blanche	78.....	250	*Centerville..	51.....	1,097	Cowan	82.....	624
*Ashland City..	27.....	641	*Blountville..	18.....	224	Charleston	93.....	426	Crab Orchard..	60.....	390
Ashport	44.....	662	Bluff City..	18.....	540	*Charlotte	26.....	236	*Crossville	60.....	763
Aspen Hill..	77.....	226	*Bolivar	71.....	1,070	*Chattanooga..	89.....	14,604	Culloka	54.....	354
*Athens	94.....	2,264	Bon Air	59.....	517	Chestnut			Cumberland		
Atoka	68.....	250	Boyce	89.....	5,066	Mound	30.....	224	City	5.....	490
Atopntley	88.....	420	Bradford	21.....	520	Clairfield	15.....	200	Cumberland		
Atwood	22.....	200	Braceville	36.....	1,354	Clarksburg..	22.....	226	Furnace	26.....	390
Avondale	89.....	1,066	Brighton	68.....	214	*Clarksville	6.....	8,548	Cumberland		
	B		Bristol	18.....	7,148	Clearwater	90.....	326	Gap	15.....	347
			*Brownsville..	45.....	2,882	*Cleveland	93.....	5,549		D	
Baileytown	40.....	250	Brunswick	69.....	250	Clifton	75.....	711	Daisy	89.....	310
Ballcamp	63.....	209	Brushy			Clifty	59.....	596	*Dandridge	64.....	447
Barr	44.....	260	Mountain	35.....	858	*Clinton	36.....	1,090	Darden	48.....	220
Bartlett	69.....	263	Buntyn	69.....	590	Coal Creek..	36.....	1,102	*Dayton	90.....	1,991

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Tennessee Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
*Decaturville .49		326	Humboldt .21		3,446	Mountain View.63		1,436	Scivally .80		202
Decherd .82		1,022	*Huntingdon .22		1,112	Mountpleasant.54		1,973	Scotts Hill.18		251
Denmark .47		360	Huntland .82		480	Mulberry .78		220	*Selmer .73		529
Dickson .26		1,850	*Huntsville .13		336	Mulberrygap .16		202	*Sevierville .67		675
Difficult .30		280	I			Mumford .68		329	Sevance .82		500
Dixon Spring.30		250	Indian Springs.18		320	*Murfreesboro .56		4,679	Shadeland .35		203
*Dover .5		460	Inman .85		520	N			Shallowford .89		251
Dowelltown .58		233	Iron City .76		321	*Nashville			Sharon .3		608
Doyle .59		226	Isabella .95		560	(capital) .28		110,364	Shawnee .15		201
*Dresden .3		708	Isoline .60		253	Newbern .20		1,602	*Shelbyville .79		2,869
Ducktown .95		1,503	J			Newcomb .14		497	Sherwood .82		405
*Dunlap .87		1,166	Jacksboro .14		834	New Market.64		702	*Smithville .58		647
Dyer .21		1,166	*Jackson .47		15,779	New Middleton.30		291	Smoky Junction.13		260
*Dyersburg .20		4,149	*Jamestown .34		350	*Newport .65		2,003	Smyrna .56		215
E			*Jasper .85		1,066	New Providence.6		821	*Sneedville .16		220
Eagleville .56		317	Jefferson .56		328	New River .13		302	Soddy .89		1,173
East			Jefferson City.64		2,026	Norma .13		301	*Somerville .70		1,387
Chattanooga.89		5,062	Jellico .14		1,862	Normandy .79		304	South Fulton.2		1,391
Eastlake .89		250	Johnson City.41		8,502	Nunnally .51		503	South		
Eastland .59		334	Johnsonville .25		328	O			Pittsburg .85		2,106
*Elizabethon .42		2,478	*Jonesboro .41		806	Oakdale .35		202	Southside .6		306
Elk Valley .14		290	K			Oakland .70		351	*Sparta .59		1,109
Embreeville .41		306	Kenton .2		815	Obion .2		1,293	Speedwell .15		200
Englewood .94		632	Kerrville .69		220	Oliver Springs.61		573	*Spencer .86		218
*Erin .24		302	Kimmins .52		362	Oneida .13		504	Spot .51		450
*Erwin .43		1,449	Kingsport .18		350	Only .51		306	Spring City .90		1,039
Etowah .94		1,685	*Kingston .61		824	*Ooltewah .92		501	Springcreek .47		226
Evansville .90		200	*Knoxville .63		36,346	Orchard Knob.89		1,007	*Springfield .7		2,083
F			L			Orlinda .7		290	Spring Hill .51		695
*Fayetteville .78		3,439	*Lafayette .10		678	Orme .85		653	Stanton .53		526
Ferro .76		226	*Lafollette .14		2,816	P			Strathmore .76		220
Finley .20		304	La Grange .70		308	*Paris .4		3,881	Sugar Tree .49		262
Forestill .69		652	Laurel .19		206	Park .63		5,126	Summertown.76		466
Fork Ridge .15		302	Bloomery .56		200	Parrottville .65		201	Sunbright .35		214
Fosterville .56		309	*Lawrenceburg.76		1,687	Parsons .49		697	Sutherland .19		226
Mountain City.63		506	Lebanon .29		3,659	Pearley .69		201	Sweetwater .96		1,850
Fowlkes .20		240	Lenoir City .62		3,392	Petersburg .78		379	Sycamore .27		226
Foxbranch .16		224	Lenox .20		520	Petros .35		987	T		
*Franklin .53		2,924	*Lewisburg .55		1,830	Philadelphia .62		302	Talbot .64		226
Friendship .46		225	*Lexington .48		1,197	Pickwick .74		351	*Tazewell .15		886
Friendsville .66		520	Liberty .58		290	Pigeon Forge .67		202	Teller .15		250
G			Limestone .41		220	*Pikeville .84		308	Tellico Plains.96		360
Gadsden .46		229	Limestone Cove.43		206	Pinewood .51		601	Thomastown .69		391
*Gainesboro .31		408	*Linden .50		330	Pinson .47		264	Thompsons .53		226
Gallatin .8		2,399	*Livingston .32		1,420	Pioneer .14		225	*Tiptonville .1		843
Gardner .3		258	Lobelville .50		275	Pisgah .77		207	Toone .71		245
Gates .44		293	Lonsdale .63		2,391	Pleasant Grove.54		334	Townsend .66		836
Germantown .69		249	Lookout			Pleasant Hill.63		227	Tracy City .84		3,020
Gibson .21		250	Mountain .89		631	Pleasant View.27		351	*Trenton .32		2,402
Glass .2		250	*Loudon .62		995	Portland .8		579	Trezevant .2		526
Gleason .3		388	Lovedale .18		226	Powell Station.63		302	Trimble .20		556
Glenmerry .13		560	Luray .48		200	*Pulaski .77		2,928	Troy .2		529
Gold dust .44		220	Luttrell .37		520	Pyear .4		254	Tullahoma .81		3,049
Goodlettsville.28		1,060	*Lynchburg .80		408	R			U		
Goodrich .51		358	Lynnville .77		596	Raleigh .69		241	Unicoi .43		250
Gordonsburg .52		422	M			Rathburn .89		1,173	*Union City.2		4,389
Gordonsville .39		245	McEwen .25		661	Ravenscroft .59		481	V		
Grand Junction.71		491	McKenzie .22		1,322	Redboiling			Victoria .85		259
Granville .31		227	McMoresville.22		360	Springs .10		201	Vonore .96		220
Grayville .90		389	*McMinnville .83		2,299	Rhea Springs.90		302	W		
Green Brier .7		522	Mason .70		266	Riceville .84		401	Waldensia .60		526
*Greeneville .40		1,920	*Madisonville .96		736	Richard City.85		324	Walnut Grove.74		520
Greenfield .3		1,596	*Manchester .81		963	Ridgedale .89		1,503	Warner .51		660
Gruettli .84		390	Martins Mills.75		228	Ridgely .1		519	*Warburg .35		206
Guelph .2		230	*Mayville .66		2,381	Ripley .44		2,011	Wattrace .79		659
Guild .85		503	Macon .68		391	Rives .2		468	Watertown .29		517
H			Maury City .46		250	Roan Mountain.42		301	*Waverly .25		947
Halespoint .44		280	Mayland .60		286	Robbins .13		403	*Waynesboro .75		357
Halls .44		882	*Maynardville .37		220	Roberta .13		202	Wellwood .45		209
Hampton .42		686	Medina .21		320	Rockford .66		503	Westmoreland .8		298
Harriman .61		3,061	Medon .47		250	Rockwood .61		3,661	Westpoint .76		370
Harrison .89		200	Neeks .84		390	*Rogersville .17		1,242	White Bluffs .26		419
*Hartsville .9		1,028	*Memphis .69		131,165	Rome .30		301	White Pine .64		562
Heiskell .63		220	Mengelwood .20		326	Rooke .85		204	Whites Bend.28		230
Helenwood .13		360	Middleton .71		273	Rusby .35		251	Whitesburg .39		462
Helmar .18		360	Milan .42		336	Ruskin .26		203	Whitese .85		533
*Henderson .72		1,087	Milligan .42		336	Russellville .39		205	Whiteville .71		741
Hendersonville .8		215	Millington .69		551	Rutherford .21		766	Whittle Springs.63		220
Henning .44		582	Mohawk .40		320	*Rutledge .38		303	Whitwell .85		3,062
Henry .1		260	Mount Eagle .84		632	S			Wilder .34		302
Hickman .30		235	Monterey .33		1,117	Saint Clair .17		2,426	Willette .10		250
Hickory Valley.71		200	Montlake .89		225	Saint Elmo .89		2,577	*Winchester .82		1,351
Highcliff .14		520	Mooresburg .17		208	Saint Joseph .76		251	Winona .13		350
Hilham .32		226	*Morristown .39		4,067	Sale Creek .89		486	Witts Foundry.39		220
Hill City .89		3,060	Moscow .70		211	Saltito .74		354	*Woodbury .57		604
*Hohenwald .52		1,060	Mosheim .40		498	Santa Fe .51		269	Woodland Mills.2		250
Holiday .23		260	*Mountain City.19		592	Sardis .48		435	Wooldridge .14		606
Hollow Rock.22		263	CONDENSED IMPORTANT FACTS RELATING TO THIS STATE.								
Hornbeak .2		480									

Altitude. Highest, Clingman's Dome in Sevier County, 6,619 feet.
Climate. State, average annual temperature of East Tennessee, 58; middle of the state, 58, and

59 in West Tennessee. Average January temperature at Nashville, 38; July, 80. Extremes, warmest, 104; coldest, 13 below. Yearly rainfall at Nashville, 50.1. Annual rainfall at Chattanooga, 55.

Opportunities in Agriculture and Varied Enterprises

FACTS ABOUT TENNESSEE.

Gathered From Literature Sent Out by Railroad Agents Who Travel in All Regions of This State.

The markets for all farm products are convenient and good.

The means of reaching markets by rivers and rail are ample.

Farm products bring generally the very highest prices when shipped to northern markets, because they reach those markets early in the season when the markets are bare. Two crops of potatoes are grown on the same land the same year.

The winters are short, the summers long, but neither winter cold nor summer heat is as great as in the northern States.

Building materials are cheap and abundant.

Farmers may work out doors in comfort every month in the year, and nearly every day in the year. A crop of wheat and a crop of corn may be harvested from the same land the same year.

Wheat frequently sells twice as high as it does in the northwest. It usually brings Chicago prices, with the freight added.

Corn, oats and hay sell 50 per cent higher usually than they do in Illinois, Indiana, Ohio or Michigan.

MILLIONS OF ACRES WAITING FOR SETTLERS.

There are 16,000,000 acres in the State unoccupied, and await the industry of skilled farmers to become the fairest agricultural region on the globe.

The same quality of lands that are sold for ten dollars an acre in Tennessee will sell for forty in Ohio.

A knowledge of Tennessee, with all its advantages, is only needed to fill it with the best class of immigrants. Every immigrant who settles in the State is anxious to bring his friends.

There are large coal and iron fields in the State, besides forty-seven other minerals which exist in workable quantities. The recent discovery of immense beds of phosphate rock makes Tennessee the center for the distribution of fertilizers of high quality. The use of these by the farmers of the State has, in many instances, doubled the yields of wheat and several other crops.

SOMETHING TO SELL EVERY MONTH.

Diversification of crops is carried on more largely in Tennessee than in any other State in the Mississippi Valley. A good farmer has something to sell in market every month in the year.

The average rainfall in the State of Tennessee for the past twenty-five years is fifty-two inches annually, and this is distributed in copious quantities during the growing season, so there is never a failure of crops.

Stock water and water for domestic purposes may be secured upon every farm either by the boring of wells, by natural springs, or by the making of cisterns.

The average number of days between killing frosts for the period of twenty-three years was 189. This measures the length of the growing season. Corn may be planted from March until the middle of June, and have ample time to mature when planted at the latter date. A crop of cowpeas and a crop of wheat may be grown on the same land every year with a constant enrichment of the soil. Hogs may be fattened on cowpeas at a very low cost.

ABUNDANT WATER POWER IN ALL PARTS.

No State surpasses Tennessee in the advantages which it offers for a varied manufacturing industry. Water powers are numerous in every part of the State, but especially on the line of the Nashville, Chattanooga & St. Louis Railway. White, Warren and Coffee counties, on the McMinnville Division, are singularly favored in this respect.

A farmer is not compelled to give half his labor in order to make feed enough to take his live stock through the winter.

Crops of all kinds mature earlier in the South, and with the excellent facilities for shipment, may be sent to the great cities of the North, where they will find a scarce and dear market.

Southern farms, equally as good as those in the North, may usually be bought for one-third the price, and sometimes less.

A LAND OF HOMES.

Tennessee is blessed in everything that goes to make happy and permanent homes. There are no blizzards in winter; no simoons in summer; no terrific wind storms; no epidemics; no scarcity of food; plenty of schools; plenty of churches; fruits on every hand; green grass; luxuriant shade trees; beautiful brooks and creeks and everything in nature to make the home surroundings pleasant, attractive and beautiful.

The healthfulness of the Central Southern States,

and especially of the upland regions of Tennessee, Alabama and Georgia, may be ascertained by referring to the low death rate reported for these regions in the eleventh census.

Great Profits.—Upon the land offered for settlement to immigrants one single crop of tobacco grown on four acres of fresh land, cultivated by one man, in one year will pay for forty acres of the land. A crop of peaches often brings \$200 per acre.

CROPS AND WEATHER OF WEST TENNESSEE.

Throughout the West, Northwest and Middle West there is now a disposition on the part of farmers to dispose of their holdings and immigrate to a milder climate. Hundreds of letters come to this office inquiring if there is in the South a section of country where staple farm crops are successfully grown; where dairying, cattle and hog raising are carried on profitably; where peaches, cherries and apples are grown as in Indiana, Ohio and Michigan, and where the climate is considered medium, neither too hot nor too cold.

The object of this folder is to furnish just such information and to emphasize the advantages of West Tennessee in furnishing precisely the conditions demanded by those who would grow practically the same products and engage in the same kind of farming in which they have been successful in the more Northern States.

West Tennessee enjoys a mild winter; sometimes a few inches of snow remain on the ground for a short time only. White frosts such as are found in November in the Northern States are common in West Tennessee during the winter months. These mild winter conditions are healthful and are greatly enjoyed by those who have been accustomed to the rigorous winters of the North.

SOUTH MIDDLE TENNESSEE.

The "Plateau Land," the great Central Basin of this section, consists of lessening elevations of the Appalachian Mountains as they descend toward their foothills and are at last succeeded by the more level stretches, extending to the shores of the Gulf of Mexico. Here we are free from the extremes which often render sections undesirable. The winters are seldom of a character which are hurtful to man or beast; destructive "Northers," which afflict disastrously many parts of the West and Southwest, are unknown. Throughout this Plateau Region life flows peacefully and the years come and go free from those events which when occurring, make for terror and great loss, both of property and life.

The summers are no hotter than in Illinois, Michigan or Minnesota; longer only, the heat not nearly so intense and certainly never so uncomfortable. In point of fact, neither fatal heat attacks nor sun-strokes are known. The nights are always cool, however hot the day may be. It is to be borne in mind that it enjoys elevation, the altitude averaging something like 1,000 feet and gives abundant proof that at one time it was the bottom of a great lake, it being surrounded by a rim or watershed.

CLIMATE COMBINES SUNSHINE AND RAIN.

The climate combines sunshine and rain, cold and warmth, in such proportions as to produce the highest degree of perfection in the greatest number of crops. The productions of both the Northern and Southern states here meet. It is the climatic happy medium of the United States. Just cold enough during the winter months to invigorate the physical system, ameliorate the soil and destroy the germs of disease. Just sufficient heat in the summer months to produce rapid growth of vegetation and a heavy yield in crops. There are but few days during the year in which one is prevented from performing in comfort out-door labor.

As to the crops of this region, it may be broadly stated that they include every crop grown in and incident to the temperate zone. Cotton is widely regarded throughout the North as the only crop on which the Southern agriculturist relies; it is, practically, a side issue of this section; while there is a large amount raised in this section, it is by no means the backbone of the farmer's hopes. Corn, oats, rye, barley, potatoes, tobacco, wheat, do well. Corn comes more nearly being the standard of this county. Wheat in some parts yields as much as forty bushels to the acre; that amount, however, is above the average.

It should be borne in mind that with high farming and good culture the yield of these crops would be increased two or three times what is done under the slipshod farming as is practiced in some parts of the South.

Opportunities in Agriculture and Varied Enterprises

TENNESSEE

AN OLD STATE WITH WORN-OUT SOILS WHICH CAN BE RENOVATED AND MADE HIGHLY PROFITABLE

Dimensions. Length of state, north and south, 120 miles. Extreme width, 430 miles. Area, 42,050 square miles.

History. Immigrants from North Carolina entered East Tennessee in 1754. Organized as a Territory in 1794. Admitted as a state in 1796. Knoxville was the capital in 1796-1811; Nashville in 1812-1815. Murfreesville the capital in 1816-1826 and Nashville was made capital in 1826.

Our map shows that this is a long and narrow state. Topography reveals that there is much difference in the elevations of its various portions, and geology indicates that great variety in constituents of soil exist between the eastern, middle and western parts of the state.

EIGHT DISTINCT PARTS OF THE STATE.

Topographically, Tennessee is divided into eight quite distinct parts, being the Appalachian chain of mountains on the eastern border. Adjoining on the west is the Cumberland table land, and between this and the mountains is the Valley of East Tennessee, one of the most important agricultural regions. Next comes the Cumberland table land, an elevated plateau, 2,000 feet above the sea and 1,000 feet above the valley of East Tennessee. Then next west of this table land, and extending westward to the Tennessee River, come the highlands or terrace lands, having an elevation of 1,000 feet above the sea. In the center of these is the great central basin resembling the bed of a lake which has been drained.

The soil of this valley is naturally fertile, and here can be grown in abundance all the crops natural to this latitude.

Next follows the narrow valley west of and sloping to the Tennessee River, to the westward of which is the plateau of the Tennessee, another naturally rich, easily cultivated soil. The eighth and last division is the bottom land of the Mississippi, a low, flat, alluvial plain, which exhibits rank growth of all kinds of agricultural production.

A WARNING TO LAND SEEKERS.

The home seeker who enters this state in quest of land should understand that the naturally fertile soil in many places in Tennessee has been worn out. It was cropped for fifty years before the Civil war and, as virgin soil, yielded good crops. Along with cultivation of the soil, and very poor cultivation by negro slaves, the forests were cut away and hundreds of thousands of acres, after cutting the trees, was annually burned over to prevent undergrowth, and develop pasturage, the result being that with numerous seasons of drouth the timber lands have become barren.

With the war came on general neglect of the cultivated fields, no fertilization was given to the land and the crop yield was less and less each succeeding year. Then followed the years of impoverishment among all the owners of Tennessee land and the cultivating of the soil to get the utmost returns from it and give just as little as possible back in payment for the meager crops they took away.

Thus, vast areas of Tennessee land has been cropped so closely and drained of its last vestige of fertility so completely that no longer worth cultivating, it has been abandoned as worthless, as is the case in great quantities of other land in the old slave-holding states.

We mention this to warn land seekers that they may not be deceived in the purchase of worn-out land. We are not cautioning them against buying land. We are simply telling them conditions that they may be on their guard and pay for this land what it is worth and no more.

HUNT OUT THE POOR SOILS.

And right in this connection it is well for the land seeker to hunt out this run down land and, if well located with fair buildings, buy this property and restore the land. Buy it for what it is worth and renovate the soil.

Buy this worn-out land, or, perhaps better, before buying open communication either by personal visit or by letter with the Agricultural Experiment Station at the University of Knoxville, Tenn.

The authorities of that institution will give the land seeker the exact facts, where the land is which has been abandoned; what it is worth and what the instructors connected with that institution are doing in the renovation of land in that state.

It is a fact not generally known that the reason

of westward emigration is largely because fertility of soil in the old farm becomes exhausted and there has been a constant endeavor, beginning on the Atlantic coast, to get upon more prolific soil—new fertile land a little farther west. And so the westward move has been constantly going forward to get new and a little better land further west.

EMIGRATION TURNING EAST.

At last the tide of emigration is beginning to turn back and the taking up of old homesteads with its exhausted soil is becoming common.

This change has been largely brought about by the Agricultural Experiment Stations which are teaching that, through scientific treatment, soils exhausted of fertility can be renovated.

The establishment of the Experiment Station in agriculture had become an imperative necessity. It was believed for a long time that the new soils of the west could not be exhausted of their strength, but it is being discovered that other means of tillage must be adopted on all soils that they may retain their strength.

BUYING EXHAUSTED SOILS MAY BE PROFITABLE.

With the knowledge at hand of how to renovate soils it is possible for land seekers to buy run down and abandoned farms, restore the soil to fertility again, put old buildings in order, improve lawns and grounds upon the premises, make the farm profitable and sell at a large profit. The renovation of land improvement of old properties is a business in which men of enterprise can safely and profitably engage.

By addressing the State University through correspondence with these institutions, the agents can be found who will send the reader a list of cheap farms, largely in Eastern states upon which experiment care is being made to improve the properties.

HOW SOIL IS MADE.

When the crust of this earth was being finished it was largely a mass of rock. In the thousands of years of its existence the rains and floods have worn these rocks into fine particles which settled into hollows between elevations and made soil such that vegetation could be generated and find existence in this soil. The vegetation thus grown lived its appointed time, died, decayed, and on the soil where it grew it has made other soil that could produce more vegetation similar to that which has grown before. If this decayed vegetation was on level surface and not easily washed away it made a deep rich soil capable of reproducing the yield of vegetation for many years. But if, as fast as the crop has been grown, it has been taken away from the land and nothing was given back to the soil to aid in reproducing another crop the means of reproduction have become exhausted and the soil is what we call worn out.

TECHNICAL TERMS IN GEOLOGY.

The process of renovating, fertilizing this land so that it will yield abundant crops again, we treat in another chapter of this work. To get full information on renovating worn out land, write to Department of Agriculture, Washington, D. C. In considering the subject of renovating worn out and exhausted soil we have endeavored to eliminate as much as possible the technical scientific words of which geological language is so full.

In a study of soil, from a scientific standpoint, the young farmer immediately runs on to the words hydrochloric, carbonate, sodium, oxide, ferric, alumina, phosphoric, silicate, carbonaceous, sulphates, humus, nitrogen, ammonia, nitrate, potash, protein, nitrogenous, carbonhydrates, chlorin, carbonic, kainite, silvinit, muriate, nitrogen, leguminous, phosphate, azotine, denitrification, superphosphates, phosphatic, magnesia, potassic, calcareous, loam, oxidation, nitrification, dolomite, silica soluble in Na₂CO₃ 5.475, 55.675; ferruginous, fossiliferous, chihwee, silicious lower carboniferous, intercalated, and so many other words with which he is not familiar as to very likely cause him to think that the simple fertilizing of his land is a subject too deep for him to understand.

Under judicious management all these exhausted Tennessee soils can be made fertile again and the individual who masters the subject of renovating worn out soils may find it profitable to make a profession of soil renovation.

STATE AND THE 247 COUNTIES OF TEXAS

With Their Boundaries

COUNTIES OF TEXAS.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Dallam..	4,001	25.....	Hall..	8,279	49.....	Grayson..	65,996	73.....	Cass..	27,587
2.....	Sherman..	1,376	26.....	Childress..	9,538	50.....	Fannin..	44,801	74.....	Gaines..	1,255
3.....	Hansford..	935	27.....	Bailey..	312	51.....	Lamar..	46,544	75.....	Dawson..	2,320
4.....	Ochiltree..	1,602	28.....	Lamb..	540	52.....	Red River..	28,561	76.....	Borden..	1,386
5.....	Lipscomb..	2,634	29.....	Hale..	7,566	53.....	Bowie..	4,827	77.....	Scurry..	10,924
6.....	Hartley..	1,298	30.....	Floyd..	4,638	54.....	Yoakum..	602	78.....	Fisher..	12,596
7.....	Moore..	561	31.....	Motley..	2,396	55.....	Terry..	1,474	79.....	Jones..	24,299
8.....	Hutchinson..	892	32.....	Cottle..	4,396	56.....	Lynn..	1,713	80.....	Schackelford..	4,301
9.....	Roberts..	950	33.....	Hardeman..	11,213	57.....	Garza..	1,995	81.....	Stephens..	7,980
10.....	Hemphill..	3,170	34.....	Foard..	5,726	58.....	Kent..	2,655	82.....	Palo Pinto..	19,506
11.....	Oldham..	812	35.....	Wilbarger..	12,000	59.....	Stonewall..	5,320	83.....	Parker..	26,331
12.....	Potter..	2,424	36.....	Wichita..	16,094	60.....	Haskell..	16,219	84.....	Tarrant..	108,571
13.....	Carson..	2,127	37.....	Cochran..	65	61.....	Throckmorton..	4,563	85.....	Dallas..	135,748
14.....	Gray..	3,405	38.....	Hockley..	137	62.....	Young..	13,657	86.....	Rockwall..	8,072
15.....	Wheeler..	5,528	39.....	Lubbock..	3,624	63.....	Jack..	11,817	87.....	Kaufman..	35,323
16.....	Deaf Smith..	3,942	40.....	Crosby..	1,765	64.....	Wise..	26,450	88.....	Rains..	6,781
17.....	Randall..	3,312	41.....	Dickens..	3,092	65.....	Denton..	31,258	89.....	Van Zandt..	25,531
18.....	Armstrong..	2,682	42.....	Kings..	810	66.....	Collin..	49,021	90.....	Wood..	23,417
19.....	Donley..	5,285	43.....	Knox..	9,635	67.....	Hunt..	48,116	91.....	Camp..	27,587
20.....	Collingsworth..	5,224	44.....	Baylor..	8,411	68.....	Delta..	14,506	92.....	Upshur..	19,960
21.....	Parmer..	1,555	45.....	Archer..	6,525	69.....	Hopkins..	31,038	93.....	Marion..	10,472
22.....	Castro..	1,850	46.....	Clay..	17,043	70.....	Franklin..	9,331	94.....	Harrison..	37,243
23.....	Swisher..	4,012	47.....	Montague..	25,123	71.....	Titus..	16,422	95.....	Andrews..	975
24.....	Briscoe..	2,162	48.....	Cooke..	26,603	72.....	Morris..	10,439	96.....	Martin..	1,549

Counties of Texas—Continued

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
97.....	Howard..	8,881	135.....	Crane....	331	173.....	Kimble..	3,261	211.....	Gonzales..	28,055
98.....	Mitchell..	8,956	136.....	Upton....	501	174.....	Gillespie..	9,447	212.....	Lavaca....	26,418
99.....	Nolan....	11,999	137.....	Reagan..	392	175.....	Blanco..	4,311	213.....	Colorado..	18,897
100.....	Taylor..	26,293	138.....	Irion....	1,283	176.....	Travis..	55,620	214.....	Wharton..	21,123
101.....	Callahan..	12,973	139.....	Tom Green	17,882	177.....	Williamson	22,228	215.....	Fort Bend..	18,168
102.....	Eastland..	12,973	140.....	Concho..	6,654	178.....	Millam..	36,780	216.....	Brazoria..	13,299
103.....	Erath....	32,095	141.....	McCulloch	13,405	179.....	Burleson..	18,087	217.....	Galveston..	44,479
104.....	Hood....	10,008	142.....	San Saba..	11,245	180.....	Brazos..	18,919	218.....	Chambers..	4,234
105.....	Somervell..	3,981	143.....	Mills....	9,694	181.....	Grimes..	21,205	219.....	Jefferson..	38,182
106.....	Johnson..	34,460	144.....	Lampassas	9,532	182.....	Walker..	16,061	220.....	Maverick..	5,151
107.....	Ellis....	53,629	145.....	Coryell..	19,013	183.....	San Jacinto	9,542	221.....	Zavalla....	1,889
108.....	Henderson..	20,131	146.....	McLennan..	73,250	184.....	Polk....	17,459	222.....	.....	.....
109.....	Smith....	41,746	147.....	Limestone	34,621	185.....	Tyler....	10,250	223.....	Atascosa..	10,004
110.....	Gregg....	14,140	148.....	Jeff Davis	1,678	186.....	Jasper..	14,000	224.....	Wilson....	17,066
111.....	Rusk....	26,946	149.....	Pecos....	2,071	187.....	Newton..	10,850	225.....	Karnes....	14,942
112.....	Fanola....	20,424	150.....	Crockett..	1,296	188.....	Edwards..	3,768	226.....	Dewitt....	23,501
113.....	El Paso..	52,599	151.....	Schleicher	1,893	189.....	Kerr....	5,505	227.....	Victoria..	14,990
114.....	Culberson	4,392	152.....	Menard..	2,707	190.....	Bandera..	4,921	228.....	Jackson..	6,571
115.....	Reeves..	4,392	153.....	Mason....	5,683	191.....	Kendall..	4,517	229.....	Matagorda	13,494
116.....	Loving....	249	154.....	Llano....	6,520	192.....	Comal....	8,454	230.....	Dimmit....	3,160
117.....	Ector....	1,178	155.....	Burnet....	10,755	193.....	Hays....	.....	231.....	Lasalle....	4,747
118.....	Midland..	3,461	156.....	Bell....	49,186	194.....	Caldwell..	24,327	232.....	McMullen..	1,091
119.....	Glasscock..	1,143	157.....	Falls....	35,649	195.....	Bastrop..	25,344	233.....	Live Oak..	3,442
120.....	Sterling..	1,493	158.....	Robertson	27,451	196.....	Lee....	13,132	234.....	Beaumont..	12,090
121.....	Coke....	6,412	159.....	Leon....	16,583	197.....	Fayette..	29,796	235.....	Goliad....	9,909
122.....	Runnels..	20,058	160.....	Madison..	10,318	198.....	Washington	25,561	236.....	Refugio....	2,814
123.....	Coleman..	22,618	161.....	Houston..	29,564	199.....	Austin....	17,699	237.....	Calhoun....	3,635
124.....	Brown....	22,935	162.....	Trinity....	12,768	200.....	Waller....	12,138	238.....	Webb....	22,503
125.....	Comanche..	27,186	163.....	Angelina..	17,705	201.....	Montgomery	15,679	239.....	Duval....	8,964
126.....	Hamilton..	15,315	164.....	Nacogdoches	27,496	202.....	Haris....	11,693	240.....	Jim Wells..	.....
127.....	Bosque....	19,413	165.....	San Antonio	11,264	203.....	Liberty..	1,686	241.....	Nueces....	21,955
128.....	Hill....	46,760	166.....	Shelby....	26,423	204.....	Hardin..	12,947	242.....	San Patricio	7,307
129.....	Navarro..	47,070	167.....	Sabine....	8,582	205.....	Orange..	9,528	243.....	Aransas..	2,106
130.....	Freestone..	20,557	168.....	Presidio..	5,218	206.....	Kinney..	3,401	244.....	Zapata....	3,809
131.....	Anderson..	29,650	169.....	Brewster..	5,220	207.....	Uvalde..	11,233	245.....	Starr....	13,151
132.....	Cherokee..	29,038	170.....	Terrell..	1,430	208.....	Medina..	13,415	246.....	Hidalgo..	13,728
133.....	Winkler..	442	171.....	Valverde..	8,613	209.....	Bexar....	119,676	247.....	Cameron..	27,158
134.....	Ward....	2,389	172.....	Sutton....	1,569	210.....	Guadalupe	24,913			

Total..... 3,896,542

Texas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
Abbie.....	79.....	207	Ashland.....	92.....	214	Bertram.....	153.....	571	Bronson.....	167.....	1,008
Abbott.....	128.....	850	Askew.....	69.....	351	Bessmay.....	186.....	850	Bronte.....	121.....	635
*Abilene.....	100.....	9,204	*Aspermont.....	59.....	821	Bettie.....	92.....	253	Bookland.....	167.....	814
Abram.....	246.....	213	*Athens.....	108.....	2,261	Big Creek.....	293.....	405	Brookshire.....	200.....	213
Acme.....	33.....	232	Atlanta.....	73.....	1,604	Big Sandy.....	93.....	201	Brookstone.....	51.....	360
Adkins.....	209.....	217	Atlas.....	229.....	215	*Big Springs.....	97.....	4,102	Brownell.....	186.....	513
Adsl.....	187.....	251	Aubrey.....	65.....	817	Billington.....	147.....	217	*Brownfield.....	55.....	518
Aquilla.....	128.....	307	*Austin.....	176.....	29,860	Birch.....	179.....	305	*Brownsville.....	247.....	10,517
Alanreed.....	14.....	258	Avalon.....	107.....	301	Blackfoot.....	131.....	512	*Brownwood.....	124.....	6,967
Alba.....	80.....	1,201	Avery.....	52.....	511	Blackwell.....	99.....	407	Bruceville.....	146.....	613
*Albany.....	80.....	1,201	Avinger.....	73.....	317	Blanco.....	175.....	617	*Bryan.....	180.....	4,132
Aldridge.....	186.....	617	Axtell.....	146.....	285	Blanket.....	124.....	513	Bryson.....	63.....	250
Aledo.....	83.....	504	B								
Alice.....	240.....	2,136	Baber.....	163.....	214	Bleiberville.....	199.....	520	Buck.....	184.....	412
Allen.....	66.....	351	Bagwell.....	52.....	305	Blessing.....	229.....	204	Buckholtz.....	178.....	508
Alleyton.....	213.....	358	Bailey.....	50.....	313	Bloomburg.....	73.....	411	Buda.....	193.....	251
Almeda.....	202.....	268	Baileyville.....	178.....	251	Blooming.....	.....	.....	Buffalo.....	159.....	311
*Alpine.....	169.....	1,561	*Baird.....	101.....	1,710	Grove.....	129.....	903	Buffalo Gap.....	100.....	513
Altair.....	213.....	208	*Ballinger.....	122.....	3,536	Blossom.....	51.....	871	Bullard.....	109.....	412
Alta Loma.....	217.....	445	*Bandera.....	190.....	372	Blue Ridge.....	66.....	425	Bulverde.....	209.....	258
Alto.....	132.....	517	Bangs.....	124.....	512	Bluff.....	190.....	211	Buna.....	186.....	513
Alvarado.....	216.....	1,155	Barksdale.....	188.....	604	Bluff Dale.....	103.....	714	Buckburnett.....	36.....	1,511
Alvin.....	64.....	1,018	Barry.....	129.....	317	Blum.....	128.....	507	Burke.....	163.....	208
Alvord.....	21.....	452	*Barstow.....	134.....	687	Boerne.....	191.....	886	Burkett.....	123.....	310
*Amarillo.....	12.....	9,957	*Bartonsville.....	65.....	304	Bogata.....	52.....	417	Burkeville.....	187.....	208
Ammansville.....	197.....	317	*Bastrop.....	195.....	1,707	Bonarton.....	41.....	611	Burlison.....	106.....	542
Amphion.....	223.....	351	*Batesville.....	221.....	203	*Bonham.....	50.....	4,844	Burlington.....	178.....	409
*Anahuac.....	218.....	531	Batson.....	229.....	814	Bonita.....	47.....	213	*Burnet.....	155.....	981
*Anderson.....	181.....	617	*Bay City.....	229.....	3,156	Bonus.....	214.....	612	Burton.....	198.....	415
*Angleton.....	216.....	1,508	*Beaumont.....	219.....	20,640	Boonsville.....	61.....	205	Byers.....	46.....	618
Anna.....	66.....	341	Beckville.....	112.....	604	*Boston.....	53.....	317			
*Annona.....	52.....	534	Bedias.....	181.....	507	Bowie.....	47.....	2,874			
*Anson.....	79.....	1,842	Beville.....	234.....	3,269	Boyd.....	64.....	817			
Appleby.....	164.....	251	Belcherville.....	47.....	221	*Brackettville.....	206.....	2,114	C		
Apple Springs.....	193.....	318	Bellevue.....	46.....	613	Bradford.....	151.....	251	Caddo.....	81.....	209
Aransas Pass.....	242.....	1,977	*Bellville.....	199.....	1,211	*Brady.....	141.....	2,669	Caddo Mills.....	67.....	451
Arcadia.....	217.....	311	Belott.....	161.....	208	Branchville.....	178.....	411	Calavaras.....	224.....	208
*Archer City.....	45.....	825	*Belton.....	156.....	4,164	Brandon.....	128.....	401	*Caldwell.....	179.....	1,476
Argo.....	71.....	225	Benard.....	178.....	205	Brashear.....	69.....	312	Call.....	187.....	1,008
Argyle.....	65.....	251	Benavides.....	239.....	512	Brazoria.....	216.....	831	Callis.....	66.....	321
Arlington.....	84.....	794	Benford.....	184.....	251	*Breckenridge.....	81.....	970	Calvert.....	158.....	2,579
Arneckeville.....	226.....	253	Ben Franklin.....	68.....	513	Bremond.....	158.....	1,415	*Cameron.....	178.....	3,263
Arp Smith.....	109.....	355	Benhur.....	147.....	210	Brenham.....	198.....	4,718	Camilla.....	183.....	218
Asherton.....	230.....	850	*Benjamin.....	43.....	514	Bridgeport.....	64.....	2,112	Campbell.....	67.....	708
			Ben Wheeler.....	89.....	352	Bristol.....	107.....	352	Campbellton.....	223.....	212
						Britton.....	107.....	218	*Canadian.....	10.....	1,648

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Texas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Candelaria	168	541	*Crockett	161	3,947	Ennis	107	5,669	Grapeland	161	412
*Canton	89	520	Cross	181	100	Eola	140	301	Grapevine	84	681
*Canyon	17	1,412	Cross Plains	101	200	Estelline	25	636	Grayburg	204	1,015
Carbon	102	479	*Crowley	34	1,341	Eustace	108	200	*Greenville	67	8,850
Carlisle	162	516	Crowley	84	271	Evadale	186	520	Greenwood	64	313
Carlsbad	139	281	Crowther	232	200	Evant	145	318	Gregory	42	318
Carlton	126	251	Crystal City	121	250	Evergreen	183	216	*Groesbeck	147	1,454
Carmine	197	309	Crystal Falls	81	250	Everitt	183	300	Groom	39	200
Carmona	184	219	*Cuero	226	3,109				Grovesville	162	1,076
Caro	164	1,251	Cumby	69	818				Groveton	162	1,076
Carriostos	247	255	Cundiff	63	200	*Fairfield	130	610	Gruella	245	343
*Carrizo Spgs.	230	610	Curtis	102	211	Fairlie	67	350	Guffey	219	1,010
Carroll	109	258	Cushing	164	1,200	Falfurnias	245	1,400	Gunsight	81	210
Carrollton	85	418				Falls City	225	350	Gunter	49	315
*Carthage	112	2,358				Fannett	219	250	Gustine	125	300
Cason	72	351				Farmer	62	318	*Guthrie	42	550
Castroville	208	510				Farm Branch	85	300			
Cat Spring	199	315				Farmersville	66	1,848			
Cedar Bayou	202	409				*Farwell	21	870			
Cele	176	211				Fate	86	350			
Celeste	67	821				Fayetteville	197	274			
Celina	66	724				Fentress	194	250			
Cement	85	503				Ferris	107	1,283			
*Center	166	1,684				Fisher	78	200			
Center Point	189	541				Flanagan	111	250			
*Centerville	159	308				Flanonia	197	886			
Cestohowa	225	218				Florence	177	350			
Chandler	108	502				*Floresville	224	1,398			
*Channing	6	522				Floyd	67	218			
Chapel Hill	198	618				*Floydada	30	664			
Charco	135	814				Fords Bluff	186	510			
Charleston	68	214				Forestburg	47	250			
Cherokee	142	253				Forney	87	1,114			
Chester	185	338				Forreston	107	411			
Chico	64	1,203				*Fort Davis	148	951			
*Childress	26	3,818				Ft. McKavett	152	215			
Chillicothe	33	1,200				Fort Sam.	209	200			
Chilton	157	519				*Fort Stockton	149	310			
China Spring	164	316				*Fort Worth	84	73,312			
Chireno	164	258				Foster	215	518			
Chisholm	86	251				Fostoria	201	1,500			
Christmas	179	233				*Franklin	158	1,019			
Christoval	139	218				Frankston	131	518			
Chula	102	244				*Fred'ricksbg	174	2,518			
Ciego	210	207				Friesburg	213	308			
Clademont	58	244				Friona	21	315			
*Clarendon	19	1,946				Frisco	66	617			
*Clarksville	52	2,065				Frosa	147	302			
*Claude	18	692				Frost	129	702			
Clawson	163	351				Fulbright	52	200			
Clayton	112	200				Fulshear	215	251			
Clear Spring	210	306				Fuqua	203	671			
*Cleburne	106	10,364									
Cleveland	203	1,089									
Cleavenger	164	351									
Clifton	127	1,337									
Clyde	101	495									
Coahoma	97	615									
Coffeeville	92	200									
*Coldspring	183	617									
*Coleman	123	3,046									
Collinsville	49	791									
Colmesnell	165	718									
Colonge	235	318									
*Colorado	98	1,840									
Columbia	216	981									
*Columbus	213	2,009									
*Comanche	125	2,756									
Cometa	221	508									
Comfort	191	560									
Commerce	67	2,818									
Como	69	617									
*Conroe	201	1,374									
Cookes Point	179	418									
Cookville	71	624									
Coolidge	147	505									
*Cooper	68	1,513									
Coppras Cove	145	412									
Cornhill	177	251									
*Corp, Christi	241	8,222									
Corrigan	184	705									
*Corsicana	129	9,749									
Coryell	145	200									
Cottonwood	101	250									
*Cotulla	231	1,880									
Coupland	177	344									
Courtney	181	200									
Covington	128	400									
Crandall	87	633									
Crawford	146	516									
Cresson	104	240									
Crete	146	350									

Texas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
*Jefferson	93	2,515	*Longview	110	5,155	Moro	100	225	Petty	51	351
Jewett	159	556	Loraine	98	633	Morrill	132	218	Phelan	195	418
*Johnson City	175	1,009	Lorena	146	450	Moscow	184	240	Pickton	69	208
Jonesboro	145	450	Lott	157	1,021	Mosheim	127	250	Pilot Grove	49	250
Josephine	66	500	Louise	214	310	Moulton	212	617	Pilot Point	65	1,371
Joshua	106	810	Lovelady	161	671	Mount Calm	128	700	Pinegrove	108	200
Josseland	162	319	*Lubbock	39	938	Mt. Ent'prise	111	500	Pineland	167	211
*Junction	173	815	Lueders	79	750	*Mt. Pleasant	71	3,137	Pine Valley	182	218
Justin	65	510	*Lufkin	163	2,748	*Mt. Vernon	70	1,200	*Pittsburg	91	1,916
K			Luling	194	1,404	Muenster	48	416	*Plainview	29	2,829
*Karnes City	225	1,150	Lyford	247	317	Mullin Mills	143	750	Plano	66	1,258
*Kaufman	87	1,959	Lyons	179	318	Munday	43	956	*Pleasanton	223	650
Keenan	201	515	Lyra	82	1,191	Myra	48	415	Poetry	87	301
Keene	106	408	M			N			Point	88	200
Keller	84	250	Mabank	87	1,500	*Nacogdoches	164	3,369	Point Isabel	247	396
Kelty's	163	1,394	McAllen	246	1,500	Naples	72	1,178	Polly	190	218
Kemp	87	1,200	McCauley	78	890	Nash	53	421	Pontotoc	153	250
Kennedy	225	1,147	McDade	195	521	Navasota	181	3,284	Poolville	83	501
Kennard	161	617	*McKinney	66	4,714	Neches	131	350	Port Arthur	219	7,663
Kennedale	84	200	McLean	14	633	Neuville	166	250	Portland	242	200
Kenneth	182	1,117	McNeill	176	200	Nevada	66	510	*Port Lavaca	237	1,639
Kerens	129	945	*Madisonville	160	1,500	Newark	64	350	*Post	57	512
*Kerrville	189	1,843	Mahon	112	215	New Berlin	210	420	Post oak	63	218
Kildare	73	250	Malakoff	108	310	New Boston	53	2,144	Pottsboro	49	313
Kilgore	110	450	Malone	128	518	*N'w Bra'n's	192	3,165	Prairie Hill	147	209
Killeen	156	1,265	Manning	163	715	New Fountain	208	200	Prairie Lea	194	312
Kimball	127	218	Manor	176	688	Newport	46	275	Prairie View	200	520
Kingsbury	210	250	Mansfield	84	627	*Newton	187	1,209	Presidio	168	300
Kingsland	154	257	Marathon	169	310	New Waverly	182	520	Press	164	315
Kingston	67	308	*Marfa Falls	155	1,061	New Willard	184	513	Pritchett	92	218
Kingsville	241	1,500	*Marfa	168	708	Nix'n Gon'les	211	1,124	Proctor	125	314
Kirbyville	186	2,115	Margaret	34	250	Noack	177	1,250	Progreso	246	319
Kirkland	26	410	Marietta	73	255	Nocona	47	1,338	Prosper	66	318
Kirvin	130	310	Marion	210	1,200	Nordheim	226	850	Putnam	101	518
Klondike	68	412	*Marlin	157	3,878	Nomangee	159	200	Q		
Knickerb'cker	139	410	Marquez	159	316	Normanna	234	413	*Quannah	33	3,127
Knox City	43	1,200	*Marshall	94	11,452	Nubia	100	520	Queen City	73	388
Kopperl	127	200	Mart	146	2,930	Nursery	227	250	Quinlan	67	537
Kosse	147	764	Martindale	194	526	O			Quintana	216	537
*Kountze	204	617	*Mason	153	1,115	Oak Grove	53	210	*Quitman	90	428
Kress	23	318	*Matador	31	719	Oakland	213	250	Quito	134	214
Krum	65	750	Matagorda	229	615	*Oakville	233	750	R		
Kyle	193	742	Maud	53	318	Oakwood	159	906	Rabke	226	471
L			Maxwell	194	350	O'Brien	60	610	Rancho	211	250
Lacoste	208	200	May	124	416	*Ochiltree	4	515	Randado	241	350
Ladonia	59	1,293	Maynard	183	250	*Odessa	117	1,123	Randolph	102	412
La Fayette	92	250	Maypearl	107	516	Oglesby	145	321	Ronger	50	1,134
*Lagrange	197	1,850	Melissa	66	253	Ojuelos	238	315	Ravenna	50	284
Lamarque	217	205	*Memphis	25	1,936	Oliver	204	301	Raymondville	217	470
*Lamasco	50	250	*Menard	152	518	Olney	62	1,095	Raywood	203	200
Lamesa	75	1,110	Mercedes	246	1,209	Omaha	92	812	Reagan	157	430
*Lampassas	144	2,119	Mercury	141	518	Omen	109	225	Realitos	239	324
Lancaster	85	1,115	*Meridian	127	718	*Orange	205	5,527	Red Branch	161	680
Linnius	50	218	Merit	67	322	Orchard	215	212	Red Oak	107	350
La Porte	202	678	Merkel	100	2,008	Orphans Home	85	217	Redwater	53	341
*Laredo	238	14,855	Mertens	128	450	Osceola	128	412	*Refugio	236	158
Lasalle	203	300	Mesquite	239	687	Ottawa	160	312	Ramilo	186	751
Laurella	184	750	Mesquite	85	687	Ottine	211	350	Renner	66	314
Lavernia	224	515	Mexia	147	2,694	Ovalo	100	619	Rhame	92	486
Lavon	66	315	Meyersville	226	200	Overton	111	719	Rhonesboro	92	250
League City	217	501	*Miami	9	528	Ovilla	107	209	Rice	124	318
Leakey	188	581	Midland	118	2,192	*Ozona	150	1,200	Richardson	85	200
Leander	177	250	Midlothian	107	868	P			Richland	120	350
Lebanon	66	225	Millam	178	450	*Paducah	32	1,350	*Richmond	215	1,371
Lebetter	197	200	Milburn	101	309	Paige	195	518	*Rienzi	128	341
Leesburg	91	250	Miles	122	1,302	*Paint Rock	140	521	Riesel	146	550
Leesville	211	208	Millford	107	766	Palacios	229	1,369	Ringold	47	412
Leggett	184	211	Millersview	140	250	*Palestine	131	10,432	*Riogrande	245	2,109
Leonard	50	990	Miller	231	319	Palmer	107	605	Riovirta	245	518
Lewisville	65	810	Millican	180	615	*Palo Pinto	82	750	Rising Star	102	610
Lexington	196	1,500	Millsap	83	814	Panchita	246	212	River	203	408
*Liberty	203	980	Millivd	203	200	Pandora	224	200	Rivera	241	200
Liberty Hill	177	518	Minden	111	215	*Panhandle	13	521	Roanoke	65	410
Lillian	106	300	Mineola	90	1,706	Paradise	64	563	Roans Prairie	181	250
Lindale	109	658	Minera	238	1,176	*Paris	51	11,269	*Robert Lee	121	1,800
*Linden	73	511	Mineral Wells	82	3,950	Park Springs	64	250	*Roby	78	951
Lingleville	103	200	Mingus	82	1,115	Pearland	216	250	Rochester	60	520
Littig	176	224	Misslon	246	1,500	*Pearsall	222	1,709	Rock Creek	83	571
Little River	156	225	Mo beetle	15	650	Peaster	83	320	Rockdale	178	2,073
Liverpool	216	210	Mofoatt	156	200	*Pecan Gap	68	610	Rock Island	213	521
*Livingston	184	617	Monahans	134	218	*Pecos	115	1,856	Rockland	185	200
*Llano	154	1,687	Montague	47	284	Peerless	69	250	*Rockport	243	1,382
Lloyd	65	217	Mont Belvieu	218	250	Peniel	67	467	*Rock Springs	188	750
*Lockhart	194	2,945	Montgomery	201	417	Pennington	162	215	*Rockwall	86	1,136
Lockney	93	210	Montopolis	196	217	Perry	157	210	Roda	147	250
Lockwick	93	210	Moody	146	983	Pert	131	224	Roganville	186	217
Logtown	187	314	Moore	222	601	Petrolia	46	517	Rogers	156	1,275
Lometa	144	517	Morgan	127	831				Roma	245	671
Lone Oak	67	756	Morgan Mill	103	350				Rosalie	52	300
Long Branch	112	208							Roscoe	99	941

Texas Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Rosebud	157.	1,572	*Seminole	74.	510	Temple	156.	10,993	Waller	200.	481
Rosehill	202.	317	*Seymour	44.	2,029	Tenoha	166.	491	Wallis Station	199.	876
Roseburg	215.	1,198	Shafter	168.	1,144	Terlingua	169.	200	Wallsville	218.	350
Rosewood	92.	304	Shamrock	15.	1,018	Terrell	87.	7,050	Walnut		
Rosser	87.	211	Shelby	199.	200	Texarkana	53.	9,790	Springs	127.	1,340
Roston	48.	312	Shelbville	166.	206	Texas City	217.	421	Warren	185.	671
Rossville	233.	314	Shepherd	183.	210	Texla	205.	520	Warranton	197.	468
Rotan	78.	1,126	*Sherman	49.	12,412	Theta	67.	481	Washington	198.	396
Round Rock	177.	920	*Sherwood	138.	708	Thomaston	226.	34	Waskom	94.	501
Round Top	197.	314	Shiner	202.	1,096	Thornade	178.	645	Wernham	166.	478
Rowena	122.	308	Shiro	181.	250	Thornton	147.	678	Waukegan	201.	581
Roxton	51.	617	Sierra Blanca	113.	320	Thorp Spring	104.	420	Waverly	182.	260
Royse City	860.	1,250	*Silverton	24.	724	*Throckmorton	61.	671	*Waxahachie	107.	6,205
Rovston	78.	250	*Sinton	242.	1,500	Thurber	103.	4,523	*Weatherford	83.	5,974
Rule	60.	981	Sipe Springs	125.	314	*Tilden	232.	584	Webberville	176.	311
Runge	225.	1,500	Skidmore	234.	1,138	Timpson	166.	1,528	Wehdem	199.	314
*Rusk	225.	1,558	Smley	211.	1,184	Tloga	49.	1,566	Weimar	213.	906
Rvalo	201.	200	Smyrna	154.	318	Todd	181.	479	Welnert	60.	779
Rye	203.	314	*Snyder	77.	2,514	Tokcen	122.	200	Welcome	199.	225
			Socorro	113.	1,147	Tor	104.	455	Weldon	180.	478
			Somerville	179.	2,400	Tolbert	35.	291	*Wellington	20.	770
			*Sonora	172.	820	Town Bean	49.	288	Wesley	198.	217
			Sourlake	204.	800	Town Bluff	185.	317	West	146.	1,645
Sabinal	207.	1,640	Spanish Fort	47.	247	Toyah	115.	1,052	Westbrook	98.	517
Sabine	219.	400	Springtown	83.	780	Tracy	178.	200	W. Columbia	216.	209
Sabine Pass	219.	363	Stacy	141.	200	Trenton	50.	550	Westminster	66.	378
Sadler	49.	417	Stamford	79.	3,902	Trinity	162.	851	Weston	66.	250
Sagereton	60.	520	Stanley	184.	421	Trinity Mills	85.	208	Westpoint	197.	318
Sage	155.	318	*Stanton	96.	1,420	Troup	109.	1,126	Wharton	214.	1,505
Saint Hedwig	209.	514	Steele's Store	180.	200	Troy	156.	518	White Cl.	165.	384
Saint Jo	47.	822	*Stephenville	103.	2,561	Truscott	43.	213	Whitehouse	109.	400
Salado	156.	420	*Sterling City	120.	841	*Tulia	23.	1,216	Whitesboro	49.	1,219
*San Angelo	139.	10,321	Sockdale	224.	1,250	Tunis	179.	286	Whitewright	49.	1,563
*San Antonio	209.	96,614	Stoneham	181.	251	Tupelo	129.	200	Whitney	128.	766
*San Benito	247.	2,124	Stonewall	174.	200	Turtle Bayou	218.	471	Whitt	83.	517
*Sanderson	170.	724	*Stratford	2.	520	Tye	100.	251	*Wichita Falls	36.	8,200
*San Diego	239.	2,574	Streason	82.	1,128	*Tyler	109.	10,479	Willis	201.	1,126
Sandy	175.	250	String	156.	258				Wills Point	89.	1,398
San Elizario	113.	834	Steubner	202.	218	Union	224.	314	Wimer	85.	258
San Felipe	199.	206	Sublime	212.	208	Upton	195.	568	Winchel	124.	256
Sanger	65.	802	Sullivan	210.	224	Utopia	207.	200	Winchester	197.	400
*San Marcos	193.	4,071	Sulphur Bluff	69.	251	*Uvalde	207.	3,998	Windom	50.	415
San Patricio	242.	315	*Sulphur Spgs	69.	5,151	Uvalde Station	207.	785	Wingate	122.	200
*San Saba	112.	1,508	Summers Mills	156.	215				Winnie	218.	207
Sansom	171.	478	Sunset	47.	650	Valentine	148.	217	Winnshoro	90.	1,741
Santa Anna	193.	1,453	Sunshine	241.	200	Valley Mills	127.	708	Winona	109.	318
Santa Maria	247.	250	Sutherland			Valley View	48.	350	Winters	122.	1,347
Santo	82.	516	Springs	224.	750	Van Alstyne	49.	1,441	Wokaty	178.	314
San Ygnacio	244.	920	Swan	109.	218	Van Horn	144.	381	Wolfe City	67.	1,402
Saratoga	204.	1,015	Sweet Home	242.	520	Van Vleet	219.	200	Woodbury	128.	313
Sarco Creek	235.	621	*Sweet Water	99.	4,170	Velasco	226.	1,583	Woodland	23.	220
Saron	162.	534				Velma	142.	495	Woodlawn	94.	200
Savoy	50.	328				*Vernon	35.	3,195	Woodsboro	236.	587
Schertz	210.	350				*Victoria	227.	3,673	*Woodville	185.	920
Schulenburg	197.	1,091				Vidor	205.	287	Wortham	130.	899
Schumansville	210.	312				View	192.	451	Wylie	66.	620
Scotland	45.	323	*Tahoka	56.	871	Village Mills	204.	418			
Scranston	102.	334	Talpa	123.	1,208	Vincent	97.	200			
Seagury	87.	250	Tarlington	203.	567	Voss	123.	780			
Seagoville	85.	308	Tatum	111.	311						
Sealy	199.	1,600	Taylor	177.	5,314						
*Seguin	210.	3,116	Teague	130.	3,288						
			Tehuacana	147.	425						

TEXAS GROWTH IN POPULATION.

With the rapidity of growth of the Texan Empire the reader will understand that many towns here mentioned are considerably larger in population today than when the census was taken in 1910.

Why this State is advancing in growth so rapidly will be understood by perusal of the following pages descriptive of Texas.

Inducements Offered to New Settlers in Texas

GENERAL DESCRIPTION OF TEXAS

With Condensed Important

Facts Relating to Soil, Prices of Land in Different Parts of the State, Temperature on the Gulf Coast and in the Panhandle Region—Future Possibilities.

Opportunities in Agriculture and Varied Enterprises.

People Who worry about the rapid coming of foreign-born population into the United States fail to comprehend the greatness of this country. This may be understood by a little computation, relating to the state of Texas.

To illustrate there are in this state 265,780 square miles, multiply by 640 acres in the square mile, and see the many millions of acres we obtain. Real estate agents divide acres, in the cities, into ten lots to the acre. This would give us 1,700,992,200 lots. Assigning 9 persons to a lot we could place the whole human family of 15,000,000,000 people into the state of Texas and give each family of nine persons an average city lot, 25 by 125 feet in size.

Of course we are not anticipating any such crowding of dense population into the state of Texas. We are simply using this illustration to show the immensity in size of this state and demonstrate the fact that there need be no concern about this country being over-populated in hundreds of years, even if immigration continues to come at the rate of a million a year.

When the Panama Canal is finished. The fertility of soil, warmth of temperature, accessibility to the great markets of the world, on the completion of the Panama Canal, all conspire to make a population as dense as is in Illinois which would make it six times greater than it is now, being a state population of 18,292,710 with a density of some over 66 persons to the square mile.

While we cannot say how soon that will be it is very certain that the population will be several times larger than it now is in Texas.

FIVE DIVISIONS OF TEXAS IN SOIL AND CLIMATE

Geographers divide the state, in topography, into five sections,—the eastern, the central, western, northern and southern, along the Gulf Coast.

The first division includes the territory between the Sabine and Trinity Rivers in Liberty, Freestone and Dallas counties. The Sabine forms the boundary line between Texas and Louisiana. From the Sabine west to the Trinity is a distance of from 40 to 100 miles, and is mostly a heavily timbered region.

The soil in this section, on the upland, is a sandy loam resting on a clay subsoil. In the valleys it is generally a deep vegetable mold, very rich and productive.

The second division comprises the region westward from the Trinity River. A distance of 100 and 200 miles, to the Colorado River, and contains a large portion of the wheat lands of the state and extensive prairies. The Colorado extends northward through the city of Austin, and through Fayette, Bastrop, Burnett, Brown, Runnels and Cooke counties, up into Martin county.

The western part of Texas includes the vast territory from the Colorado to the Rio Grande Rivers, about four-fifths of which is prairie land and is used extensively for stock raising. The northern division contains the counties along the Red River on the north, and is about equally divided between forest and prairie and has a yellow loamy sandy soil.

The soil of the land lying north of the Canadian River in the Panhandle Region, comprising Oldham, Potter, Hutchinson and Roberts counties, is apparently the sediment of a great lake that is believed to have been here in prehistoric times, and is exceedingly fertile.

THE DESERT REGION

The western part of the state comprises a broad expanse of desert land destitute of trees and vegetation, lying at an elevation of from 2,000 to 4,000 feet. The principal elevations of the state are the Guadalupe Mountains in El Paso, Reeves and Jeff Davis counties.

THE PANHANDLE

The Panhandle Region is destined to become the abiding place of a vigorous hardy race of people. A large proportion of crisp, bright, bracing, sunshiny days makes it a salubrious and delightful climate in which to live. Outdoor work can be carried on there almost every day in the year. Sunstrokes are unknown, and the nights are always cool.

While the Panhandle portion of Texas has been largely a stock growing region, as time progresses it will be proven to have a climate and soil favorable for a diversity of crops.

For several years past excellent yield has been had of sorghum, millet, alfalfa, kafir corn and other crops showing that when attention is given to farming, outside of cattle breeding, an excellent return may be expected in growing a general variety of crops.

NORTHERN PART OF TEXAS

As this northern part of Texas and the Panhandle country are a region liable to interest the land seeker he should know that in Wheeler county the principal crops at present are corn, macaroni wheat, oats, alfalfa and cotton. Fruits and vegetables do well and good results have come from growing sugar beets. The price of land varies from \$3.50 to \$10 per acre.

In Gray county half of the county is in prairie lands and the other half in hills and valleys with black and sandy soils.

PRINCIPAL CROPS

Well water here at 30 and 300 feet. Principal crops are cotton, Indian corn, wheat, oats, millet, sorghum, and broom corn. Melons and vegetables of all kinds do well. Lands worth from \$3.50 to \$10 per acre.

PRICES OF LAND.

Prices throughout the state vary from \$3 to \$50, \$150 and \$200 per acre, depending upon location. The visitor land seeker must himself determine which is the best investment.

The average rainfall in 1911 as is marked by distinct zones and decreases from east to west at the rate of five inches per every sixty miles. It is 50 inches along the eastern border from the Red River to the mouth of the Sabine, 25 inches through the west central region at Nolan and Taylor counties, 15 inches in the Valley of the Pecos River in Pecos and Crockett counties and 10 inches in El Paso county and along the southern border of New Mexico.

Texas Opportunities in Agriculture and Varied Enterprises

TEMPERATURE IN TEXAS

The temperature of Texas decreases about one degree every 40 miles as you pass to the north. Thus, while along the Gulf Coast at Galveston and Corpus Christi the average annual temperature is 70, it is 54 in the Panhandle Region. In the valley of the Rio Grande and for a hundred miles inland from the Gulf, the lowest temperatures range from 10 to 18 above, the latter being the lowest at Brownsville, at the mouth of the Rio Grande.

Along the Coast the thermometer seldom registers below 20 and one year in five not below 32. Zero temperature has not been experienced except in the extreme northwestern part of the state where 14 below has been recorded.

Over the Central parts of the state the mercury falls below 32 only in the months of December, January, February and March, and then for not more than 28 days all told.

FIRST KILLING FROSTS

Along the Coast the first killing frost occurs Dec. 15; in the central and eastern parts of the state Nov. 15, and in the northern part Oct. 15. The last killing frost occurs in the Coast country about Feb. 5, one hundred miles inland Feb. 20, and in other parts of the state about March 1.

The temperature of the Gulf of Mexico has great influence, affecting all the southern part of the state. The cool breezes from the ocean keeps the temperature down in summer and up in winter.

The Gulf breeze blows over two-thirds of Texas ten months in the year. By constant changes in the air it increases evaporation, rendering the nights cool, no matter how hot the days. In January and February the Gulf winds are displaced by the winter monsoons called "northers." If it were not for these "northers" coming down from the Canadian country the mercury in Texas would not ever go down to the freezing point and the southern part of the state would be in the orange and banana belt.

WHAT CAN BE GROWN IN TEXAS

In the line of cultivated products the eastern division of the state will produce, and that abundantly, everything that can be grown in the southland. It will produce all the cereals from wheat to rice, but owing to the diversity and quality of its soils it is especially adapted to fruit and garden truck.

THE NATURAL WHEAT REGIONS OF TEXAS

The northern section of the central prairie and the northwestern part of the plains are the great wheat regions of the state. To the southwest, in the country of the Nueces River where the Coast belt, the prairie and the plains merge into a triangle, south of San Antonio, is a section second only to eastern Texas, in its adaptation to fruit culture and the production of garden vegetables.

The Coast country is the natural home of rice and sugar cane. In the central prairie zone, while everything known to mixed farming will do well, cotton and corn are at present the staple products.

The western plains while merely given to cattle ranges are being gradually thrown open for farming purposes, the ordinary field crop of wheat, corn, broom corn, cotton and such crops being raised to advantage.

CROPS ADAPTED TO TEXAS

Among crops adapted to the soil and climate of Texas, cotton is a product admirably adapted to the climate, soil and labor conditions of the south. The yield is reasonably certain and the market constant.

The establishment of factories in various parts of the state for the manufacture of the cotton into clothes will soon make a home market that will greatly benefit this industry.

While Texas is not a wheat state there are 26,000,000 acres in the state that will give good wheat and as time passes it is probable that more and more winter wheat will be sown as the crops mature early and escapes the dry hot weather of July.

THE FRUIT BELT OF TEXAS

The fruit belt of Texas extends from the southwest to the northeast across the state. It is now definitely known that peaches, apples, pears and plums, among the larger fruits, and grapes, straw-

berries, blackberries and dewberries, among the smaller fruits, will flourish in eastern Texas. It has been demonstrated also that peaches, apricots, figs, plums and all the smaller fruits, are indigenous to the soil and climate of the southwestern part of the state.

It should not be understood that these are not the only regions in Texas where fruit raising can be profitably conducted. Orchards are everywhere throughout the state and time will reveal by experiment later how widely the fruit and early vegetable zones may be extended.

We could greatly extend this article on the advantage of truck growing on the Gulf coast of Texas. The Irish potato is planted here in February and matures in May. The second crop, the same year on the same land is planted in July and matures in November. The yield is from 100 to 250 bushels to the acre.

PRICES OF EARLY VEGETABLES

The Texas grower counts upon \$1.00 per bushel for his first crop.

Southwestern Texas is the home of the cabbage. It is a winter vegetable and in the mild climate of the state it is planted in November and is ready for market in mid-winter. The yield is immense.

The profits on cantaloupes and melons run from \$100 to \$250 per acre. On onions the profits have sometimes run as high as \$800 per acre. The Texas Bermudas stand very high in the market.

Much can be said of the great outlook for Texas in many respects. With 400 miles of Coast line on the Gulf of Mexico, the Red River on the north border navigable for 600 miles, the project is being considered, and with the Rio Grande on the western border navigable for 600 miles, the project is being considered of constructing the Intercoastal Canal extending from the Rio Grande River at Brownsville to Donaldsonville, on the Mississippi River north of New Orleans. This canal between 600 and 700 miles long.

THIS INTERCOASTAL CANAL

will unite the bays, lagoons and bayous which lie along the coast. This proposed waterway is to be 60 feet wide and nine feet deep, being of sufficient size for use by the most of the Mississippi River steamers.

A part of the improved water way system is to make the Brazos River navigable for 500 miles up to Waco, in Lennan County, the Trinity River navigable for 600 miles up to Dallas, in Dallas County, the Colorado River and others, giving in all, with the connections on the Mississippi River and its tributaries, some 8,000 miles of waterway, the steamers on which can penetrate 500 and 600 miles up into the interior of Texas. To appreciate the magnitude of the undeveloped resources of this state it is only necessary to study statistics for a little time.

IMMENSE POSSIBILITIES

In 1890 there was raised 78,000 pounds of rice along this proposed canal. In 1900 it was 800,000 pounds, and in 1903 the product was 400,000,000 pounds, valued at \$7,500,000. This means only about 400,000 acres of rice land in cultivation, whereas between the Rio Grande and Sabine Lake there are 4,000,000 acres of rice land, one-half of which in cultivation would yield \$75,000,000 annually.

STANDING TIMBER IN TEXAS

The thickly standing timber in the state covers an area of 36,000 square miles—an area equal to the state of Indiana. About two-thirds of this area is covered with pine and hardwood forests spread over the balance.

The rivers that extend northward into the interior of the state will bring out this lumber to the Intercoastal Canal to be distributed, it is expected, by that canal system to all parts of the country. But the people of Texas say why ship the hardwoods away? Why not work it into every description of wooden ware—furniture, interior building, etc.? The state is waiting for incoming factories to work up the hardwoods.

TEXAS IS YET YOUNG

It must be remembered that Texas is yet young and its possibilities but dimly comprehended. It was only in 1889 that the first petroleum oil wells began to bring revenue to the state by an output of 48 barrels of oil. In 1905 the production was 28,136,189 barrels, being one-fifth of the total production in the United States, and comes from wells in several different counties.

Texas Opportunities in Agriculture and Varied Enterprises

It is only a short time ago when it was discovered that artesian wells would flow water. There are now some 10,000 square miles of artesian well area, and more being found where sinking a well from 650 feet to 1,100 feet in depth will flow water at the rate of from 100 to 1,100 gallons an hour.

THE REGION FOR GROWING SUGAR CANE

Millions of acres in Texas are adapted to the growth of sugar cane, and this industry will assume large importance in this state.

While immigration is rapidly pouring into Texas, lands yet remain **very cheap** in price. In the central prairie region—a section well settled and with a soil that cannot be duplicated, except in certain portions of the Mississippi Valley,—improved lands can be bought for from \$15 to \$50 per acre, and unimproved land can be had from \$6 to \$30 per acre, according to location in reference to water and rail transportation.

PRICES IN EASTERN TEXAS

In the eastern part of the state, that part which has been settled more than a century—the picturesque, and perhaps the most fertile part of the state, land can be bought for from \$3 to \$20 per acre according to improvements.

There are tracts of cut-over timber land and pasture land that can be bought at \$2 per acre, and that in several portions of the state. There are fruit and truck farms which yield an income equal to 100 per cent on a land valuation of \$100, while the land within two miles can be bought for \$6 an acre.

Farms that are paying an income on a capitalization of \$50 per acre have for neighbors farms that can be bought for \$12 per acre. **This condition** cannot long remain. The steady stream of immigration will adjust prices to values in a very few years. Unoccupied land is always **worthless**. A speculative value may attract to it for a time, but in the end it becomes a burden unless it is occupied and made to contribute through cultivation.

LOOK UP THE TRUCK BUSINESS

The land seeker going into Texas should look up the truck business. A great change has been made and remarkable advancement has been made in the truck industry within the last few years. Several causes combine to produce this. Among these is an **educated appetite** which calls for peck vegetables, and ripe fruit in mid-winter to be delivered in all the great markets of the north. The establishment of the refrigerator car, fast train service and the manufacture of ice in the warm climates, where truck can be grown.

KNOWLEDGE OF HOW TO GROW AND SHIP

Added to this, knowledge has been acquired as to how to best grow, pack and ship. **Experience has taught** what will sell best, how shippers can combine and co-operate. The railroads, in the meantime, desirous of upbuilding the business, have so arranged their schedules of time in fast shipment as to greatly facilitate the trucking business.

PIONEER STATES IN EARLY SHIPMENT TO NORTHERN MARKETS.

It is not generally understood that the advance made in shipping of early fruits and vegetables has been wholly built up within a brief time. Virginia sent a car of garden truck to the New York market, May 26, 1885. South Carolina followed with a consignment April 12, 1888. A carload of oranges went forward to New York from Florida in 1888. California has been shipping oranges since 1886 in refrigerator cars.

The early fruit and truck business, begun only so short a time ago, now employs thousands of men, women and children, and will expand. Closely following the early shipment of fruits and vegetables comes the canning of surplus products, a business which is now giving employment to tens of thousands of workmen in the United States.

The steady growth of all this comparatively new and rapidly growing industry forecasts the fact that there will be a steadily increasing demand for the land situated in a climate and on a soil that will permit the growth of that which will supply that demand.

Condensed Important Facts Relating to the State.

Dimensions. Extreme length of state, north to south, 620 miles; extreme width, east to west, 760 miles. Area, 265,780 square miles.

Climate. Pure, temperate and healthful summer heat, relieved by breeze from the Gulf. Winters mild and invigorating. Climate of the Gulf Coast semi-tropical. The eastern part rainy, the middle moderate, the southwestern portion dry. Corn is planted in February and harvested in July. Average annual temperature, for the state, 69.29; January, El Paso, 44; July, 82. Warmest, 113; coldest, 5 below. Yearly rainfall, 9.3 inches. Brownsville, January temperature, 57; July, 84. Extremes: Warmest, 102; coldest, 18 above. Yearly rainfall, 36.9 inches. Palestine, Anderson County: January temperature, 43; July, 82. Extremes, warmest, 104; coldest, 6 below. Yearly rainfall, 46.5 inches.

Altitude. The highest point in the state, Chantage

Peak, in the Guadalupe Mountains, in El Paso County, 7,730 feet.

History. La Salle, French explorer, erected a fort at Matagorda Bay in 1687; the country settled by the Spaniards and several missions established in 1715. Territory claimed by both Spaniards and French at time of Louisiana purchase in 1803. Settlements made and attempts to wrest it from Spain 1806-1816. In one battle 2,500 Mexicans and Americans killed 1813. Declared its independence of Spain and with Coahuila formed State of Mexico, 1827. Seceded from Mexico, 1836. Santa Ana invaded Texas, invested the Alamo, a fort near San Antonio, and put its garrison to the sword. The Mexican army routed; the state declared independent, and its independence acknowledged by the United States in 1837. Was annexed to the United States in 1846. Mexico, which had never recognized the independence of Texas, invaded the state, which caused the Mexican War of 1846-1848. Seceded in 1861 and re-admitted in 1870.

OTHER FEATURES OF INTEREST.

If space permitted we could dilate on many other advantages offered the land-seeker in this great area of territory, spanning for four hundred miles the Gulf of Mexico and for eight hundred miles bordering the Rio Grande.

STATE AND THE 27 COUNTIES OF UTAH

With Their Boundaries

Location and Population

of

UTAH COUNTIES

Loca- tion	COUNTIES	Pop. 1910
---------------	----------	--------------

1....	Box Elder..	13,891
2....	Cache..	23,062
3....	Rich..	1,883
4....	Weber..	35,179
5....	Davis..	10,191
6....	Morgan..	2,467
7....	Summit..	8,200
8....	Tooele..	7,921
9....	Salt Lake..	131,426
10....	Utah..	37,942
11....	Wasatch..	8,920
12....	Uinta..	7,050
13....	Juab..	10,702
14....	Sanpete..	16,704
15....	Carbon..	8,624
16....	Millard..	6,118
17....	Sevier..	9,775
18....	Emery..	6,750
19....	Grand..	1,593
20....	Beaver..	4,717
21....	Plute..	1,734
22....	Wayne..	1,749
23....	Iron..	3,933
24....	Garfield..	3,660
25....	Washington..	5,123
26....	Kane..	1,652
27....	San Juan..	2,377

Total.....373,351

UTAH CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.
A		
Alpine.....	10	496
Alta.....	9	399
American Fork..	10	2,797
Annabella.....	17	360
Aurora.....	17	406

B		
Bear River		
City.....	1	463
*Beaver.....	20	1,899
Benjamin.....	10	862
Bingham		
Canyon.....	9	2,811
Blaine.....	5	200
Boneta.....	11	226
Bountiful.....	5	1,677
*Brigham.....	1	3,685
Brinton.....	9	560
Burtner.....	16	250

C		
Cannonville.....	24	220
*Castle Dale.....	18	693
Castlegate.....	15	1,060
Castle Rock.....	7	220
Cedar City.....	23	1,705
Cedar Valley.....	10	220
Centerfield.....	14	626
Centerville.....	5	532
Charleston.....	11	283
Chester.....	14	326
Circleville.....	21	520
Clarkston.....	2	564
Clearcreek.....	15	862
Clearfield.....	16	210
Cleaveland.....	18	520
*Coalville.....	7	976
Collinston.....	1	526
Colton.....	10	330
Corinne.....	1	231
Cove.....	2	436
Coyote.....	24	250
Croydon.....	6	260

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

UTAH CITIES AND VILLAGES WITH 1910 POPULATIONS

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
D			G			H		
Deep Creek.....	8	320	Garden City.....	3	360	Honeyville.....	1	390
Deseret.....	16	660	Garfield.....	9	520	Hooper.....	4	1,309
Devils Slide.....	6	309	Garland.....	1	663	Hoytsville.....	7	250
Deweyville.....	1	204	Geneva.....	1	462	Hunter.....	10	350
Dragon.....	12	250	Glen Dale.....	26	250	Huntington.....	18	860
Draper.....	9	1,066	Glenwood.....	17	359	Huntsville.....	4	759
E			Gold Springs.....	23	220	Hurricane.....	25	250
Echo City.....	7	220	Goshen.....	10	470	Hyde Park.....	2	699
Eden.....	4	660	Grantsville.....	8	1,154	Hyrum.....	2	1,833
Elsinore.....	17	656	Green River.....	18	628	I		
Emery.....	18	525	Greenville.....	20	209	Ibapah.....	8	350
Ephraim.....	14	2,296	Grouse Creek.....	1	280	J		
Escalante.....	24	846	Gunnison.....	14	950	Jensen.....	12	460
Eureka.....	13	3,416	H			Joseph.....	17	650
F			Harrisville.....	4	350	Juab.....	13	205
Fairview.....	14	1,218	*Heber.....	11	2,031	*Junction.....	21	350
*Farmington.....	5	1,231	Helper.....	15	816	K		
Fayette.....	14	360	Henefer.....	7	462	Kamas.....	7	400
Ferron.....	18	651	Henrieville.....	24	250	*Kanab.....	26	733
Fielding.....	1	450	Herriman.....	10	250	Kanarrville.....	23	282
*Fillmore.....	16	1,202	Hiawatha.....	15	200	Kanosh.....	16	513
Forest Dale.....	9	1,549	Hinckley.....	16	553	Kaysville.....	5	887
Frisco.....	20	520	Holden.....	16	472	Kenilworth.....	15	350

Utah Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
King	2	290	Moffat	12	200	Portage	1	406	Sterling	14	296
Kooshareem	17	320	Mohrland	18	490	*Price	15	1,021	Stockton	8	258
L			Mona	13	368	Promontory	1	206	Sugarhouse	9	1,526
Lake Point	8	209	Monroe	17	1,227	Providence	2	1,020	Sunnyside	15	750
Lakeshore	10	643	*Morgan	6	756	*Provo	10	3,926	Syracuse	5	520
Laketown	3	321	Moroni	14	1,223	Provo Bench	10	662	T		
Layton	16	809	Mount	.....	.....	R			Taylorville	9	550
Leamington	10	2,961	Pleasant	14	2,280	Ranch	26	200	Theodore	11	366
Lehi	13	722	Murray	9	4,057	*Randolph	3	533	Thistle	10	228
Lexan	10	989	N			Redmond	17	547	Thurber	22	273
Lewiston	4	326	Naples	12	509	*Richfield	17	2,559	*Tooele	8	753
Liberty	10	850	*Nephi	13	2,759	Richmond	2	1,562	Toquerville	25	350
Lindon	22	569	Newhouse	20	596	Riter	9	366	Tremonton	1	303
*Loa	2	7,522	Newton	2	515	Riverdale	4	322	Trenton	2	380
*Logan	2	7,522	North Ogden	4	1,066	Riverside	1	250	Tropic	24	358
M			O			Riverton	9	726	U		
Maeser	12	200	Oak City	16	250	Robinson	13	428	Uinta	4	228
Mammoth	13	1,262	Oasis	16	250	Rockville	25	230	Union	10	780
Mammoth	13	1,262	*Ogden	4	25,580	Roy	4	250	Upton	20	250
Junction	10	466	Ophir	8	254	S			V		
Manila	12	225	Orangeville	18	648	*Saint George	25	1,769	*Vernal	12	836
*Manti	14	2,423	Orderville	26	450	Saint John	8	280	W		
Mapleton	10	534	P			Salem	10	693	Wales	14	294
Marion	7	230	*Panglitch	24	1,388	Salina	17	1,082	Wallsburg	11	547
Marysville	21	225	Paradise	2	620	*Salt Lake City	.....	.....	Wanship	7	233
Mayfield	14	626	Paragonah	23	460	(capital)	9	92,777	Wasatch	9	220
Meadow	16	351	Park City	7	3,439	Santa Clara	25	308	Wellington	15	2,358
Mendon	2	350	Park Valley	1	250	Santaquin	10	915	Weber	1	500
Mercur	8	1,047	*Parowan	23	1,156	Scipio	16	546	Wellington	15	2,358
Merrills	2	426	Payson	10	2,397	Seofield	15	750	Wellsville	2	1,195
Midvale	9	1,760	Peoa	7	452	Silver City	13	882	Willard	1	580
Midway	11	838	Peterson	6	271	Smithfield	2	1,865	Wilson	4	350
Milford	20	1,014	Pine Valley	25	253	South Jordan	9	760	Winterquarters	15	208
Millcreek	9	2,306	Plain City	4	1,060	Spanish Fork	10	3,464	Woodland	7	302
Miller	9	1,220	Pleasant Grove	10	1,618	Spring City	14	1,102	Woodruff	3	560
Millville	2	353	Pleasant View	4	562	Spring Glen	15	200	Woods Cross	5	1,066
Minersville	20	591	Plymouth	1	250	Springville	10	3,356	Woodside	18	320
*Moab	19	615									

UTAH

Beginnings of Mormonism—Founders of the Sect Driven From Point to Point—Death of Joseph Smith—Subsequent History of the Mormons.

In writing history of various States it is interesting to trace the causes of first settlement of a people in any region of the country.

Sometimes a section of the country is entered by pioneers who want a good hunting ground; frequently by herdsmen who want a large range for cattle; sometimes by prospectors in search of precious metals; frequently by parties who want more political opportunity, and often by associations who want religious freedom.

Mormonism was, and is, one of the religious cults in which the followers want no interference with their particular faith. Joseph Smith, the originator of this phase of religious belief, impressed his doctrine so firmly upon a sufficient number as to enable him to found the church of Latter Day Saints in Manchester, N. Y., in 1830. Sidney Rigdon, becoming associated with Smith, they went to Independence, Mo., and thence to Kirtland, Ohio, where they were joined by Brigham Young.

SMITH RECEIVES A REVELATION

In 1843 Joseph Smith, who then had one wife, received a revelation, he claimed, authorizing polygamy, which caused dissension in the Mormon ranks. In an exposition of Smith and Rigdon, sixteen women testified that these leaders had attempted to seduce them under the guise of a revelation from heaven. Foster and Lane, who printed this expose, had their printing office destroyed by the Mormons and were compelled to flee to Carthage, Ill., where they obtained warrants for the arrest of Joseph Smith and Hyrum Smith, his brother.

This was in Nauvoo, Ill., where Joseph Smith and his followers had built a city, Smith being mayor of the town, commander of a military organization and president of the church.

THE SMITHS ARRESTED AND PLACED IN JAIL.

The warrants obtained by Foster and Lane caused the Smiths to be arrested and lodged in the Carthage jail. On the night of their imprisonment a mob attacked the jail and inside the building Hyrum Smith was shot and killed, and Joseph, having emptied the contents of his revolver upon the crowd, was shot while attempting to escape from a window, and fell to the ground dead. This was on June 27, 1843.

Brigham Young was appointed to the head of the

church, and in 1847, like the Boers of South Africa, who trekked hundreds of miles into the interior of their country, to be by themselves, the Mormons emigrated into the wilds of the Rocky Mountains to enjoy their religion unmolested, and settled in the valley of the Great Salt Lake.

POLYGAMY AFFIRMED BY BRIGHAM YOUNG.

In 1852, nine years after the alleged revelation to Smith, Brigham Young affirmed the revelation authorizing polygamy, which has been a distinctive feature of the Mormon religion until recent years.

Thus the Mormons, like many another religious organization before and since, were land seekers from religious zeal. A quiet, industrious people, they constructed the beautiful city of Salt Lake planted orchards, beautified and improved the whole region where they settled, in agricultural conditions, and taught western pioneers, many years ago, the possibilities and benefits of irrigation.

UTAH COLONY OF 140 MEN AND 3 WOMEN.

The claim is made that the advance army of the Mormons, who arrived in the Salt Lake Valley, July 24, 1847, included 140 men and three women. These were the people who laid the foundation of a city which is today the center of a thriving country of over a thousand miles in diameter.

Salt Lake City, which is situated 4,261 feet above sea level, is the metropolis of the inter-mountain region. Its more important industries are mining, agriculture, horticulture, the manufacture of sugar, salt refining, brick making, smelting, the manufacture of mining and milling machinery, and a dozen other branches of business connected with the development and reclamation of the arid West.

THE STATE YET WAITING FOR SETTLERS.

By the report sent out from the general land office at Washington there were seen to be, July 1, 1906, over 38,000,000 acres of government land yet unappropriated and waiting for homestead settlers, in Utah. On a visit to the Government Land Office at Salt Lake, it will be seen that there are numerous fertile valleys in this state where large cities can and will yet be built up.

At the land office here will be learned also concerning the irrigation project of the Utah Lake, the

Utah Opportunities in Agriculture and Varied Enterprises

Bear Lake project and the Strawberry Valley irrigation project. It is probable that a visit into this region will disclose to the land seeker many superior openings for investment. See Utah in our department of government irrigation.

But whether or not it is decided to make Utah a permanent abiding place, a journey to Salt Lake City will be exceedingly interesting. The city today, which in 1900 had 80,000 population, has a growing population, seen in our list of towns, has 132 miles of street railway, streets 132 feet wide, with double avenues of trees on each side, between which, at the roadside, flow clear streams of rippling water, which come down from the melting snows of the Wasatch mountains which shelter the city to the east and north.

Four years ago, when we visited the place, there were here fifteen banks having aggregate deposits of \$20,000,000; four daily papers, two morning and two evening; a splendid water supply; four big pleasure resorts, two theaters, five hospitals, three large, modern hotels and numerous smaller ones; three natural hot spring baths equipped with plunge pools; a delightful public park with free music; many fraternal, social and intellectual clubs—while, when it comes to a climate, for those suffering from pulmonary diseases, Salt Lake City offers the weakest a very elixir of life. Those troubled with rheumatism, kidney troubles, and obstinate skin diseases hold Salt Lake in high esteem after having taken a course of the hot curative waters that, within the city limits, issue scalding from nature's caldrons in the bowels of the earth.

The big Mormon Temple, which cost \$3,000,000, immediately arrests the eyes of the traveler on arriving here, while the Mormon Tabernacle, seating 12,000 people, is equally interesting.

THE GREAT SALT LAKE.

Great Salt Lake is 16 miles from Salt Lake City. This lake is supposed to be the last remnant of an immense ocean that once spread itself over all this region, the supposition being, inasmuch as latterly it has been decreasing in size, that ultimately it would completely dry up; but for some unexplained cause, at this writing, the lake is again filling, and before the year is over may raise a foot or more in height.

Salt Lake is about 80 miles long and from 30 to 50 broad. Its area is 3,000 square miles and its waters are 22 per cent salt.

Utah Lake, 40 miles south of Salt Lake, is 25 miles long and 13 wide, has an area of 130 square miles, and is connected by the Jordan River with Great Salt Lake. Sevier Lake, in Millard County, another large sheet of water, has no outlet but receives from the north, Sevier River, 150 miles in length. Salt and thermal springs in this region are numerous.

BAD SOIL TO BEGIN WITH.

The soil of the lowlands of Utah is somewhat alkaline, extremely sandy in portions, and very dry. Much of it, however, has been reclaimed by irrigation and rendered profitably productive.

The precipitation of rain on the highlands is sufficient for vegetation. The annual average temperature in spring is 46.20, in summer 73.57, in winter 30.38. The average annual rainfall is 15.10 inches.

THE PRINCIPAL INDUSTRY.

Aside from mining, the principal industry is agriculture, which is conducted in some ten of the great valleys of the state. With the extension of irrigation the cultivated agricultural area will be proportionately enlarged. In the meantime the mountains and high valleys produce an abundance of nutritious grasses, in consequence of which a large live-stock industry has been developed.

PRODUCTIONS OF ONE YEAR IN UTAH.

Among minerals, and to show the various resources of Utah, the government report of mineral output, in one recent average year, gives the following income:

Asphaltum stone.....	\$ 92,540
Brick.....	311,899
Brick and tile.....	644,578
Coal.....	1,793,510
Coal Tar.....	6,830
Copper.....	8,938,496
Lead.....	4,882,454
Zinc.....	196,489
Mercury.....	36,000
Gold.....	5,140,920
Silver.....	6,666,028
Iron.....	120,296

Total mineral income for that one year was \$25,-980,682.

For agricultural and manufacturing products the list was also large.

It should be borne in mind that Utah is comparatively a young state yet, has been isolated from the great thoroughfares of travel, has, at the 1900 census, only 3.4 persons to the square mile, has had religious prejudice to overcome and an arid climate to contend with, yet, in spite of all this, as shown by statistics of one year, is in a highly prosperous condition with an excellent outlook for the future.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Highest in Utah, Mt. Emmons in the Uinta Mountains, in Wasatch Co., 13,694 feet.

Climate.—Winters usually mild. Summers dry and warm, rainfall scanty. Range of temperature between summer and winter and day and night often very great. At Salt Lake City, average January temperature, 28 above zero; July, 76. Extremes, warmest, 102; coldest, 20 below zero. Yearly rainfall, 16.2 inches.

Dimensions.—Extreme length, north and south, 345 miles; width, 275 miles, east and west. Area of the state, 84,970 miles.

History.—First explored by the Spaniards about 1540; settled by the Mormons in 1847, who called the region Deseret, and application was made in 1862 for admission of the territory under the name "State of Deseret." The application was refused. The Edmunds bill passed in 1882 for the suppression of polygamy and disfranchising polygamists. Mormons met with stubborn resistance and was followed by a bill in 1887 restricting the suffrage and escheating a large amount of Mormon property, real and personal. This led the Mormons in 1890 to pledge themselves to discontinue the practice of polygamy. After a full agreement to obey the laws of Congress Utah was admitted to the Union as a State, January 4, 1896.

San Juan County occupies the southeastern corner of the State, with Monticello the county seat. It is triangular in shape, the extremes being 100 miles north and south and 125 miles east and west. The Colorado River forms the west line, and the whole region is desert and mountainous and far from railroads. Agriculture is confined to a few small reclaimed areas. There is some stock growing and some mining, the latter being in the prospecting stage. Some gold has been discovered in quartz and a number of placers have been found; but up to this time, mining has not taken on much importance. The belief prevails that the region will ultimately produce much copper and gold; but investigation has not yet made this certain. Assessed valuation, 1910, \$533,475, which includes live stock at \$384,700, representing three-fifths of the total property of the county. The population is 2,377.

The principal water courses are the San Juan and Colorado Rivers. These, with several of their tributaries, furnish water for a limited irrigated area. The Navajo Indian Reservation occupies the southeast corner of the county. The region of the San Juan is wild and picturesque and only partially explored. It contains many interesting topographical features, among which are the Canon of the Colorado, the great Natural Bridges, and many monuments of stone that have resisted the erosion of the centuries. Much effort is being made to have the Government set apart portions particularly weird and picturesque as a National Park, and the promise is that this will ultimately be done. The region is now probably the least known of any portion of the West and every year something new and interesting in Nature is being discovered there. Oil seepages along the San Juan River have been known for years, and thirty drilling rigs were in operation January, 1910, and two wells have been opened with a flow of thirty-five gallons to 200 barrels each per day. The oil has a paraffine base and the indications are now that the San Juan region is likely to ultimately become a considerable producer of petroleum products. Early in 1911, the development of the San Juan oil fields was being carried on at a rapid rate, the monthly expenditures being at least \$30,000.

THE GREAT SALT LAKE.

The Great Salt Lake is counted one of the marvels of creation, and much has been the speculation as to its origin. There is no mystery about that, however. It is all that is left of old Lake Bonneville—the prehistoric sea that once washed over the greater portion of Utah and engraved upon the mountain sides three distinct lines as records of its ancient levels. In a book entitled "Lake Bonneville," which may be obtained from the Department of the In-

Utah Opportunities in Agriculture and Varied Enterprises

terior, Mr. Gilbert, of the United States Geological Survey, has elaborately discussed this old sea and its geology.

The principal valleys of Utah were once covered by the waters of Lake Bonneville, and the mountains in the broken ranges about the center of the State were islands on its surface. Geology points out that one primordial day Lake Bonneville broke through the mountain barriers on the north and carving out Bear River Canon, emptied into the ocean by way of the Snake and Columbia Rivers. After that, another and much lower shore line, still to be plainly seen, was carved out on the mountains by the chisels of the waves, and from that line the old lake has been coaxed down by evaporation through the centuries, until the present levels of the Great Salt Lake were reached. Every now and then alarmists threaten Utah with a loss of its dead sea. But there is no great fear of that. The lake rises and falls as the region is affected by wet and dry cycles. In 1843 John C. Fremont drove to Antelope Island over dry sand. In 1868 eight miles of water divided the island from the shore. And thus does the lake reflect wet and dry extremes. About 1903 the waters were at low ebb, but since then the rains have been plentiful and the water line has steadily moved outward until Saltair Beach, which five years ago was 2,000 feet without the water line, is now 4,000 feet from shore.

The lake has several inlets, but no outlets. It is about seven times the area of the Dead Sea of Palestine and carries about the same percentage of salt, which varies from 19 to 22 per cent, according to the season of the year. The waters are green-hued and so buoyant that the bather floats without effort upon their surface. The theory is that Lake Bonneville carried about the percentage of salt of the oceans, and that gradual concentration by the process of evaporation is responsible for the extreme density of the present lake.

The first mention of the lake was by Baron La Hontan, who, according to vague tradition, visited it in 1689, and afterwards told strange tales of bearded men who lived in powerful cities on its shores and navigated its waters in boats 130 feet long.

Father Escalante reached Utah Lake in 1776 and was told by the Indians of another and larger lake to the north—the waters of which were "noxious and extremely salt, producing an itching sensation in the moistened part."

Mr. Miller of the Astor Party saw the lake in 1820, and in the same year Prevost trapped along its tributary streams. The credit is, however, generally given to Jim Bridger for the discovery of the lake. His first view of it was in 1824 from the mouth of Bear River, and the accounts he gave of it were the first to contain accurate information. In 1826 four trappers sailed around it in hide canoes, searching for beaver. About 1831 or 1832 Captain Bonneville examined the region and wrote an account of the lake, whereupon Washington Irving gave it the name of Lake Bonneville, which it bore until 1843, when John C. Fremont, Kit Carson, and others explored it, fixed the latitude and longitude, and gave it its present name. Then came the Mormons in 1847 and founded Salt Lake City, since which time much has been written and said of the water-wonder. The accepted area of the lake is about 2,500 square miles, and its greatest depth is about thirty-three feet. Nothing lives in it except a shrimp no larger than the head of a pin; but thousands of sea-gulls sport on its waves and have one of its eight mountain islands as a breeding place. Ordinarily the lake is placid; but it is subject to sudden storms which lash it into fury, and then bathing and boating are difficult and dangerous.

The pleasure of a bath in the lake cannot be described. Those who visit it for that purpose number nearly one-half million a year. The buoyant waters bear the bather upon the surface and the bath is exhilarating and healthful. Regular bathing in the evening, followed by early retiring, will overcome insomnia, and because of that, nervous and overworked people resort there in great numbers.

The sunsets over the lake are gorgeous beyond description. These reach perfection in the summer season and are especially vivid when the clouds are massed in the west. Then the sky is aflame with every color of conflagration, and the cloud castles are bordered with gold and dyed with all the tints of rose and purple. The mountains, valley, and lake take on the reflection and are suffused with a splendor—a delirium of dyes that the brushes and the paint pots of all the world could never produce. These startling effects are attributed by artists to the influence of the sunlight upon the saline element in the atmosphere.

The lake has a marked effect upon the climate

of the immediate region. It tempers the extremes of winter and summer for a hundred miles around and gives a delightful softness and a faint saline taste to the air.

Saltair Beach is the principal pleasure resort. It is eleven miles from Salt Lake City and is reached by steam road. The patronage of this resort is generous and the facilities for enjoyment there are numerous. The anticipated improvements for the near future are a trolley line from Salt Lake, a large hotel, and a sea-wall to control the inflow of the water and make the shore available for the location of summer cottages. An automobile speedway from Salt Lake City is also in contemplation, and the tract of level plain between the city and the resort is a popular and well adapted field for aviation.

Saltair Beach pavilion is said to be the largest for bathing purposes in the world. It stands over the waves 4,000 feet from the shore and is of Moorish design. The pavilion and other structures represent an expenditure to date of \$550,000. The pavilion proper is 1,200 feet long and its extreme width 365 feet. The main tower rises 130 feet. Trains reach it upon piling and passengers are received at the grand entrance. All the pleasures usually found at bathing resorts are offered at Saltair. There is an interesting Midway, an ample space for basket luncheons which are very popular, a ship-restaurant of mammoth proportions, and a large hippodrome for summer opera, and the presentation of spectacular attractions.

The dancing pavilion on the upper floor is 140 by 150 feet and will accommodate 1,000 couples. Arched over this is a roof similar to that of the Mormon Tabernacle. The pavilion is crescent-shaped and the horns of the crescent carry more than 1,000 dressing-rooms provided with stationary wash-stands and shower-baths. Convenient access to the water is had from these rooms.

Saltair at night presents a magnificent sight and is distinctly visible from the higher portions of Salt Lake City.

SOLID SALT SEA.

One of the most curious illustrations of nature-work in Utah is the solid sea which lies between the south shore of the lake and the Deep Creek Mountains. Access to this remarkable spectacle has, until recently, been made difficult by the forbidding barriers of the Great American Desert, which surrounds it on three sides. Now, however, it is crossed by a railroad and is only a three-hour rail ride from Salt Lake City. The salt area is twelve miles wide by thirty miles long, and was formed by wind-driven waves from the Great Salt Lake, which little by little deposited their saline contents over the low levels of the desert. There is not an undulation upon it—not a sign of vegetation. It is just a great level, glittering white expanse. Engineers compute its salt contents to be about 350,000,000 car-loads—enough to salt the nation for some time to come after all other supplies are exhausted. The salt is almost pure and has an average depth of twelve feet. From a commercial viewpoint its value is almost incalculable and some time it will be a tremendous endowment for the University of Utah, which received it from the Government under the terms of the Utah Enabling Act. The wonders of the mirages of the desert are here intensified. Probably no other portion of the world can produce such marvelous imagery as may be seen every summer day under the blistering sun. In the heated air are exaggerations of every object upon the surface; the tumbleweed blown in from the desert, the carcasses of animals that have strayed too far from shore and perished from thirst, are all reflected in the mirrors of the air, and imagination may easily give the presentations forms that range all the way from the domes and turrets of an oriental city, to the commonest object of every-day life. And the sea itself is so duplicated around these creations that they seem to be afloat on vast areas of living waters.

OTHER LAKES AND RESORTS.

Utah Lake is a fresh water body in Utah County with an area of about 125 square miles. It is convenient to the town of Provo and is much used as a pleasure resort and for fishing and shooting. The waters have been stocked by the State with black-bass, whitefish, and other food fishes, and are drawn upon daily during the open season by professional fishermen for the markets. Hook and line fishing for bass in this lake is a favorite amusement and myriads of wild ducks feed about its shores and furnish shooting for a number of gun clubs.

STATE AND THE 14 COUNTIES OF VERMONT
With Their Boundaries

Location and Population
of
VERMONT COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.....	Grand Isle..	3,761
2.....	Franklin..	29,866
3.....	Orleans..	23,337
4.....	Essex..	7,384
5.....	Chittenden..	42,447
6.....	Lamoille..	12,585
7.....	Caledonia..	26,031
8.....	Washington..	41,702
9.....	Addison..	20,010
10.....	Orange..	18,703
11.....	Rutland..	48,139
12.....	Windsor..	33,681
13.....	Bennington..	21,378
14.....	Windham..	26,932
Total.....		353,956

CITIES AND VILLAGES
OF VERMONT WITH
1910 POPULA-
TIONS

A		
Addison	9.....	856
Albany	3.....	528
Albany	1.....	1,109
Albany Center..	1.....	275
Albany Junction..	1.....	200
Albany Springs..	1.....	502
Andover	12.....	250
Arlington	13.....	466
Ascutneyville ..	12.....	220

B		
Bakersfield	2.....	1,158
Barnard	12.....	620
Barnet	7.....	550
Barre	8.....	10,734
Barton	3.....	1,330
Bartonsville	14.....	226
Beebe Plain.....	3.....	226
Beecher Falls ..	4.....	502
Bellows Falls ..	14.....	4,883
*Bennington	13.....	6,211
Benson	11.....	826
Berlin	8.....	510
Bethel	12.....	2,506
Bloomfield	4.....	564
Bolton	5.....	275
Bondville	13.....	462
Bradford	10.....	631
Braintree	10.....	476
Brandon	11.....	1,608
Brattleboro	14.....	6,517
Bridgewater	12.....	426
Bridgewater	12.....	250
Bridport	9.....	945
Brighton	4.....	526
Bristol	9.....	1,180
Brookfield	10.....	526
Brownsville	12.....	513
*Burlington	5.....	20,468

C		
Cabot	8.....	227
Calais	8.....	200
Cambridge	6.....	593
Canaan	4.....	208
Castleton	11.....	1,125
Cavendish	12.....	652
Center	11.....	520
Centerville	7.....	366
Charlotte	5.....	1,102
*Chelsea	10.....	1,070
Chester	12.....	666
Chester Depot..	12.....	726

VERMONT CITIES AND VILLAGES WITH 1910 POPULATIONS

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Chittenden	11.....	426	Danville	7.....	828	East Braintree..	10.....	330
Clarendon	11.....	215	Derby	3.....	316	East Burke.....	7.....	431
Colchester	5.....	330	Derby Line.....	3.....	390	East Calais....	8.....	690
Concord	4.....	339	Dorset	13.....	690	East Charleston..	3.....	406
Conicut	10.....	225	Duxbury	8.....	478	East Clarendon..	11.....	250
Corinth	10.....	414	E			East Corinth....	10.....	411
Cornwall	9.....	846	East Alburg....	1.....	226	East Dorset....	13.....	690
Coventry	3.....	262	East Arlington..	13.....	630	East Dover.....	14.....	220
Craftsbury	3.....	200	East Barnard..	2.....	240	East		
Cuttingsville ..	11.....	490	East Berke....	7.....	263	Dummerston..	14.....	275
D			East Barre.....	8.....	966	East Fairfield..	2.....	1,096
Danby	11.....	890	East Berkshire..	2.....	926	East Hardwick..	7.....	466
			East Bethel....	12.....	211	East Highgate..	2.....	380

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Vermont with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
East Johnson...	6	366	Londonderry...	14	462	Perkinsville...	12	603	Topsham...	10	417
East Middlebury...	9	346	Lowell...	3	202	Peru...	13	373	Townshend...	14	730
East Montpelier...	8	626	Lower Cabot...	8	250	Pittsfield...	11	1,435	Tunbridge...	10	362
East Peacham...	7	250	Ludlow...	12	1,621	Pittsford...	11	1,290	U		
East Poultney...	11	326	Lunenburg...	4	290	Pittsford Mills...	11	409	Underhill...	5	840
East Randolph...	10	238	Lunenburg Station...	4	426	Plainfield...	8	341	Underhill Center...	5	226
East Roxbury...	8	290	Lyndon...	7	956	Plymouth...	12	300	U		
East Rupert...	13	254	Lyndon Center...	7	259	Plymouth Union...	12	346	Vergennes...	9	1,753
East Ryegate...	7	298	Lyndonville...	7	1,573	Post Mills...	10	350	Vershire...	10	541
East Wallingford...	11	275	M			Poultney...	11	2,706	W		
Eden...	6	456	McIndoe Falls...	7	406	Pownal...	13	1,036	Waitsfield...	8	760
Eden Mills...	6	590	*Manchester...	13	478	Proctor...	11	2,756	Waits River...	10	200
Elmore...	6	559	Manchester Center...	13	702	Proctorsville...	12	706	Walden...	7	364
Enosburg Falls...	2	1,153	Manchester Depot...	13	755	Putney...	14	894	Wallingford...	11	1,102
Essex...	5	293	Marbleboro...	14	468	Quechee...	12	306	Watham...	9	264
Essex Junction...	5	1,245	Marshall...	11	1,026	R			Wardsboro...	14	330
F			Mechanicville...	11	620	Randolph...	10	2,466	Warren...	8	726
Fairfax...	2	1,338	Mendon...	11	392	Randolph Center...	10	200	Washington...	10	795
Fairfield...	2	724	*Middlebury...	9	1,866	Readsboro...	13	804	Waterbury...	8	2,310
Fair Haven...	11	2,544	Middletown...	11	746	Richford...	2	1,922	Waterbury Center...	8	536
Fairlee...	10	383	Springs...	11	746	Richmond...	5	857	Waterford...	7	505
Fayston...	8	456	Milton...	5	634	Richville...	9	236	Waterville...	6	529
Felchville...	13	460	Monkton...	9	912	Ripton...	9	525	Wells...	11	606
Ferrisburg...	9	1,613	Montgomery...	2	950	Rochester...	12	1,250	Wells River...	10	865
Forest Dale...	11	266	Montgomery Center...	2	990	Roxbury...	8	512	West Barnet...	7	302
Fowler...	11	266	Montpelier...	8	7,856	Royalton...	13	327	West Berkshire...	2	376
Franklin...	2	920	Montpelier (capital)...	8	7,856	Rupert...	13	400	West Berlin...	8	511
G			Moretown...	8	902	*Rutland...	11	13,546	West Bolton...	5	210
Gaytsville...	12	550	Morristown...	6	290	Ryegate Station...	7	220	West		
Georgia...	3	680	Morrisville...	6	1,445	S			Brattleboro...	14	560
Glen...	11	326	Mount Holly...	11	320	*Saint Albans...	2	6,239	West		
Glover...	3	391	N			*Saint Johns...	7	6,693	Bridgewater...	12	390
Goshen...	9	286	Newark...	7	562	Saint Johns-bury Center...	7	303	West Brookfield...	10	390
Grafton...	11	794	Newbury...	10	720	Salisbury...	9	692	West Burke...	7	636
Grand Isle...	1	666	Newbury Center...	10	490	Sandgate...	13	482	West		
Graniteville...	3	422	New Haven...	9	1,107	Saxtons River...	14	1,409	Charleston...	3	625
Granville...	9	544	New Mills...	9	229	Sharon...	12	709	West Danville...	7	426
Green River...	14	502	*Newport...	3	2,548	Sheffield...	7	724	West Derby...	3	1,109
Greensboro...	3	290	North			Shelburne...	5	1,202	West Dover...	14	320
Greensboro Bend...	3	290	Bennington...	13	663	Sheldon...	2	1,062	West		
Groton...	7	1,466	Northboro...	10	390	Sherburne...	11	302	Dummerston...	14	350
Guilford...	14	236	North Clarendon...	11	250	Shoreham...	9	1,203	West Fairlee...	10	539
H			North			South Barre...	8	309	Westford...	5	862
Halifax...	14	292	Clarendon...	11	250	South Cabot...	8	250	West Georgia...	2	250
Hancock...	9	253	North			South Dorset...	13	226	West Halifax...	3	200
Hardwick...	7	2,464	Craitsbury...	3	200	South Hero...	1	1,106	West Hartford...	12	466
Hartford...	12	1,479	North Danville...	7	326	South Lincoln...	9	201	West Haven...	11	855
Hartland...	12	1,446	North Duxbury...	8	226	South			Westminster...	14	845
Heartwellville...	13	226	North Ferrisburg...	9	201	Londonderry...	14	561	Westminster Station...	14	200
Highgate...	2	639	Northfield Falls...	8	1,948	South Lunenburg...	10	500	West		
Highgate Center...	2	636	*North Hyde...	1	790	South Newbury...	10	225	West		
Highgate Springs...	2	360	North Park...	6	520	South Peacham...	7	200	Weston...	12	756
Hinesburg...	5	242	North			South Pomfret...	12	577	West Pawlet...	11	936
Golden...	11	324	Montpelier...	8	461	South Royalton...	12	1,120	West Rupert...	13	306
Hortonville...	11	246	North Pownal...	13	826	South Ryegate...	7	650	West Rutland...	11	3,427
Hubbardton...	11	246	North Shrewsbury...	11	422	Shaftsburg...	13	1,726	West Salisbury...	10	536
Huntington...	5	836	North Springfield...	12	432	Starksboro...	9	803	West Topsham...	10	362
Huntington Center...	5	229	North Theford...	10	336	South			West		
*Hyde Park...	6	456	North Troy...	3	771	Starksboro...	9	803	Wardsboro...	14	237
Hydeville...	11	366	North Tunbridge...	10	596	South Stafford...	10	590	Weybridge...	9	518
I			North Williston...	5	676	South			Wheelock...	7	467
Inwood...	7	236	Norwich...	12	1,103	Wallingford...	11	220	White River Junction...	12	2,309
Ira...	11	236	O			Springfield...	12	3,250	Whiting...	9	361
Irasburg...	3	236	Orange...	10	530	Stamford...	13	677	Whitingham...	14	302
Island Pond...	4	1,513	Oleams...	3	1,131	Stannard...	7	232	Wilder...	12	302
Isle La Motte...	1	636	Orwell...	9	1,150	Starksville...	9	902	Williamstown...	10	1,610
J			P			Stockbridge...	12	272	Williamsville...	14	420
Jacksonville...	14	212	Panton...	9	409	Stowe...	6	1,809	Williston...	5	250
Jamaica...	14	646	Pasumpsic...	7	256	Strafford...	10	520	Williston Station...	5	676
Jeffersonville...	6	650	Pawlet...	11	831	Sudbury...	11	474	Wilmington...	14	1,221
Jericho...	5	1,913	Peacham...	7	390	Sunderland...	13	518	Windham...	14	256
Jericho Center...	5	326	L			Sutton...	7	694	Windsor...	12	1,656
Johnson...	6	651	Leicester...	3	509	Swanton...	2	3,495	Winooski...	5	4,520
Jonesville...	5	230	Lincoln...	9	1,122	T			Wolcott...	6	990
						Taftsville...	12	336	Woodbury...	8	762
						Talcott...	5	250	Woodford...	13	279
						Thetford Center...	10	253	*Woodstock...	12	2,066
						Tinmouth...	11	404	Worcester...	8	636

CONDENSED IMPORTANT FACTS RELATING TO THE STATE

Altitude—Highest, Mt. Mansfield in La Moille county, 4,430 feet.

Climate—Healthful, winters long, snows deep considerably and sometimes the mercury goes below zero. The average annual temperature is 45 degrees above zero; average annual temperature in January is 19 above; July 71. Extremes: warmest, 97; coldest, 25 below; yearly rainfall 28.8 inches.

Dimensions—Length from north to south, 155 miles; width 35 to 85 miles from east to west. Area 90 square miles. Over 100 miles of frontage on

Lake Champlain. The state is noted for its scenery and many summer resorts, being in general description very much like New Hampshire.

History—Visited by Champlain in 1609 and between 1665 and 1691. The French erected forts on Lake Champlain. Immigrants from Massachusetts erected Fort Dummer near site of Brattleboro, 1724. "Green Mountain Boys" under Ethan Allen were prominent in the war of the revolution. First state constitution adopted 1777; last constitution adopted 1870.

Opportunities in Agriculture and Varied Enterprises

VERMONT

A Picturesque Region of Charming Resorts, Running Brooks, Fine Apple Orchards, Maple Sugar Groves, Large Woodpiles, Skating and Good Sleighing.

In Home Comforts Like Its Sister State of New Hampshire. For Winter Comforts Nearly the Same Description May Be Applied.

For several generations the trend of emigration has been westward. No matter how savage the Indians, how filled the country might be with thieves and cut-throats, how filled the soil might be with alkali, how dry the climate or sandy the desert—"To the West, to the West" has been steadily the cry, until the young men of many a prosperous town in the East have been induced to leave good homes where it would have been much to their advantage had they remained.

In a certain sense this has been all right. Beginning in a bleak New England region, where land had to be cleared of timber, stones to be picked and roads to be opened after snow storms, it was natural that enterprising youth should seek another clime in which to get a living.

And so the multitude has pressed to the westward and taken along the sturdy New England boys. That is all well. It was necessary that the West should be settled. It has been and it is. Now comes a period for reflection. Conditions have changed.

That old Vermont farm that used to seem so far back has seemingly been moved right to the front. The daily paper, with all the news of the world, is brought to the farm every day. The telephone that reaches out to the nearby village store, permits a conversation with all the neighbors for miles around and all the old acquaintances in Boston, New York, and other metropolitan cities. That road that used to seem so long has been shortened by the recently introduced automobile, and the multitude of people from the city who come out so quickly, and so easily, fill the old house with gaiety that the old times knew nothing about.

DID NOT KNOW ITS BEAUTIES IN OUR YOUTH

How delightful is the old farm today! That winding, rapid running brook—just a few rods away—it used to be a river when we were on the old farm, full of speckled trout as it is today. And those brooks that come jumping down the hillside with some of their sparkling water running into the kitchen—all day and all night—clear, bright, fresh water and no water tax to pay, and no notice from the health authorities advising that we boil the water to destroy the germs.

MANY WAYS OF MAKING MONEY

Sit down upon the broad porch here and contemplate. There is a maple sugar orchard on the place that will give an excellent revenue annually from real genuine "Vermont maple sugar."

There is a bee house where the bees go out, come in and deposit the sweets which they gather far up the mountain side. They want only enough of their honey to carry them through to another year. They will give the balance away and will be glad if we get a goodly sum for the honey we sell.

There is a strawberry field adjoining the kitchen garden, from which the children of the nearby town pick for us many dollars' worth of berries each season. There is an apple orchard that gives us a good many barrels of apples every year. And so after we have taken the product of our poultry yard, and the income from city people who tented on our grounds and boarded with us, through the summer, we find, putting our sources of revenue all together, that we are some hundreds of dollars ahead.

When winter comes, and the great pile of wood waits for us, at the end of the house under cover, a wood pile gathered from the hillside, after we had sold many cords of wood from the timber lot—we say, when winter comes, with barrels of hickory nuts and butter nuts gathered from our own fields, the sweetest of butter and cream from our own cows, the freshest of eggs, the meallest of potatoes raised on our own grounds, with maple sugar, honey, pancakes from buckwheat, raised on our land,—we repeat, when winter comes, with plenty of money made in the past summer permitting us to go to some warm climate during the cold weather if we

choose, we simply decide that we can get more pleasure in our cozy home, by the warm fire, eating apples, drinking cider, cracking hickory nuts, sugaring off our maple sugar, just attending to poultry, cattle, getting in wood and sitting by the warm winter fire, reading the magazines, papers and the latest books—we decide we repeat, that all this will afford us more real enjoyment than to go anywhere away in the winter.

EXCELLENT VERMONT SCHOOLS

And as the years go so pleasantly by and our children are so well educated in the excellent Vermont schools, and we get support and a competency from our little farm, we rejoice that it was our fortune to find a property so low in cost and that we got located where we are amid the fresh water brooks and the picturesque scenery of Vermont.

Productions—1905—Agricultural: oats, 3,094,924 bushels; corn, 2,020,859 bushels; wheat, 27,467 bushels. **Manufactures—**capital employed, \$62,658,741. **Wage earners,** 33,106. **Wages paid,** \$15,221,059. **Value of productions,** \$63,083,611. **Minerals—**stone, \$6,993,765; slate, 1,352,541; lime, \$188,921.

State Public Institutions—Location of—Asylum for the Insane, Waterbury; Soldiers' and Sailors' Home, Bennington; House of Correction, Rutland; State Prison, Windsor; University, Burlington; Industrial School, Vergennes; Agricultural College, Burlington; Normal Schools, Johnson, Castleton and Randolph; Brattleboro Retreat, Brattleboro; State Improvement Association, Vergennes.

ETHAN ALLEN.

A prominent Vermont man during the revolutionary period in the United States was Ethan Allen, born in Connecticut in 1739, who died in Burlington, Vt., Feb. 13, 1789.

His biographer, in the American Cyclopaedia, says: About 1763 he settled with four younger brothers, in the township of Bennington, Vt. Previous to the revolution there existed a dispute between the colonies of New York and New Hampshire, relative to their boundaries, and the debatable land included the whole of the present state of Vermont, then called the New Hampshire grants.

Ethan Allen first became conspicuous in the controversy which grew out of the attempt to enforce a New York law. Actions of ejectment being brought against those who held land under grants from New Hampshire, Allen was selected, in 1770, as agent to represent the settlers, in the litigation at Albany. The decision was adverse to them and they resolved to resist. They adopted Allen's own phrase, "The gods of the valleys are not the gods of the hills." The New York authorities were everywhere set at defiance. Allen was made colonel of an armed force which not only protected the New Hampshire grantees, but removed the New York settlers. Governor Tryon, of New York, proclaimed a reward of \$150 for Allen's arrest.

This state of affairs remained unaltered till the revolution, New York maintaining her hostile attitude, and the Vermonters the possession of their farms. In 1775, when war with the mother country had become inevitable, the occupation of Ticonderoga was determined on, and the task was confided to Allen, who set out at once at the head of his "Green Mountain Boys," reaching Casleton May 7, 1775. A party was also detached, under Captain Herick, toward Skenesborough, and another, under Captain Douglass, to Pantion in the vicinity of Crown Point.

On the morning of May 10 Allen, who had previously been joined by Arnold, surprised Ticonderoga, summoning Captain Delaplace, who commanded the post, to surrender in the name of "the great Jehovah and the Continental Congress." By this coup de main, 2 officers, 48 rank and file, 120 pieces of artillery, and a large quantity of small arms were captured, and the command of the Green Mountains was wrested from the English. Only 80 Americans were present at the capture. The other

Vermont Opportunities in Agriculture and Varied Enterprises

enterprises were equally successful, Skenesborough and Crown Point being also captured.

A dispute ensued between Arnold and Allen relative to the command, which the latter maintained until he was relieved by the arrival of the Connecticut regiment, commanded by Colonel Hinman, to whom he delivered his conquests. Allen immediately proposed to the authorities of New York an invasion of Canada, which was refused, and he then proceeded to Philadelphia, where the Continental Congress officially acknowledged his services.

He next joined General Schuyler's army as a volunteer, was employed in secret missions to sound the views of the Canadians, and rendered valuable aid in Montgomery's expedition to Canada, but in an unfortunate demonstration against Montreal with a small force of American and Canadian recruits, made on the persuasion of Major Brown, Sept. 25, 1775, he was captured and sent a prisoner to England. A few months later he was sent back to America and confined in prison ships and jails at Halifax till May 3, 1778, when he was exchanged.

During most of his captivity he was treated as a felon and kept heavily ironed, but for a part of 1776-7 was allowed restricted liberty on parole. Kindly received at Congress and by Washington, he was about to enter the military service again when the old colonial troubles regarding Vermont were revived.

Allen was now chosen general, and appointed to command all the militia of that State. In the meantime 16 of the western townships of New

Hampshire sought annexation to Vermont, sending a petition to that effect to the legislature, who referred the matter to the people. The governor of New Hampshire protested against this course, writing to the Continental Congress to interpose its authority.

Allen was sent as the agent of Vermont to explain to Congress the course of the state. About this time the English commanders in America began to meditate the restoration of royal authority in Vermont, and while the Vermont claim of self-government was in abeyance, sought to take advantage of the dispute. A tempting offer was made to Allen through Beverly Robinson, a well-known tory of the time, without any result except that by feigning negotiations Allen was able to preserve the neutrality of the English authorities toward the mountaineers, who were consequently unmolested until nearly the end of the war. Before that time he removed to Bennington, thence to Arlington and subsequently to the vicinity of Oman River, where he resided till his death, serving for some time in the legislature.

He was twice married and left a wife and several children. In addition to a history of the controversy between Vermont and New York, a narrative of his captivity and various political pamphlets, he was the author of a work entitled "Reason the Only Creed of Man" (8vo, Bennington, 1784), in which the Bible and the Christian religion are assailed from a purely deistic standpoint.

VERMONT PRODUCTIONS AND RESOURCES.

Agricultural Productions.—These include wheat, Indian corn, rye, oats, barley, buckwheat, potatoes, tobacco, butter, cheese, hops, maple sugar, honey, poultry, apples, strawberries and maple molasses.

Birds.—The birds are those of New England generally, besides aquatic fowl which frequent Lake Champlain.

Fish.—Lake Champlain yields large quantities and numerous varieties of fish, including muscalonge, lake whitefish, salmon trout, pickerel, roach, perch, and other smaller fish, while the brooks and rivers teem with speckled trout.

Forest Trees.—There are nearly one hundred species of trees and large shrubs. The principal forest trees are hemlock, fir and spruce on the mountains, pine, oak, beech, sugar maple, hickory, elm, butternut, basswood and birch on the lower land, and cedar in the swamps. The mountains are generally covered with timber or afford good pasturage.

Green Mountains. The northernmost portion of the Appalachian chain, extending from Canada south through Vermont. To this State, over which they are largely spread, they give its name, from the term, *monts verts*, mountains green, by which they were known to the early French settlers. The continuation of the range through Massachusetts and Connecticut is also known to geographers as the Green mountains, but by the inhabitants of those states other names are applied to them; as the Hoosac in Massachusetts for that portion lying between the Connecticut and Hoosatic rivers and constituting the most elevated portion of the State, and the Teton mountains for the western part of the range along the New York line. These ranges extend into Vermont near the Southwest corner of the State, and join in a continuous line of hills that pass through the western portion of the State nearly to Montpelier.

Lakes.	Miles long.	Miles wide.
Bomoseen Lake, Rutland Co.....	8.....	2
Bristol Lake, Addison Co.....	2.....	1
Casplan Lake, Orleans Co.....	3.....	1
Crystal Lake, Orleans Co.....	2½.....	½
Lake Champlain, Western Vt.....	125.....	½ to 15
Lake Dunmore, Addison Co.....	5.....	1
Lake Memphremagog, Orleans Co.....	33.....	2 to 4
Seymour Lake, Orleans Co.....	4.....	2
Silver Lake, Addison Co.....	¾.....	½
Willoughby Lake, Orleans Co.....	6.....	1½

Live Stock.—As a large proportion of the land is better adapted to grazing than to tillage, much at-

tention has been given to the raising of live stock, and the horses, cattle, sheep and swine of Vermont are of excellent quality.

Manufacturing Industries.—Agricultural implements, blacksmithing, boots and shoes, carriages and wagons, cars, freight and passenger; cheese, cotton goods, flour and grist-mill products, furniture, leather, lumber, machinery, musical instruments, sash, doors and blinds; tin, copper and sheet iron ware, woolen goods.

Marbles and Slate.—Vermont is rich in marble and slate. Marble was first quarried at Rutland in 1844, and the quarries there now supply about half of the production of Vermont. The marbles obtained are the white statuary, the variegated, mottled and blue. The white is not inferior to the Italian. Other marbles of various colors are obtained in different parts of the state. Thus the Swanton and Isle La Motte marble, when polished, is a jet black; Winooski yields a fine sienna, and other grades of pale, red and white colors.

Religious Denominations.—Baptist, Christian, Congregational, Episcopal, Friends, Methodist, Presbyterian, Roman Catholic, Second Adventist, Spiritualist, Unitarian, Universalist, Unknown, Various Unions.

Reptiles.—The rattlesnake, black snake, two or three species of adder, and the harmless species of serpents are not infrequent.

Wild Animals.—The wild animals are the panther, wild cat, lynx, raccoon, wolf, fox, elk, deer, black bear, rabbits and squirrels of different species.

Waterfalls.—The state abounds in beautiful waterfalls and picturesque natural curiosities. The most remarkable, besides Ballard's Falls, in the Connecticut, are the Great Falls on the La Moille, in Milton; the O'Connell's Falls, and the natural bridge, a little below them in Johnson; the great falls on the Clyde in Charleston, where there is a descent of 100 feet in 40 rods; the numerous falls on the Winooski, with its natural bridge and caverns in Duxbury; the magnificent fall of 70 feet in the Missisquoi, at Troy, and the gentler one at Highgate; the falls in the Passumpsic at Lyndon; the falls in the Black River at Springfield, and the caves at Dorset and Plymouth. Many of the streams flowing west unite to form fine rivers which enter Lake Champlain. Eleven smaller rivers flow into the Connecticut, which drains about one-third of the area of Vermont. Three streams run north to Lake Memphremagog, about one-fifth of which is within the state, and two streams flow south to join the Hudson River. Most of the larger streams flow through wide, fertile valleys.

STATE AND THE 100 COUNTIES OF VIRGINIA

With Their Boundaries

LOCATION AND 1910 POPULATION OF VIRGINIA COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1....	Frederick..	12,787	26	Westmoreland..	9,313	52	Prince		78.....	Patrick..	17,195
2.....	Clarke..	7,468	27....	Alleghany..	14,173		Edward..	14,266	79.....	Franklin..	26,480
3....	Loudoun..	21,167	28...Rock Bridge..	24,416	53.....	Amelia..	8,720	80.....	Henry..	18,459	
4....	Shenandoah..	20,942	29....	Amherst..	18,932	54....	Chesterfield..	21,299	81....	Pittsylvania..	30,709
5.....	Page..	14,147	30.....	Nelson..	16,821	55.Prince George..	7,848	82.....	Hallifax..	40,044	
6....	Warren..	8,589	31..Buckingham..	15,204	56...Charles City..	5,233	83....	Charlotte..	15,785		
7 Rappahannock..	8,044	32....	Fluvanna..	8,323	57....	New Kent..	4,682	84..	Mecklenburg..	28,956	
8....	Fauquier..	22,526	33....	Cumberland..	9,195	58....	Gloucester..	12,477	85....	Lunenburg..	12,780
9..Prince			34....	Goochland..	9,237	59....	Mathews..	8,922	86....	Nottoway..	13,462
	William..	12,026	35....	Powhatan..	6,099	60..Northampton..	16,672	87....	Dinwiddie..	15,442	
10.....	Fairfax..	20,536	36.....	Hanover..	17,200	61....	Buchanan..	12,334	88....	Brunswick..	19,244
11....	Alexandria..	10,231	37....	Henrico..	23,427	62.....	Tazewell..	24,946	89....	Greensville..	11,890
12..Rockingham..	34,903	38.King William..	8,547	63.....	Bland..	5,154	90.....	Sussex..	13,664		
13.....	Greene..	6,937	39.King & Queen..	9,576	64.....	Pulaski..	19,246	91..Southampton..	26,305		
14....	Madison..	10,055	40.....	Essex..	9,105	65....	Montgomery..	17,268	92.....	Surry..	9,715
15....	Culpepper..	13,472	41....	Richmond..	7,415	66.....	Roanoke..	19,623	93....	James City..	3,624
16.....	Stafford..	8,070	42..Northumber-			67.....	Dickenson..	9,199	94.....	York..	7,757
17.....	Highland..	5,317		land..	10,777	68.....	Wise..	31,162	95....	Warwick..	6,041
18.....	Essex..	6,538	43....	Middlesex..	8,852	69.....	Lee..	23,840	96 Elizabeth City..	21,225	
19.....	Augusta..	32,445	44....	Lancaster..	9,752	70.....	Scott..	23,814	97..Isle of Wight..	14,929	
20....	Albemarle..	29,871	45....	Accoomac..	36,650	71.....	Russell..	23,474	98....	Nansemond..	26,886
21.....	Louisa..	16,578	46.....	Giles..	11,623	72....	Washington..	32,830	99.....	Norfolk..	52,774
22....	Orange..	13,486	47.....	Craig..	4,711	73.....	Smyth..	20,326	100.Princess Anne..	11,526	
23..Spottsyl-			48....	Botetourt..	17,727	74.....	Grayson..	19,856			
	vania..	9,935	49.....	Bedford..	29,849	75.....	Wythe..	20,372	Total.....		2,061,612
24....	Caroline..	16,596	50....	Campbell..	23,043	76.....	Carroll..	21,116			
25..King George..	6,378	51...Appomattox..	8,904	77.....	Floyd..	14,092					

Cities and Villages of Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A			Anchor	92	200	Basic City	19	1,632	Blackwood	67	55
*Abingdon	72	1,757	Appalachia	68	1,090	Bealeton	8	250	Blairs	55	250
*Accomac	45	712	*Appomattox	51	222	*Bedford City	49	2,508	*Bland	62	330
Adamair	70	309	Arlington	11	1,536	Belle Haven	45	296	Blankenship	69	249
Alberene	20	362	Ashburn	3	220	Belspring	64	336	Bluemont	3	200
Alexandria	11	15,329	Ashland	36	1,324	Bentonville	6	268	Bolsevain	62	226
Alfredton	62	1,026	Atlantic	45	250	Berkley	99	4,988	Bondtown	68	305
Almagro	81	990	B			*Berryville	2	876	*Bowling Green	24	433
Altavista	50	526	Ballston	11	860	Big Stone Gap	68	2,590	*Boynton	81	421
*Amelia C H.	53	380	Barhamsville	57	250	Blacksburg	65	875	Boykins	91	505
*Amherst	29	550	Barton Heights	37	1,388	Blackstone	86	1,486	Branchville	91	239

Explanation: Index to Towns. First Column. Names of Towns; Second Column. Number the Same as Number of the County Where Town is Located; Third Column. Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Brandy Sta. ....15...	201	Elkton .....12...	873	Keller .....45...	220	Peers .....31...	200				
Brewster .....71...	226	Elliston .....65...	390	Kempsville .....100...	262	Pennington .....69...	792				
Bridgetown ....60...	322	Eliverton .....68...	349	Keeoke .....69...	526	Gap .....87...	24,127				
Bridgewater ....12...	859	*Emporia .....89...	2,018	Keyville .....85...	432	Petersburg .....96...	2,394				
Bristol .....72...	6,247	Esmont .....20...	590	Kilmarnock .....41...	430	Pine Beach .....99...	330				
Bristow .....9...	362	Etricks .....54...	991	Konnarock .....72...	366	Pinners .....99...	1,566				
Broadcreek ....100...	563	F		Lacrosse .....84...	281	Pocahontas .....67...	2,432				
Broadway .....12...	416	*Fairfax .....10...	413	Lamberts Point. 99...	2,906	Poquoson .....81...	638				
Brookneal .....50...	504	Fairwood .....74...	220	*Lancaster .....41...	200	Port Norfolk. 99...	1,226				
Brownburg .....28...	325	Falls Church. 11...	1,238	Laurel .....50...	250	*Portsmouth ....99...	33,190				
Buceton .....1...	338	Falls Ch Sta. 11...	1,066	Laurel Grove. 37...	336	Potomac .....9...	559				
Buchanan .....43...	792	Falmouth .....16...	326	*Lawrenceville 88...	1,733	*Powhatan .....35...	250				
*Buckingham 31...	462	*Farmville ....52...	2,971	*Lebanon .....71...	366	Preacher .....68...	390				
Buell .....99...	250	Fentress .....99...	250	*Leesburg .....3...	1,597	*Princess Anne .....100...	302				
Buena Vista ..28...	3,245	*Fincastle ....48...	479	*Lexington ....28...	2,931	*Pulaski .....99...	220				
Buffalo Station. 30...	326	Flake .....87...	200	Lignite .....48...	218	Pungoteague. 45...	431				
Burkes Garden.62...	250	Flat Top Yard. 62...	240	Lincoln .....3...	280	Purcellville ....3...	388				
Burkeville .....86...	653	Flint Hill .....7...	237	Linnville .....12...	225	R					
C			Ford .....87...	226	Lotus .....68...	200	Radford .....65...	4,202			
Cambria .....65...	535	*Floyd .....77...	379	*Lovington ....30...	390	Ramble .....82...	350				
Cape Charles. 60...	1,948	Fordwick .....37...	226	*Luray .....27...	1,066	Ranons .....31...	330				
Cape Henry ....100...	200	Forestville ....19...	226	Lynchburg ....5...	1,218	Rawlins .....49...	336				
Cappahosic .....58...	200	Ft. Blackmore. 70...	205	Lynnhams .....50...	20,494	Reedville .....42...	220				
Cartersville ...33...	262	Fort Hunt .....10...	394	Lynnhaven .....100...	322	Relee .....11...	330				
Cedar Bluff ....62...	250	Fort Myer .....11...	1,060	M			Remington .....8...	251			
*Charlotte		Fortress Monroe. 96...	1,220	McGaheysville. 12...	468	Renoville .....100...	230				
*Court House. 83...	329	Fosters Falls. 75...	326	*Madison .....14...	580	Richlands .....62...	743				
*Charlottesville 20...	6,765	Foxhill .....96...	720	*Manassas .....9...	1,217	Richmond (capital)	37,127,628				
*Chatham .....84...	1,662	Franklin .....91...	2,271	Manchester .....54...	9,715	Ridgeway .....80...	393				
*Cherrydale ....81...	1,113	Franklin City. 45...	236	*Marion .....73...	2,727	Riner .....65...	250				
Chester .....54...	252	Franklin Jet. 31...	436	*Marshall .....8...	250	Riverville .....66...	34,874				
Chilhowie ....73...	362	Franktown .....60...	362	*Martinsville ..80...	3,368	Roanoke .....66...	266				
Chincoteague		Fredericksburg 23...	5,874	*Marysville ....58...	200	*Rocky Mount. 79...	1,429				
Island .....45...	1,419	Fries .....74...	1,175	*Mathews .....59...	335	Rosslyn .....11...	562				
*Christiansburg .....65...	1,563	*Front Royal. 6...	1,133	Matoaca .....54...	661	Round Hill. 3...	379				
Christiansburg Station .....65...	426	G		Max Meadows. 75...	750	Ruckersville. 13...	202				
Churchland ....99...	1,102	Galax .....74...	755	Meadowview ....72...	520	Rural Retreat. 75...	1,066				
Churchville ....19...	250	*Gate City .....70...	599	Meadowville ....51...	226	*Rustburg .....50...	321				
City Point .....54...	409	Genito .....35...	200	Menchville ....95...	226	S					
Claremont .....92...	630	Gertie .....99...	250	Mendota .....72...	262	*Salem .....66...	3,849				
*Clarendon ....11...	420	Gilmerton .....99...	636	Messick .....94...	526	Saltville .....73...	1,628				
Clarksville ....84...	794	Glade Spring. 72...	324	Middlebrook ....19...	368	*Saluda .....43...	250				
Clayville .....35...	250	Gladeville ....63...	806	Middletown ....3...	363	Saxis .....45...	730				
Clifton Forge. 27...	5,748	Glasgow .....28...	407	Midlothian ....54...	362	School .....37...	333				
Clifton Sta. ....10...	204	Glen Wilton. 43...	320	Miller School. 20...	402	Schoolfield ....81...	200				
Clinchfield ....71...	568	*Gloucester ....53...	228	Millwood .....2...	402	Schuyler .....30...	399				
Clinchport ....70...	252	Gordonsville ..22...	561	Mobjack .....59...	220	Scottsburg .....82...	297				
Climtwood ....67...	312	Graham .....160...	260	*Monterey .....17...	240	Scottsville ....20...	285				
Clopton .....54...	200	Grahams Forge. 75...	262	*Montross .....26...	426	Seddon .....63...	247				
Clover .....82...	258	Gray .....69...	250	Montvale .....49...	226	Seyers .....58...	296				
Clover Creek ....69...	228	Great Bridge. 69...	236	Mornings .....92...	320	Sharps .....4...	200				
Cobbs Creek ....59...	266	Greenbackville 45...	506	Morrison .....95...	562	Shenandoah .....5...	1,431				
Coeburn .....63...	615	Greenville ....19...	350	Motouan .....35...	226	Shenudun .....12...	456				
Collierstown ..28...	426	Gressitt .....39...	326	Mt. Clinton ....12...	256	Simplicity .....85...	563				
Colonial Beach. 26...	721	Grimstead ....59...	330	Mt. Crawford. 12...	228	Sinai .....82...	562				
Conland .....99...	220	Grotoches ....12...	736	Mt. Jackson ....4...	479	Smithfield ....97...	1,278				
Coulwood .....71...	275	*Grundy .....61...	264	Mt. Sydney .....19...	221	Snowville .....64...	312				
*Courtland ....91...	283	Gwynn .....59...	550	Mulberry .....95...	350	Somerton .....98...	250				
Covesville ....20...	230	H		N			South Boston. 82...	3,516			
*Covington ....27...	4,234	Hallieford ....59...	250	Narrows .....46...	975	South Hill. 84...	735				
Crab Neck .....96...	566	Halls Hill ....11...	496	Nassawadox ....60...	200	South Norfolk. 99...	3,026				
Crews .....98...	1,802	Hamilton .....3...	315	National Soldiers' Home .....96...	3,802	Sperryville .....7...	426				
Crittenden ....98...	830	Sidney .....52...	536	*Newcastle .....47...	733	Spottsylvania. 23...	150				
Crockett .....99...	226	*Hampton .....96...	5,505	New Market ....4...	638	*Stanardsville 13...	350				
Crozet .....20...	250	Harborton ....45...	350	Newpoint .....59...	300	Stanloyton .....5...	218				
*Culpeper .....15...	1,795	Harpersville ....95...	862	Newport .....46...	222	Starcase .....75...	290				
D			Harris Grove. 94...	326	Newport News. 95...	20,205	*Staunton .....19...	10,604			
Damascus .....72...	1,299	*Harrisonburg 12...	4,874	New River .....61...	562	Stephens City. 1...	483				
Dandy .....91...	662	*Heathsville ....42...	200	Depot .....64...	562	Stonewall .....68...	250				
Dante .....71...	862	Herndon .....10...	802	Norfolk .....99...	67,452	Strasburg .....76...	762				
Danville .....81...	19,020	Hicks Wharf. 59...	259	Northampton ....59...	562	*Stuart .....78...	388				
Dare .....94...	220	Highland Park. 37...	1,817	North Emporia. 39...	464	*Suffolk .....98...	7,008				
Dayton .....12...	516	*Hillsville ....76...	288	North Tazewell. 62...	312	*Surrey .....92...	260				
Deep Creek ....99...	730	Holland .....98...	238	Norton .....68...	1,866	*Sussex .....59...	263				
Deltaville ....43...	762	Holstein Mills. 73...	590	O			Swords Creek. 71...	250			
Denbigh .....95...	426	Honaker .....71...	869	Ocoquan .....9...	246	T					
Dendron .....92...	1,653	Hortown .....45...	236	Ocean View .....99...	320	Tampico .....94...	562				
Dover Mines. 34...	250	Hot Springs. 48...	1,026	Odd .....94...	220	Tanger .....45...	1,405				
Drakes Branch. 83...	703	*Houston .....82...	516	Onancock .....45...	1,001	*Tappahan- neck .....40...	478				
Driver .....68...	226	Howardsville ..20...	336	*Orange .....22...	674	*Tazewell .....62...	1,250				
Dublin .....64...	350	I			Osaka .....68...	362	Tazewell Station .....62...	320			
Dungannon ....70...	228	Indian Creek. 99...	250	Osborne .....75...	220	Temperanceville .....45...	230				
Dunnsville ....40...	290	Iron Gate .....27...	636	P			Theological Seminary .....10...	236			
E			Irrington .....44...	1,026	Painter .....45...	366	Timberville ....12...	240			
Eagle Rock ....48...	590	Islandford ....12...	250	Palmer .....44...	220	Toano .....93...	1,206				
Earnest .....94...	626	Ivanhoe .....75...	662	Parksey .....47...	528	Toms Brook. 4...	462				
East Falls Ch. 11...	1,026	Ivor .....91...	262	Patterson .....75...	348	Toms Creek. 68...	722				
East Radford. 65...	2,092	J			*Pearisburg ....46...	470	Townsend .....60...	266			
East Stone Gap. 68...	391	Jamesville ....60...	250	Pearisburg Station .....46...	267						
Eastview .....77...	262	Java .....81...	252								
*Eastville ....60...	322	Jetersville ....53...	200								
Eastville Sta. 60...	226	*Jonesville ....69...	383								
Edgars .....24...	226	K									
Edinburg .....4...	574	Kasey .....49...	362								
Elba .....81...	330	Keezletown ....12...	202								

Cities and Villages of Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Trout Dale....	77....	431	Virgilina	82....	270	*Washington ..	7.....	235	*Williamsburg	93....	2,714
Troutville	48....	326	Virginia			Waterford	3.....	331	Willis Wharf ..	60....	200
U			Beach	100....	320	Waterloo	15.....	250	*Winchester ..	1.....	5,864
University	20....	1,026	Virginia City....	68....	250	Waverly	90....	1,064	Windsor	97....	328
Upperville	8.....	296				Waynesboro ..	19....	1,389	Winterpock ..	54....	333
Urbanna	43....	475	W			West Norfolk..	99....	1,200	*Wise	68....	538
V			Wachapreague ..	45....	485	West Point....	38....	1,397	*Woodstock ..	4....	1,314
Vesuvius	28....	230	Wakefield	90....	570	Whaleyville ..	98....	409	*Wytheville ..	75....	3,054
Victoria	85....	682	Wallace	72....	250	Wheaton	44....	206	Y		
Vienna	10....	578	*Warm Springs..	18....	590	White Post....	2....	336	Yards	62....	240
Vinton	66....	1,928	*Warrenton	8....	1,427	White Stone....	44....	350	Z		
			*Warsaw	41....	230	Whitmill	81....	226	Zumi	97....	262

VIRGINIA

Native Soil of Seven Presidents of the United States—First Public School—Beginning of Silk Culture in America.

In history, birthplace of distinguished men and scenes of important achievement Virginia has been prominent in the events of civilization for over 300 years.

To assemble a number of people together, to go away into unknown America, found a settlement, maintain existence, obtain a support from the soil and finally grow into a prosperous colony has been the ambition of tens of thousands of people in the Old Country since the days of Columbus. It was not surprising, therefore, when Captain Gosnold, an Englishman, who had visited America, told Captain John Smith of the possibilities of this new land, that Smith should have been enthused with the idea of getting together a company of people for the purpose of exploring the New World and founding a colony in a region where the leaders of the expedition could be in supreme command.

FIRST VIRGINIA COLONY.

With that purpose in view an expedition, comprising 105 men, in three vessels, under command of Captain Newport, set sail from England Dec. 19, 1606, and arrived at a promontory of land in the James River, Maryland, debarked there, and began the building of the town May 13, 1607.

The site chosen was on a point of land projecting from the north bank of James River about 15 miles from its mouth. The encroachments of the river, since then, have converted the promontory into an island, and a portion of the site of the settlement has been entirely swept away.

RELICS OF THE FIRST SETTLEMENT YET REMAINING.

A part of the old tower of a church, believed to have been built by the colonists in 1619, and some of the tombstones are the only relics of the town left in 1907. Besides these on the island there has been a private residence. An exposition was held in 1907, to commemorate the 300th anniversary of the founding of this first settlement, and the rebuilding and restoration of the old Episcopal church has been made as near as may be, so that the tourist may find additional attraction in visiting the various points of interest hereabouts, which include Fortress Monroe, Williamsburg, Yorktown, Norfolk, Hampton Roads, the Chesapeake Bay, up to Annapolis and Baltimore, and the Potomac River, up to Washington.

NARROW ESCAPE FOR JOHN SMITH.

All Virginia is historic ground. At Jamestown, July 30, 1619, was held the first colonial assembly ever convened in America. Twelve years had gone by, since the first settlement, and many events had transpired in that time. On one occasion, the story goes, John Smith, a leader prominent among the whites, had been captured by the Indians, his head laid upon a stone, and as the savages were brandishing their clubs, preparatory to dashing out his brains, Pocahontas, a twelve-year-old daughter of the Indian chief, Powhatan, threw herself upon the captain's body, and her intercession, with her father, saved his life.

When Smith returned to Jamestown he sent her presents, and thenceforth she visited Jamestown as frequently as she did her father's habitation. Later, an acquaintance sprang up between her and an Englishman, named Rolfe, and the consent of her father and Sir Thomas Dale, the governor of the colony, having been obtained, they were married at Jamestown, April, 1613. A peace of many years' duration between the English and the Indians was the result of this union.

POCAHONTAS BAPTIZED.

Before her marriage she was baptized, receiving the name of Rebecca. In 1616, with her husband, she accompanied Dale to England, where she was an object of great interest to all classes of people and was presented at court. When Smith visited her in London, after saluting him she was so unnerved, she turned away her face and hid it in her hands, and remained in this position for two or three hours. She had been taught to believe that he was dead and there is no doubt that her husband was a party to the deception, he probably thinking she would never marry him while Smith was living.

DEATH OF POCAHONTAS.

Pocahontas prepared to leave England with regret, but she suddenly died as she was on the point of embarking. She left one son, Thomas Rolfe, who was educated by his uncle, a London merchant, and in after life went to Virginia, where he became a person of note and influence. The Bolling, Randolph, Fleming, and other families in that state are his descendants.

Eventful history followed with the colonists. Puritans from England had arrived, were enjoying religious freedom, and, on the whole, the colony was prospering, when orders were received and laws were passed, in 1643, compelling conformity with the church of England, followed by fine and imprisonment with those who would not accept. This caused an emigration from the colony by the independents, who went to Maryland and New England.

FIRST PUBLIC SCHOOL IN THE COLONY.

In 1643 a public school was opened. Silk culture was undertaken; trade became brisk with England, Holland and New England, and in 1649 the colony was increased by the arrival of 300 royalist fugitives. Then followed controversies with England, but, notwithstanding political contentions and Indian massacres, in 1671 the population was claimed to be 40,000 with 2,000 black slaves.

The years passed on. The colonies grew in population and dissatisfaction with the oppressions imposed by the mother country. Patrick Henry was reared in Virginia, George Washington was from this state, Thomas Jefferson, James Madison, James Monroe, Harrison, Tyler and Taylor, seven presidents, all of them natives of the State and several of them residents—all came from Virginia.

The revolutionary war history is full of names closely identified with gaining the independence of America, clear down to the surrender of Cornwallis at Yorktown.

VIRGINIA MADE THE THEATER OF WAR.

Then came the Civil war, when, unfortunately, there was so much proslavery sentiment in the state as to carry for secession. Through this Virginia became the theater of many battles and the losses to the people were enormous, the desolated properties being yet seen on many a side. All of our older readers will recognize the familiar words "Richmond," "Aquia Creek," "Bull Run," "Antietam," "Winchester," "Cedar Run," "Shenandoah Valley," "Culpepper Court House," "Gettysburg," "Battles of the Wilderness," "Siege of Petersburg," "Lee," "Sheridan," "Grant" and a host of other great generals and brave men, both on the Union and Confederate side, who left their dead on many a battlefield in this state, clear on down through that terrific struggle to the final surrender of Lee at Appomattox Court House in Virginia.

Virginia Opportunities in Agriculture and Varied Enterprises

And so through all the 300 years of history, from the founding of the first settlement in the United States at Jamestown, down to the Jamestown Exposition in 1907, the state has been celebrated for great names and great events which have molded the destinies of the nation.

A STATE OF GREAT NATURAL ADVANTAGES

Virginia is remarkable for its many natural advantages to people who seek the State to get support. The Civil war so greatly impoverished many estates as to cause their lands to be abandoned to dwarf pines and cedars. The soil on those plantations can fortunately be renovated by the free use of gypsum and marl which, in great abundance, is found in the State.

There are a variety of elevations, soils and climates, here. The eastern part of the state, bordering on the Atlantic ocean and Chesapeake Bay, is known as the tidewater region, with no elevations over 100 feet above sea level. Curiously, while the mountain ranges extend across the state, from northeast to southwest, the principal rivers flow from the northwest to the southeast. Beyond the tidewater region comes a range which follows across the state having an elevation of about 400 feet. Westward come the foothills of the Blue Ridge, the Blue Ridge Mountains and the great valleys between the Blue Ridge and the Alleghenies, giving variety of soil, climate, and picturesque scenery.

CHARACTER OF THE SOILS.

The soil of the tidewater region is a light sandy loam, capable of yielding large crops of fruits and esculent vegetables, but it has been so greatly worn out by superficial cultivation, without manure, that many estates, formerly among the finest in the state, have been greatly lowered in worth and value. It is to these once fertile lands and grand old Virginia homes that the attention of land seekers should be directed. The broad verandas are there on those old colonial homes, the towering columns, the great front doors, the broad, long halls, the massive stairways and imposing newel posts at the foot of the landing, are yet there, in their regal grandeur, as they were generations ago, when blacks did all the work here, and the aristocratic old owner of the estate was rich in lands and slaves.

It takes but a few hours' ride from Washington to go down into the interior of Virginia and find there fine old ancestral homes that can be bought for a small fraction of what the buildings would cost that are now on the premises.

EASY TO INVESTIGATE THE OLD PROPERTIES.

It can readily be seen how the individual of enterprise and taste will bring back the landscape grounds to their former beauty, the phosphates and marls so abundant in the State spread over the land bringing back its fertility. The property bought so cheaply now in a few years will yield handsome returns in fruits and grains and the property will regain its former value.

A brief study of a recent railroad map will show that, aside from a good soil, the means of transportation by rail, and especially by water, to the great markets of the Atlantic Coast are such as to permit the quick sale of every agricultural and horticultural production at a good price.

SUPERIOR TRANSPORTATION FACILITIES.

It is seldom that a state is so abundantly blessed with navigable interior waterways and it is rare that a state has within itself so many resources by which its inhabitants may get support. Thus profitable employment may be found here in oyster cultivation on the Chesapeake, fisheries on the coast, lumber in the interior, coal and iron mines, entertainment of guests at summer resorts, sale of mineral waters, production of clay products, lime, salt, gypsum, marl, pottery, paints and other industries.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Highest, Balsam Mountain, in Grayson Co., 5,700 feet.

Climate.—In mountainous sections short, severe winters, long, delightfully cool summers. In tide-water regions, mild winters and less healthful sum-

mers. Average annual temperature from 60 and 64 in the southeast and 48 and 52 in the mountainous regions. Summers hot in the east and southeast and in the vicinity of swampy lands billions of typhoid fever germs prevail. The region lying on or near Hampton Roads is, however, healthful and agreeable at all seasons of the year.

At Norfolk the average January temperature is 40 above zero, and July is 79. The extremes are, warmest 102 above, and coldest 2 above, with yearly rainfall of 52.1 inches.

At Lynchburg, Campbell Co., the average January temperature is 36 above, July 78; warmest 102, coldest 6 below, and yearly rainfall of 42.8 inches.

Collection of Debt.—Open accounts outlaw in 2 years, promissory notes in 5 years, judgments 20 years. Legal interest is 6 per cent, allowable rate 6 per cent. Limit of jurisdiction, justice of the peace, \$100; exempt from forced sale, home and personal property, \$2,000.

Dimensions.—Extreme length of the state, north and south, 205 miles. Extreme width, east and west, 425 miles. Area, 42,450 square miles.

History.—Oldest successful English colony; settled by 105 colonists at Jamestown, on James River, in James City Co., in 1607. Slavery introduced 1619. Williamsburg became capital in 1700. Richmond founded 1737; became capital 1779. Surrender of Cornwallis at Yorktown, Oct. 19, 1781. Seceded April 17, 1861. Surrender of Lee at Appomattox and close of the Civil war, April 8, 1865. Exposition at Hampton Roads, commemorative 300th year of settlement at Jamestown, 1907.

Rockbridge Alum Springs and Rockbridge Baths.—In Rockbridge County, Va., near Goshen, there are 5 fountains, brick cottages, a hotel, with fine grounds and beautiful scenery. Chronic dyspepsia, irritation of the stomach, scrofula and skin diseases are relieved by the waters. Near the springs are the Baths, on the shore of North River, amid pleasing scenery. Iron and carbonic-acid gas enter largely into the waters, which are recommended as a tonic.

Rawley Springs, Va.—Nestled in the midst of delightful scenery, in Rockingham County, 11 miles from Harrisburg, not far from the Luray Caverns, these 5 fine mineral springs, at an elevation of 2,000 feet above tide-water, invite the tourist to a pleasant retreat. The waters—strong chalybeate—possess tonic properties which, with the bracing mountain air, invigorates the visitor.

Richmond, Va.—Like ancient Rome, the beautiful capital of Virginia lays claim to seven hills. The city, besides all its natural and architectural advantages, possesses numerous objects of especial interest to visitors, including the grave of President Monroe, the famous Libby war-prison, the equestrian statue of Washington by the sculptor Crawford, as well as Houdon's statue of Washington in Revolutionary uniform, the elegant State House, and St. John's Church, where Patrick Henry delivered his memorable and eloquent speech on the eve of the Revolutionary War, in which he said, with fervent patriotism: "There is no retreat but in submission and slavery!"

Old Point Comfort, Va.—This favorite Southern bathing and pleasure resort is three miles each from Hampton and Fortress Monroe, near the mouth of the James River as it empties into Chesapeake Bay. Near by is the Government Home for Soldiers. Surf-bathing, steamboat excursions, etc., enter largely into the recreations of visitors.

Natural Bridge of Virginia, in Rockbridge Co.—The fissure crossed by the bridge (which is a rock, covered with earth) is estimated at a depth of from 205 to 290 feet. This fissure is about 45 feet wide at the bottom and about 90 feet at the top. The length of the bridge is about 90 feet; its breadth, in the middle (or thinnest part) is about 60 feet; and at the summit, about 40 feet thick. A portion of this thickness is composed of soil, on which large trees have grown. The view from the top of the bridge is quite extensive and very pleasant, including North Mountain and the Blue Ridge. The stream passing under the bridge is a branch of the James River, called Cedar Creek.

STATE AND THE 39 COUNTIES OF WASHINGTON

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF WASHINGTON COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	
1....	San Juan..	3,603	11.....	Island..	4,704	21.....	Pierce..	120,812	31..	Walla Walla..	31,931	
2....	Whatcom..	49,511	12.....	Snohomish..	59,209	22.....	King..	284,638	32.....	Columbia..	7,042	
3....	Skagit..	29,241	13.....	Chelan..	15,104	23.....	Kittitas..	18,561	33.....	Garfield..	4,199	
4....	Okanogan..	12,887	14.....	Douglas..	9,227	24.....	Pacific..	12,532	34.....	Asotin..	5,831	
5....	Ferry..	4,800	15.....	Grant..	8,698	25.....	Lewis..	32,127	35..	Wahkiakum..	3,285	
6....	Stevens..	25,297	16.....	Lincoln..	17,539	26.....	Yakima..	41,709	36.....	Cowlitz..	12,561	
7..	Pend D'Oreille	6,755	17.....	Spokane..	139,404	27.....	Benton..	7,937	37.....	Clarke..	26,115	
8....	Challam..	8,337	18.....	Chehalis..	35,590	28.....	Adams..	10,920	38.....	Skamania..	2,887	
9....	Jefferson..	8,337	19.....	Mason..	5,156	29.....	Whitman..	33,280	39.....	Klickitat..	10,180	
10.....	Kitsap..	17,647	20.....	Thurston..	17,581	30.....	Franklin..	5,159	Total.....			1,141,990

Cities and Villages of Washington with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Aberdeen	18.	13,660	Belfast	3.	208	Burlington	3.	1,302	*Chehalis	25.	4,507
Acmé	2.	200	*Bellingham	2.	24,298	Burnett	21.	262	Chelan	13.	682
Addy	6.	396	Biglake	3.	330	C			Cheney	17.	1,207
Albion	29.	320	Black Diamond	22.	561	Camano	11.	250	Chesaw	4.	250
Almira	16.	365	Blaine	2.	2,289	Camas	37.	1,125	Chowelah	6.	823
Anacortes	3.	4,168	Bordeaux	20.	390	Carbonado	21.	850	Chinook	24.	596
Anatone	34.	260	Bossburg	6.	247	Carson	58.	250	Christopher	22.	200
Arlington	12.	1,476	Bothell	22.	599	Cashmere	13.	625	Clarkston	34.	1,257
*Asotin	34.	820	Bremerton	10.	2,993	Castlerock	36.	998	Clayton	6.	336
Auburn	22.	957	Brewster	4.	296	*Cathlamet	35.	352	Clearlake	3.	376
Avon	3.	320	Bridgeport	14.	431	Catlin	36.	200	Cle Elum	23.	2,749
B			Brinnon	9.	462	Center	9.	350	*Colfax	29.	2,783
Barneston	22.	250	Bryn Mawr	22.	220	Centerville	39.	290	College Place	31.	866
Bayne	22.	250	Buckley	21.	1,272	Centralla	25.	7,311	Colton	29.	393
			Bucoda	20.	462	Charleston	10.	1,062	*Colville	6.	1,512

Explanation: Index to Towns. First Column. Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Washington with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
*Conconully	4	357	Humptulips	18	250	Oakesdale	O	29	Snoqualmie	22	279
Concrete	3	915	Huntsville	32	225	Oak Harbor	29	882	Sopah	25	430
Connell	30	826				Oakville	11	262	*South Bend	24	3,023
Cosmopolis	13	1,132	I			Oakville	18	465	South Prairie	21	264
Coulee City	15	276	Ilwaco	24	664	Odessa	16	885	Spanaway	21	226
*Coupeville	11	310	Index	12	417	Okanogan	4	611	Spangle	17	326
Creston	16	308	Inglewood	22	200	Olympia	20	6,996	*Spokane	17	104,402
			Ione	7	634	(capital)	20	6,996	Sprague	16	1,110
D			Irondale	9	1,062	Omak	4	366	Springdale	6	251
Darrington	12	200	Issaquah	22	628	Opportunity	17	433	Stanwood	12	544
*Davenport	16	229				Oroville	4	495	Starbuck	32	761
*Dayton	32	2,389	J			Orting	21	863	Startup	12	250
Deep River	35	236	Johnson	29	200				Stellacoom	21	430
Deer Park	17	875	Junction City	18	226	P			Stevenson	38	387
Des Moines	22	350				Pacific	22	413	Sultan	12	576
Dixie	31	362	*Kalamia	K	36	Palouse	29	1,549	Sumas	2	902
Dockton	22	226	Kamliche	19	522	Pampa	29	234	Summit	18	200
Downs	16	226	Kangley			Parkland	21	588	Summer	21	892
Dryad	25	326	Junction	22	233	*Pasco	30	2,083	Sunnyside	26	1,379
Du Pont	21	300	Kapowsin	21	350	Pe Eel	25	838			
			Kelso	36	2,039	Pelchuck	12	250	T		
E			Kennewick	27	1,219	Pleasant Beach	10	290	Tacoma	21	83,743
Earlington	22	336	Kennydale	22	590	Pleasant Roberts	32	230	Taylor	22	430
East Seattle	22	332	Kent	22	1,908	*Pomeroy	33	1,605	Tekoa	29	1,694
Eastsound	1	275	Kettle Falls	6	377	*Port Angeles	8	2,286	Tenino	20	1,038
Eatonville	21	754	Kiona	27	323	Port Blakely	10	1,205	Thomas	22	266
Edison	3	362	Kirkland	22	532	Port Gamble	10	622	Thornton	29	322
Edmonds	12	1,114				Port Hadlock	9	266	Thorp	23	284
Elberton	29	330	L			Port Ludlow	9	350	Toledo	25	375
Electron	21	296	La Conner	3	603	*Port Orchard	10	682	Toppenish	26	1,598
Elk	17	526	Lacrosse	29	350	*Port Townsend	9	4,181	Touchee	31	250
*Ellensburg	23	4,209	Lake Park	21	262	Portlathe	19	203	Tukwila	22	361
Elmo	18	1,532	Lakeside	13	222	Poulsbo	10	364	Tumwater	20	490
Eltopia	30	226	La Push	8	231	Prescott	31	502	Twisp	4	227
Endicott	29	474	Latah	17	339	Creston	22	436	Two Rivers	31	262
Enumclaw	22	526	Leavenworth	13	1,551	*Prosser	27	1,298	Tyler	17	200
*Ephrata	15	323	Leban	24	420	Pullman	29	2,602			
*Everett	12	21,814	Lester	22	326	Puyallup	21	4,544	U		
Everson	2	250	Lind	28	831				Uniontown	29	426
			Little Falls	25	631	Q					
F			Little Rock	20	380	Quilcene	9	526	V		
Fairfield	17	308	Lochsloy	12	362	Quincy	15	264	Vanasselt	22	266
Fall City	22	420	Loomis	4	536				*Vancouver	37	9,323
Farmington	29	489	Lopez	1	226	R			Vashon	22	347
Ferndale	3	691	Lyman	3	441	Ravensdale	22	463	Vaughn	21	208
Fern Hill	21	1,066	Lynden	2	1,418	Raymond	24	2,450			
Fort Flagler	9	350				Reardan	16	527	W		
Fort Steilacoom	21	1,106	M			Redmond	22	300	Waitsburg	31	1,237
Poster	22	340	Mabton	26	666	Regents Park	21	300	Waldron	1	262
Frances	24	200	McKenna	21	262	Renton	22	2,740	*Walla Walla	31	19,364
Franklin	22	647	McMurray	3	328	Ridgefield	37	297	Wallula	31	320
Fravel	3	200	Manette	10	220	Ritzville	28	1,859	Wapato	26	462
Freeman	17	226	Mansfield	14	266	Riverside	4	500	Washougal	37	456
*Friday Harbor	1	422	Maple Falls	2	233	Roche Harbor	1	247	Washtucna	28	326
			Marysville	12	1,239	Rockford	17	663	*Waterville	14	950
G			Medical Lake	17	1,730	Rosalia	29	767	Waverly	17	318
Garfield	29	932	Meyers Falls	6	450	Roslyn	23	3,126	*Wenatchee	13	4,050
Getchell	12	250	Miles	16	336	Roy	21	315	Westport	18	262
Gig Harbor	21	262	Milltown	3	262	Ruston	21	780	White Salmon	39	682
*Goldendale	39	1,203	Milton	21	448				Wilbur	10	757
Govan	16	266	Monroe	12	1,553	S			Wilkeson	21	899
Grandview	26	320	*Montesano	18	2,488	Saint John	29	421	Wilson Creek	15	405
Granger	26	453	*Mount Vernon	3	2,381	Satsop	18	200	Winlock	25	1,140
Granite Falls	12	714	Myrtle	8	350	*Seattle	22	237,194	Winona	29	302
Guy	29	323				Sedro Wooley	3	2,129	Winslow	10	560
			N			Selleck	22	230	Woodinville	22	350
H			Napavine	25	326	Sequim	8	250	Woodland	36	384
Hamilton	3	405	Newcastle	22	547	*Shelton	19	1,163	Y		
Harper	10	536	*Newport	7	1,199	Slivana	12	362	Yacolt	37	435
Harrington	16	661	Northbend	22	362	Simpson	19	202	Yakima	26	263
Hartline	15	237	Northport	6	476	Skykomish	22	238	Z		
Hillyard	17	3,276	*North Yakima	26	14,082	Snohomish	12	3,244	Zillah	26	225
Hoquiam	18	8,171									

WASHINGTON

Is called the "Evergreen State" from its extensive forests of evergreen trees, including the fir, spruce, cedar, pine and hemlock, which cover the mountains and seacoast region, and also from the fact that in the western part the winters are so mild that the grass remains green throughout the year. This great state has an area of 69,994 square miles, of which 3,114 are water, leaving 66,880 square miles of land, or 42,803,200 acres—about as much as Ohio and Indiana combined. It contains a great variety of surface, soil and scenery, and has two distinct climatic divisions, separated by the Cascade Mountains. West of these mountains the climate is as mild as that of North Carolina or Tennessee, owing to the influence of the warm Japan current which strikes its shores. There are nearly 2,600 miles of railway and 1,000 miles of navigable watercourses. A large portion of the surface is still covered with primeval forests. Nearly all of the state west of the Cascade Mountains is, by nature, a forest country; the most important and valuable timber being the red, or Douglas, fir.

The timber districts, where not mountainous, have,

as a rule, a rich soil, which well repays the farmer for the labor of clearing the ground. Thus it will be seen that there is a great deal of good farming land in Washington. There are fertile government lands for free homesteads, and railroad lands are sold at low prices and on ten years' credit. The remarkable variety of resources offered by this great state, its peculiarly agreeable and healthful climate, its strikingly beautiful landscapes and snow-capped mountains, noble rivers, great estuaries of the sea, magnificent forests, charming lakes, and fertile prairies combine to make it a region particularly attractive to all who seek new homes in the great Northwest. Every settler can find the particular character of country best suited to his tastes, and the climate best adapted for his health and well-being.

The transportation facilities are abundant, schools and churches are numerous, the people are intelligent and progressive, and property is constantly increasing in value. The numerous growing towns invite mercantile, manufacturing, and professional enterprises.

Opportunities in Agriculture and Varied Enterprises

WASHINGTON STATE

Two Divisions of the State—Each Has Its Particular Merit—Both Described.

In describing conditions in the State of Washington one could fill a large space relating to Seattle, Tacoma, Olympia and other cities, while description of the varied resources of Washington will show abundant reason for emigrating to this State.

Naturally, with so great a variation in the face of the country, and so wide a difference in climatic conditions, the reasons for going to one locality will be entirely unlike those which would exist in another region.

TWO DISTINCT PARTS OF THE STATE.

First, there are two distinct parts of the State, the result of the Cascade Mountains, which extend from north to the south. This divides the State into eastern and Western Washington. The western part comprises all the waterway region that borders the Pacific for a distance, north and south, of 180 miles, in which section of the state, with Puget Sound, the lakes, bays and rivers, the area covered by water is about 2,000 square miles.

From this broad space moisture is ever rising, which floats up to the tall mountains of the Cascades, and there on those lofty elevations, perpetually covered with ice and snow, the moisture congeals, falls there in snow, and leaves very little in the cloud to provide moisture for the landscape which spreads itself over eastern Washington.

ROSES BLOOM AT CHRISTMAS.

In Western Washington, which includes the Puget Sound country, there is really no winter and almost no ice or snow. Roses bloom in December and grass is green all the year round. Fifty varieties of flowers have been plucked out of doors even at Christmas. Winters are warm and moist, summers cool and dry.

In eastern Washington the climate is very different. It is much drier and somewhat colder in winter, dry and considerably warmer in summer, but the nights are always comfortably cool.

COLORADO CLIMATE.

At many points in eastern Washington is found almost the exact climate of Denver, Manitou and the Salt Lake Valley of Utah.

In some sections of eastern Washington irrigation is carried on and enormous fruit, grain and pasture crops are raised.

TIMBER AND PRAIRIE LAND.

Western Washington is a wooded country. Much of the land is covered with a dense growth of the finest trees known in the world. The mainland bordering Puget Sound is made up of mountain spurs, table lands, river valleys and fresh-water and tide-water marshes and deltas. These all, except marsh and delta, are timbered with unbroken forests. The higher altitudes grow fir, hemlock and spruce. The table lands, fir and spruce, and the valleys, fir, cedar, spruce, cottonwood, maple and alder.

This timber is surpassed in size only by the red-wood forests of California.

The valley lands bordering the rivers and creeks are very rich and productive, especially in vegetables, fruits and succulent grasses. The forests of these valleys are fast breaking up before the woodman's ax and the farmer's plow. The uplands have been invaded but little, but where the forests are felled rich pasture follows and in many places great veins of coal are found to underlie the surface. Marsh lands and deltas or strike into the hillside. The forests are overgrown with brush. They are easily cleared and reclaimed from overflow by dikes and ditches, when they produce the greatest tonnage of fine hay, the most prolific yield of oats, heavy hops, nice vegetables and fine orchards.

Eastern Washington as a whole is the valley of the Columbia River, as most of the surface is drained by this mighty stream, though there is a considerable extent of wooded and partially wooded country. The great grain fields of the Big Bend District are as level as the prairies of the Middle

States. Around Spokane is a varied country comprising fine prairie land, also an abundance of timber land, especially in the foothills. All this land is wonderfully productive. Whatever a man wants in the way of land he can find and the quality of the soil is good almost everywhere.

NUMEROUS GREAT RIVERS.

Several great rivers course their way through eastern Washington, their valleys being wide, level plains on which, at various points, irrigation is being, and has been, introduced with great success.

FRUITS.

To properly describe the fruit-growing industry of Washington would fill a large book. Different parts of the State vary so much in altitude, rainfall, quality of soil, etc., that almost any fruits except the citrus family will thrive and bear bountiful harvests somewhere. To mention the kinds of fruit that do well is almost to name them all. West of the Cascade Mountains and along Puget Sound are grown magnificent specimens of apples, peaches, pears, quinces, plums, cherries, strawberries and all kinds of small fruits and berries. Apples have done wonderfully well on both the uplands and the islands. Frost never injures the fruit or prevents setting. Worm-eaten fruit is almost unknown.

ASSISTANCE FROM THE GOVERNMENT.

The United States Government is aiding in various irrigation projects. In the meantime private corporations have entered upon the project of supplying irrigation water to residents in certain districts. We quote here from the circulars of one of these irrigation companies in eastern Washington, located in the valley of the Yakima River, Yakima County, in order that our readers may know prices:

THE PRICE OF LAND.

The price of land in Yakima County varies according to its character and location. Cheap lands may be had for grazing. Wheat farms in the section where irrigation is not necessary may be had for from \$5 to \$20 per acre. In the irrigated valleys raw lands with perpetual water rights are on the market at from \$30 an acre up to \$125. The last named figures are for land near the railroad—the choicest that is left. Generally speaking raw land under the canals can be had for \$50 to \$75 an acre, and \$125 an acre will buy the best producing alfalfa farms in the valley. Many improved farms within 10 or 12 miles of the railroad are available at even less than \$60 per acre. Some land is selling much higher than any figures here given, but the high-priced land usually is suitable for suburban residences or has expensive improvements, such as good buildings, bearing orchards or hop yards.

Terms of sale are usually made upon a basis of one-third or one-fourth cash and the balance in four or five equal annual payments, with interest on deferred payments at six or eight per cent per annum. An annual fee for maintenance of canal and laterals is charged on all the canals. This fee varies from 25 cents to \$1.50 per acre. Yakima lands may seem high to farmers who are accustomed to the ruling values in the prairie states, but the price of land must depend upon its fertility and the class of its productions, its proximity to and the excellence of its markets—in short, upon its earning capacity, and judged by these standards, land in the Yakima valley is cheap and not dear. Judging by the history of other irrigated districts, Yakima valley lands will in a few years be worth \$300 to \$1500 an acre.

STOP OFF AND STUDY THE CONDITIONS.

In going over to the Puget Sound country by way of the Northern Pacific railroad it will be well to stop at North Yakima, in Yakima County, and see for one's self the results of irrigation. Before going obtain from the Great Northern and the Northern Pacific their literature relating to Washington. We clip the following from one of the irrigation circulars:

Washington Opportunities in Agriculture and Varied Enterprises

HOW TO MAKE A TEN ACRE TRACT PAY ITS WAY FROM THE START.

"Of course I know it pays better to raise fruit than it does to raise hay and corn, but how am I to get along until my trees begin to bear?" This is the first thought that occurs to the man with small capital who is ambitious to increase his income and make his way in the world. He has been told that it takes from four to six years to get any returns from an orchard and the long wait makes it look impossible that he should ever become an orchardist. For the information of such men we have prepared this schedule, showing just how a man with money enough to make his first payment on his land and to build him a small house can make his land support him from the start and pay for the land as well. This has been done many times right here in Yakima.

TEN ACRES IN FRUIT MAKE A MAN INDEPENDENT.

Reserve one acre for house, barn and kitchen garden.

Plant six acres in apples and peaches, alternate rows, seventy of each kind, or 140 trees to the acre, total 840 trees.

Plant three acres in pears and peaches, alternate rows, 100 of each kind, 200 to the acre, or 600 trees.

Around the young trees plant nine acres in potatoes. The same cultivation required for the potatoes will cultivate the trees. Plant twenty-five cherry trees along the road and blackberries and raspberries along the fences.

First Year's Receipts:

90 tons of potatoes, 10 tons to the acre at \$14 per ton.....	\$1,260
Less expense of planting young trees.....	\$180
Less expense of planting potatoes....	90
270	
Net for work on first year.....	\$ 990

Second Year Receipts:

90 tons potatoes at \$14.....	\$1,260
Get some berries this year also.	
No new expense, so net for work second year	\$1,260

Third Year Receipts:

Peaches and pears begin to bear, also cherries.	
720 boxes peaches from 720 trees, at 50 cents	\$ 360
300 boxes pears from 300 trees at \$1.....	300
45 tons potatoes at \$14.....	630
Blackberries and raspberries.....	50
Gross third year.....	\$1,340
Less 1,020 boxes at 10 cents.....	\$ 102
Net for work third year.....	\$1,238

Fourth Year Receipts:

2,880 boxes peaches, 720 trees, at 50 cents.....	\$1,440
1,200 boxes pears, 300 trees, at \$1.....	1,200
300 boxes apples, 420 trees, at \$1.25.....	375
1,250 pounds cherries at 8 cents.....	100
Berries	50
	\$3,165
Less 4,380 boxes at 10 cents.....	\$438
Extra help.....	938
Net for work.....	\$2,227

Fifth Year Receipts:

Peach and pear trees in full bearing.	
7,200 boxes peaches, 720 trees, at 50 cents.....	\$3,600
3,000 boxes pears, 300 trees, at \$1.....	3,000
1,200 boxes apples, 420 trees, at \$1.25.....	1,500
1,500 pounds cherries, at 8 cents.....	120
Berries	50
	\$8,270
Less 11,400 boxes at 10 cents.....	\$1,140
Extra help.....	1,000
	\$6,130

AVERAGE YIELD PER ACRE.

Hops.....	one ton
Potatoes.....	ten tons
Timothy, first cutting.....	four tons
Timothy and clover, second cutting.....	two tons
Alfalfa, three cuttings.....	seven tons
With from two to six weeks' pasture.	
Fruits vary according to age and varieties of trees.	
Apples, 70 trees per acre.....	500 to 2,000 boxes

Pears, 100 trees per acre.....	200 to 1,000 boxes
Peaches, 100 trees per acre.....	200 to 2,000 boxes
Apricots, 120 trees to acre.....	200 to 2,000 boxes
Cherries.....	100 to 1,000 pounds per tree
Grapes.....	from \$200 to \$800 per acre
Berries.....	from \$200 to \$700 per acre

PRICES.

Hops, from.....	10c to 30c per pound
Potatoes, from.....	\$12 to \$25 per ton
Timothy.....	\$12 to \$14 per ton
Timothy and clover.....	\$9 to \$11 per ton
Alfalfa.....	\$7 to \$9 per ton
Fruit varies according to quality and variety.	
Apples average.....	\$1.25 per box
Pears average.....	\$1.00 per box
Peaches average.....	.50 cents per box
Apricots average.....	.40 cents per box
Plums average.....	.35 cents per box
Cherries average.....	.8 cents per pound
Strawberries average.....	per crate, \$3.00

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Highest in the state, Mount Rainier in Pierce county, in the Cascade Range, 14,526 feet. Mount Baker, 10,827 feet.

Climate.—Generally healthful of western Washington; moist, uniform and heavy winter rainfall. Eastern Washington, hot, dry summers, with generally short cold winters. Average yearly.

Dimensions.—Extreme length of state, north to south, 230 miles; width, east to west, 340 miles; area, 69,180 square miles. Three-fifths of the state included in eastern Washington coast line. Pacific Coast line 180 miles. Puget Sound with its inlets and arms has a shore line of 1,594 miles. Strait of Juan de Fuca, 95 miles long, average width, 11 miles. Rise and fall of the tides, 18 feet.

History.—The region discovered by Juan de Fuca, a Greek, 1592. Visited by Spanish navigator, 1775, and three years afterward by Captain Cook. Captain Gray ascended Columbia River, 1792; by Lewis and Clark, 1804-5. Fur traders settled near the mouth of the Columbia, 1811. Catholic mission established at Vancouver, 1838. American settlement at Tumwater, 1845. Washington Territory organized and Seattle platted, 1853. Frazer River gold excitement, 1858. Admitted to the Union, 1889.

FRUIT GROWING.

Fruit growing is principally carried on in three different sections in western Washington—in the islands of the upper Puget Sound, in Island and San Juan Counties; in the more southerly portion of Puget Sound, embracing the White River and Puyallup Valleys and King and Pierce Counties, and in parts of Clark County, bordering on the Columbia River.

In the Island section cherries, strawberries, blackberries, raspberries, plums, pears and apples attain a size and quality hard to match anywhere, while fruit and vegetables of all sorts reach the market earlier from this district than from any other part of western Washington.

In the Puyallup and White River Valleys all the fruits mentioned above can be grown, but perhaps berry growing is given the greatest prominence. During the last six years the crop of berries has grown from about 300 crates, which then realized only 80 cents a crate, to 20,000 crates in 1902, which averaged \$1.50 a crate. The estimated crop for 1903 was 50,000 crates, and that quantity is expected to be doubled this year. From one acre of raspberries near Puyallup an income of \$500 has been realized in a single year. From two and one-half acres of raspberries in the same locality 1,000 crates were gathered in 1903. Land which produces results of this kind is not in the market for sale at any price, but unimproved land adapted for this purpose in the neighborhood of Sumner and Puyallup is worth from \$100 to \$250 an acre.

In Clark County, on the Columbia River, prune growing is carried on extensively and successfully. There seems to be just the quality of soil and the amount of rainfall needed to produce the best results with this crop. At present about 100 carloads of prunes are shipped annually.

STATE AND THE 55 COUNTIES OF WEST VIRGINIA

With Their Boundaries

LOCATION AND 1910 POPULATIONS OF WEST VIRGINIA COUNTIES

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Hancock..	10,465	15.....	Wirt..	9,047	29.....	Jackson..	20,956	43.....	Wayne..	24,081
2.....	Brooke..	11,098	16.....	Ritchie..	17,875	30.....	Roane..	21,513	44.....	Lincoln..	20,491
3.....	Ohio..	57,552	17.....	Gilmer..	11,379	31.....	Calhoun..	11,258	45.....	Boone..	10,331
4.....	Marshall..	32,888	18.....	Lewis..	18,281	32.....	Braxton..	23,023	46.....	Fayette..	51,903
5.....	Wetzel..	29,855	19.....	Upshur..	16,629	33.....	Webster..	9,680	47.....	Greenbrier..	24,833
6.....	Monongalia..	24,334	20.....	Barbour..	15,858	34.....	Randolph..	26,028	48.....	Mingo..	19,431
7.....	Preston..	26,341	21.....	Tucker..	18,675	35.....	Pendleton..	9,349	49.....	Logan..	14,476
8.....	Pleasants..	8,074	22.....	Grant..	7,838	36.....	Hardy..	9,163	50.....	Wyoming..	10,392
9.....	Tyler..	16,211	23.....	Mineral..	16,674	37.....	Cabell..	46,685	51.....	McDowell..	47,856
10.....	Doddridge..	12,672	24.....	Hampshire..	11,691	38.....	Putnam..	18,587	52.....	Raleigh..	25,633
11.....	Marion..	42,794	25.....	Morgan..	7,848	39.....	Kanawha..	81,547	53.....	Mercer..	38,371
12.....	Harrison..	48,381	26.....	Berkeley..	21,999	40.....	Clay..	10,233	54.....	Summers..	18,420
13.....	Taylor..	16,554	27.....	Jefferson..	15,889	41.....	Nicholas..	17,699	55.....	Monroe..	13,055
14.....	Wood..	38,001	28.....	Mason..	23,019	42.....	Pocahontas..	14,740			
Total.....											1,221,119

Cities and Villages of West Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Academy	42...	209	Alexander	19...	366	Ansted	46...	1,030	Backus	B	
Aeme	39...	502	Algoma	51...	366	Arroyo	1...	200	Baileysville	46...	209
Adamston	12...	1,202	Alumville	39...	320	Ashland	51...	250	Bakerton	50...	250
Adkin	50...	209	Alvy	9...	738	Athens	53...	575	Barboursville	37...	561
Affinity	52...	208	Alvord	30...	229	Auburn	16...	209	Barnestown	37...	907
Albert	21...	390	Amos	11...	1,509	Austen	7...	320	Barnum	11...	675
Alderson	55...	1,252	Anawalt	51...	330	Avis	54...	1,432			

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of West Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Barrackville	11	250	Confidence	38	222	Girta	16	250	Leander	46	230
Bass	36	220	Congo	1	262	Given	29	330	Leon	28	240
Baxter	11	620	Coopers	53	326	Glady	34	281	Lester	52	536
Bayard	22	417	Cora	49	250	Glendale	40	220	Lewis	39	1,209
Beale	28	226	Cornwallis	16	200	Glen Falls	12	250	*Lewisburg	47	803
*Beckley	52	2,161	Cossie	44	436	Glen Ferris	46	320	Lewistown	39	369
Beech	31	262	Cottageville	29	226	Glen Jean	46	722	Littletown	39	369
Beechwood	6	626	Cowen	33	312	*Glenview	17	336	Lizemores	40	526
Belington	20	1,481	Craigsville	41	336	Glen White	52	562	Locust Lane	28	275
Belleville	14	208	Cranberry	52	209	Goodwill	53	526	*Logan	49	1,640
Belton	4	336	Crawley	47	209	Gormanian	22	502	London	39	226
Belmont	8	250	Crescent	46	420	*Granton	13	7,563	Longacre	46	250
Benwood	25	1,976	Crosby	46	262	*Granville	31	282	Lookout	46	230
*Berkley Spgs.	25	864	Crown Hill	39	240	Grape Island	6	250	Lost City	36	230
*Berryburg	20	590	Crystal	53	526	Great Cacapon	25	350	Lost River	36	236
Berwind	51	536	Curtin	41	226	Griffithsville	44	250	Lumber	34	666
Beth	39	350				Gulf	52	260	Lumberport	12	636
Bethany	2	433				Guyandotte	37	1,702			
Beulah	34	336				Gypsy	12	662	Mabie	M	34
Beury	46	520							Mabscoft	52	561
Beverly	34	438							McAlpine	52	226
Bigfoot	51	526							McDowell	51	1,536
Big Springs	31	220							*Macdonald	4	2,921
Black Betsy	38	520							*Madison	45	205
Blacksville	6	204							Mahan	46	200
Blaine	23	1,290							Malden	39	355
Blakeley	39	366							Mamie	40	326
Bluefield	53	11,090							Mammoth	39	1,022
Blue Jay	52	509							Mannington	11	2,672
Bolivar	27	687							Maplewood	46	296
Bolt	52	221							*Marlington	42	1,045
Boomer	46	1,020							Marmet	39	650
Boone	46	220							Marshes	52	290
Boothsville	11	363							Martinsburg	46	420
Bowling Green	48	250							Marvel	46	250
Bowen	43	262							Mason	28	784
Bower	32	320							Mason Town	7	520
Boyle	20	226							Masseyville	52	390
Bradshaw	51	226							Matewan	48	588
Bramwell	53	825							Maybeury	51	2,626
Branchland	44	522							Meadow Creek	54	250
Bridgeport	12	464							*Middlebourne	9	546
Brighton	28	262							Middleton	11	526
Bristol	12	220							Middleway	27	466
Brooklyn	5	566							Mile Creek	34	740
Brookville	54	820							Millwood	29	350
Brownwood	48	562							Milton	37	387
*Buckhannon	19	1,589							Minerva	41	333
Buckhorn	7	320							Mink	39	226
Buffalo	38	565							Minnorra	31	308
Bunker Hill	26	262							Mohawk	51	226
Burner	42	350							Monongah	11	2,684
Burning Spngs.	15	542							Montana Mines	11	450
Burnsville	32	890							Montgomery	46	1,888
Burton	5	250							Moorefield	36	646
Byrnside	38	396							Morgansville	10	339
Byron	12	250							Morgantown	6	9,150
									Morlan	39	200
									Mound	39	262
									*Moundsville	4	3,918
									Mount Carbon	46	432
									Mount Clare	12	250
									Mount Hope	46	494
									Mount Nebo	41	226
									Mucklow	39	490
									Mullens	50	230
	</										

Cities and Villages of West Virginia with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Palestine	15	225	Red House	38	226	Simmons	53	1,060			
Panther	51	309	Red Jacket	48	1,202	Simpson	13	225			
*Parkersburg	14	17,842	Redstar	46	536	Sioto	44	200	V		
*Parsons	21	1,780	Reedsville	7	208	Sistersville	9	2,684	Volley Bend	34	688
Patterson	3	713	Reedy	30	313	Skelton	52	309	Villa	39	262
Paw Paw	25	725	Renick	47	270	Slab Fork	52	250	Vivian	51	662
Pear	52	320	Richwood	41	3,041	Sleepy Creek	25	306			
Pennsboro	16	330	Ridgeley	25	596	Smithfield	5	765			
Penrith	1	309	*Ripley	29	591	Sophia	52	202			
*Petersburg	22	350	Rippon	27	236	South Buckhan-			W		
Peterstown	55	257	Riverside	39	236	non	19	2,681	Wabash	23	266
Peytona	45	230	Robson	46	256	South Carbon	39	220	Wake Forest	39	222
*Philippl	20	1,038	Rock	53	530	South Charles-			Walton	30	236
Pickens	34	626	Rolfe	51	330	ton	39	530	War Eagle	48	1,500
Piedmont	23	2,054	*Romney	24	1,112	South Keyser	23	692	Watoga	42	390
Pine Grove	5	474	Ronceverte	47	2,157	So. Rush Run	46	336	Watson Siding	11	519
*Pineville	50	334	Roneys Point	3	236	*Spencer	30	1,224	*Wayne	43	530
Pittman	46	250	Rosemont	18	330	Spillman	28	250	Webster	13	262
Pleasant Valley	3	346	Rowsburg	7	936	Sprague	52	250	*Webster Sps.	33	526
Plymouth	38	390	Royal	46	260	Star City	6	318	Weirton	1	426
Poca	38	350	Rush Run	46	390	Stealey Heights	12	511	*Welch	51	1,526
*Point Pleasant	28	2,045				Stone Cliff	46	630	*Wellsburg	2	4189
Pondgap	39	226				Stumptown	17	697	West Columbia	28	205
Powellton	46	413	Sabraton	6	790	*Summersville	41	204	West Grafton	13	1,590
Powhatan	51	450	Saint Albans	39	1,209	Summit Point	27	330	West Hamlin	44	290
Pratt	39	306	Saint George	21	245	Sun	46	800	West Liberty	3	350
Premier	51	220	*Saint Marys	8	1,358	Sutton	32	1,121	Weston	18	2,213
Price Hill	52	320	Salem	12	2,169	Sweetsprings	55	250	*West Union	10	779
Prince	46	251	Salmon	48	308	Sylvia	52	490	West Vivian	51	1,630
*Princeton	53	3,027	Salt Sulphur						Wewaco	39	208
Prociuous	40	206	Springs	55	296				*Wheeling	3	41,641
Proctor	5	250	Sand Fork	17	222				White Sulphur		
Prosperity	52	330	Sandstone	54	326	T			Springs	47	338
Station	52	250	Sandyville	29	250	Talcott	54	620	Whitmer	34	650
Prudence	46	406	Sardis	12	326	Terra Alta	7	1,126	*Williamson	48	3,561
Pruntytown	13	420	Saxman	41	406	Thacker	48	262	Williamstown	14	1,139
Pullman	16	230	Sayre	29	262	Thayer	46	520	Wilsonburg	12	350
Putney	39	426	Scarbro	46	533	Thoburn	11	220	Winding Gulf	52	228
			Seth	45	226	Thomas	21	2,354	*Winfield	38	291
			Sewell	46	225	Thurmond	46	315	Winifrede	39	226
			Sharon	39	362	Triadelphia	3	261	Winona	46	3,066
			Shaw	23	250	Tunnelton	7	792	Wintyburn	42	326
Quiet Dell	12	250	Shenandoah			Twin Branch	51	490	Witcher	39	330
Quinnimont	46	466	Junction	27	320	Tyrconnell	13	320	Womelsdorf	34	665
			Shepherdstown	27	1,070				Woodman	47	490
			Sheridan	44	226	U			Woodsdale	3	831
Raleigh	52	350	Sherrard	4	360	Ungers Store	25	262	Worth	51	330
Rapp	48	222	Shinnston	12	1,224	*Union	55	298	Worthington	11	292
Ravenswood	29	1,081				Uniontown	5	200	Wright	52	250
									Wyndal	46	220
									Wyoming	51	230

WEST VIRGINIA

A State with the Finest of Public Buildings Paid For and State Out of Debt

GENERAL DESCRIPTION

The impression may prevail that it would not be possible to take off a slice of territory from the northwest corner of old Virginia and get a state, the area of which would be of much consequence; nevertheless, that was done and our regret is, as we write this brief sketch, that we cannot more fully show the numerous public state buildings, the educational institutions, the manufactories, the hotels and other features of public interest which abound in this young state.

SIZE OF WEST VIRGINIA

But, though only a portion of Virginia was taken, it gave the people of West Virginia an area of territory comprising 24,715 square miles. To judge the size of this the reader has only to understand that this area is almost twenty times that of Rhode Island, twelve times that of Delaware, five times that of Connecticut, three times that of Massachusetts, more than twice that of Maryland, twice that of Belgium, twice that of Holland, a third larger than Denmark, and more than a third larger than Switzerland.

It is seen in this that the piece taken was no very small, little slice either. But that was not all. Virginia had passed the ordinance of secession April 17, 1861. In the convention which passed the act, of the forty-six delegates, from the territory now comprising this state, twenty-nine voted against secession.

HOW WEST VIRGINIA KEPT OUT OF THE WAR

A general election in Virginia was called for May 23, 1861, to act upon ratification of the act of secession. A count of the votes from the counties comprising the present West Virginia showed, that, out of 44,000 votes cast from this territory, 40,000 were opposed to secession.

Then followed conventions at Wheeling in which provisions were made for forming a new state. Application for admission to the Union was made

to Congress and permission was granted on condition that slavery should be abolished in the new state.

EXTERMINATION OF SECESSION ELEMENT

The result of the definite stand taken by the West Virginia people was the driving out of the secession element from this portion of the country, and the giving to the Union cause of 20,000 soldiers. The great beneficial effect was the escape of West Virginia from becoming the battle ground of the contending forces, while the horrors of war were centered on the territory of old Virginia. Beginning thus a free state, and pledged to the Union cause, the prosperity of the new state has gone steadily on ever since the day of its birth. Something of its wealth and resources is shown in that item relating to the state under the head "Productions."

PROSPERITY ON EVERY SIDE

Among the evidences of prosperity is a superior state home erected in 1885, at a cost of \$390,000; hospitals for the insane, and an asylum, Miners' hospitals, penitentiary, reform schools for boys, and industrial schools for girls. University buildings and grounds, university preparatory schools at Montgomery and at Keyser, state normal school, branches of the normal school at Fairmount, West Liberty, Shepherdstown, Glenville, Athens, school for deaf and blind, and two institutes for colored students. These schools are nearly all in large imposing buildings, and everything about them having the latest improvements.

THE STATE OUT OF DEBT.

Another matter we wish the landseeker to observe, which is, that while this state is evidently at the very head in modern public buildings, the state is not in debt one dollar! And not only that, but the tax rate on each \$1,000 is only 85 cents. Under the head of "valuations" it is interesting to see this tax rate with states in general.

West Virginia Opportunities in Agriculture and Varied Enterprises

The prosperity which has come to this state is partially explained by the enormous resources of the state. This is seen under the head of "Productions." But it is only partly explained there from the fact, that while we mention the revenue from a few items the income from minerals alone, in one year, is \$74,731,376.

WHAT ABOUT THE FUTURE.

But if this young state can at this age, in her history, have all of her public buildings in such fine condition, all paid for, and the state be out of debt, with only a tax rate of 55 cents on a thousand dollars, what of the future?

Let us investigate for the benefit of the land investor and home seeker who contemplates removal but is undetermined yet where to go.

The coal area of West Virginia covers over 16,000 square miles, the seams of coal in some places being 250 feet thick. Great beds of this fuel adjoin the Ohio river, the Baltimore and Ohio Railroad, and other lines of transportation, convenient for shipment. This fuel, in unlimited amount, which brings into the state annually, over \$30,000,000, contains every quality of cannel, splint, coking, black and bituminous coal, and all these varieties are in thick and easily worked veins.

A GREAT FUTURE COMING IN IRON

Iron ore exists in twenty-two counties; the best ores being, according to the state geologist, in Grant, Pendleton, Hardy, Pocahontas and Greenbrier counties. As yet the people have been so busy with other enterprises that the iron industry has not been developed, but the supply is here for great manufactories when time comes for their establishment.

Fire clay and potter's clay is found here in such abundance as to bring over \$2,000,000 annually into the state from the manufacture of clay products.

There being only comparatively few persons to the square mile here, there has been as yet but little inducement, and no time to begin the extensive manufacture of woodenware. But when piano makers, furniture workers and vehicle dealers are ready, they should know that there are 11,776,000 acres, in West Virginia, covering 73 per cent area of the state which, at the prevailing price of lumber would be worth, it is estimated, more than twelve hundred millions of dollars.

Under the head of "Productions" and department of "Manufactures" it is seen that the value of manufactured products in West Virginia annually is over \$128,000,000.

Our space does not permit us to enumerate fully—but in brief there are in making flour and grist-mill products, 730 establishments, 16 glass factories, 23 factories for car building and repairs, 62 foundry and machine shops, and 83 planing mills.

It is difficult to predict what the leading industries will be in the future inasmuch as so many are yet waiting on time and capital for development.

There are some ten points in the state where there are sulphur, medicinal and mineral springs. Some of these are famous as pleasure and health resorts.

SALT, BRICK AND DRAIN TILES

There are numerous salt wells, and salt is just beginning to be made as a marketable commodity.

Much of the soil is composed of a clay suitable for the making of fire brick, sewer and drain tiles. With the immense amount of this raw material accessible there can be unlimited expansion in this industry.

About two-thirds of the people are engaged in agriculture, and with the favorable conditions which prevail in West Virginia this must always be the leading industry of the state.

By the census of 1900 it was shown that only about one-half of the agricultural land of the state was improved and that over 5,000,000 acres are, at this writing, unimproved.

GREAT FIELD FOR THE TRUCK GARDENER.

The growth of population in the various industries, outside of agriculture, is making a local market for the sale of all kinds of garden products. And the attention of land seekers is especially called to the growing opportunities offered in this state for market gardeners in the vicinity of the towns.

So rapid has been the growth of demand for fresh garden products in the coal and manufacturing towns of late in this state as to increase the sales 413 per cent in the past ten years.

IMMENSE COMING DEMAND FOR FOOD PRODUCTS

A writer treating on the subject of market gardening in West Virginia and the means by which the business has been advanced says "this increase has been made in an effort to produce vegetables and small fruits in the valleys and on the hills, to supply not only the toilers in the factories, but the more than forty thousand miners who toil beneath the hills for those dependent upon them. No other American state has a better home market for its vegetables—garden products—than West Virginia."

As has been shown under the head of topography, the soils of our river bottoms, composed of the disintegration of the rocks, are extremely fertile and especially adapted to the cultivation of garden products. The West Virginia gardener, with his home market in the coal fields, and manufacturing centers, all around him, is not confronted with the problem of transportation and storage as are those who must ship long distances.

NATURAL ADVANTAGES HERE.

Thus he is not subjected to losses in a glutted market where railroad traffic and commission rates absorb his profit, he receiving small returns for his industry. Neither is he subjected to losses because of the perishable nature of his crops, for he has his regular customers, who are largely the consumers as well and they need stated supplies at regular intervals. Neither does he have the expense of insurance. It is estimated that he who produces and ships to far-away markets, after paying freights, drayage, insurance and commissions, scarcely receives forty per cent of the price which the consumer pays for his vegetables. Not so with the West Virginia gardener who sells to the local markets around him, directly to the consumer or retailer, and thus receives the seventy-five to one hundred per cent of the price of his products. Not in thirty years to come will our gardening industry be able to supply existing and ever increasing demands for their products in the home markets of the coal fields, and other centers of industry within the state. And when a surplus is created, the great market centers of Pittsburgh and other cities lie within a few hours of their doors.

As home seekers and investors in land carefully investigate they will find superior opportunities for getting support for themselves in West Virginia, while rapid increasing population must result in greatly advancing values of land.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Highest in the state, Spruce Knob in Pendleton County, 4,780 feet.

Climate.—The average annual temperature is 56.4. At Morgantown, Monongalia County, in the extreme northeastern part of the state, the average January temperature is 35 above zero. July, 74. Extremes are, warmest, 97; coldest, 25 below. Yearly rainfall, 46.9 inches. Remarkably healthful climate. Many people having come here for the springs and highland air after recuperation become permanent settlers.

Dimensions.—Extreme length north to south, 225 miles; width, east to west, 200 miles. Area, 24,780 square miles.

History.—Counties of northwestern Virginia rejected the ordinance of secession passed by Virginia April 17, 1861, at Richmond, and delegates from counties now comprising state of West Virginia met in Wheeling June 11, 1861, and organized a new state government. Constitutional convention met in Wheeling November 24. Constitution ratified by the people May 3, 1862. Consent of Virginia legislature given for forming a new state May 13. West Virginia admitted to the Union June 20, 1863. Wheeling made first seat of government and lastly Charleston became the capital of the state.

Valuations, 1906: Real estate, \$475,080,584; personal property, \$400,000,000. Tax rate on each \$1,000 is 85 cents. No bonded debt of the state.

Productions, 1905.—**Agricultural:** Oats, 1,980,586 bushels; corn, 22,813,122 bushels; wheat, 4,373,080 bushels.

Manufactures: Capital employed, \$86,620,823; wage earners, 43,758; wages paid, \$21,153,042; value of products, \$99,040,676.

Minerals: Value of products—Coal, \$32,341,790; clay products, \$2,018,795; coke, \$6,548,205; iron, pig, estimated, \$5,250,000; natural gas, \$10,075,804; petroleum, \$16,132,631; stone, \$842,627; lime, \$255,337; mineral waters, \$50,063.

The raw material for the manufacture of every description of product is here in such abundance as to build up the factory, and all employees in the factories must be fed.

STATE AND THE 71 COUNTIES OF WISCONSIN
With Their Boundaries

LOCATION AND 1910 POPULATION OF WISCONSIN COUNTIES.

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.
1.....	Douglas	47,422	6.....	Forest	6,782	11.....	Price	13,795	16.....	Taylor	13,641
2.....	Bayfield	15,987	7.....	Florence	3,381	12.....	Oneida	11,133	17.....	Lincoln	19,064
3.....	Ashland	21,905	8.....	Burnett	9,026	13.....	Polk	21,367	18.....	Langlade	.....
4.....	Iron	8,306	9.....	Washburn	3,196	14.....	Barron	29,114	19.....	Oconto	25,657
5.....	Vilas	6,019	10.....	Sawyer	6,227	15.....	Busk	11,160	20.....	Marinette	33,812

Location and 1910 Population of Wisconsin Counties—Continued

Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	Loca.	County	Pop.	
21.....	St. Croix.	25,910	31.....	Portage.	30,945	47....	Winnebago.	62,116	60.....	Grant.	39,007	
22.....	Dunn.	23,260	32.....	Waupaca.	32,782	48....	Fond du Lac.	51,610	61.....	Iowa.	22,497	
23.....	Chippewa.	32,103	33.....	Outagamie.	49,102	49....	Calumet.	16,701	62.....	Dane.	77,435	
24.....	Pierce.	32,079	37.....	Brown.	54,098	50....	Manitowoc.	41,978	63.....	Jefferson.	34,306	
25.....	*Pepin.		38.....	Kewaunee.	16,784	51....	Sheboygan.	54,888	64.....	Waukesha.	37,100	
26.....	Eau Claire.	32,721	39.....	Door.	11,711	52.....	Vernon.	28,116	65.....	Milwaukee.	433,187	
27.....	Clark.	30,074	40.....	La Crosse.	43,996	53.....	Crawford.	16,288	66.....	Lafayette.	20,075	
28.....	Marathon.	55,054	41.....	Monroe.	28,881	54.....	Richland.	18,809	67.....	Green.	21,641	
29.....	Shawano.	31,884	42.....	Juneau.	19,569	55.....	Sauk.	32,869	68.....	Rock.	55,538	
30.....	Buffalo.	16,005	43.....	Adams.	8,604	56.....	Columbia.	31,129	69.....	Walworth.	29,614	
31.....	Trempealeau.	22,928	44.....	Vaushara.	18,886	57.....	Dodge.	47,436	70.....	Racine.	57,424	
32.....	Jackson.	17,075	45.....	Marquette.	10,741	58.....	Washington.	23,784	71.....	Kenosha.	32,929	
33.....	Wood.	30,583	46.....	Green Lake.	15,491	59.....	Ozaukee.	17,123				
											Total	2,333,860

Wisconsin Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
A											
Abbottsford	27	947	Birchwood	9	530	Colfax	22	701	Embarrass	35	283
Abelma	55	444	Biramwood	29	678	Coloma	44	329	Emmerton	23	462
Abrams	19	200	Blackcreek	36	516	Columbia	56	2,522	Ephraim	39	720
Adams Center	43	250	Black Earth	62	479	Commonwealth	7	866	Esdaile	24	392
Adell	51	250	*Black River			Concord	63	1,236	Etrick	31	362
Albany	67	669	Falls	32	1,917	Conover	5	222	Eureka	47	362
Albion	62	250	Black Wolf	47	671	Coon Valley	52	391	Evansville	68	2,061
Algoma	38	2,082	Blair	31	486	Cooperstown	50	226			
Allen Grove	69	321	Blanchardville	66	643	Corliss	70	525	F		
Allenton	58	250	Bloom City	54	230	Cormier	37	1,662	Fairchild	26	678
Allouez	1	820	Bloomington	60	626	Cottage Grove	62	250	Fair Oaks	62	891
*Alma	30	1,417	Blue River	60	287	Couderay	10	326	Fall Creek	26	523
Alma Center	32	1,011	Boaz	24	236	*Crandon	6	1,833	Fall River	56	360
Almond	34	487	Bondel	29	350	Crivitz	20	225	Fennimore	69	1,159
Alois	65	866	Boscobel	29	5,252	Cross Plains	62	350	Ferryville	28	220
Alto	48	220	Boyd	23	527	Cuba	60	967	Ferrville	53	289
Altoona	26	824	Brandon	48	684	Cudahy	65	3,691	Fifield	11	326
Amberg	20	431	Brantwood	11	336	Cumberland	14	1,445	Fish Creek	39	200
Amery	13	659	Bridgeport	53	500	Curtiss	27	332	*Florence	7	1,870
Amherst	34	629	Brillion	49	998	D			*Fond du Lac	48	13,797
Aniwa	29	274	Bristol	71	226	Dale	36	426	Footville	68	392
*Antigo	18	7,196	Broadhead	67	1,517	Dallas	14	342	Forest Junction	49	250
Appollonia	15	226	Brokaw	28	458	Dane	62	296	Forestville	39	250
*Appleton	36	16,773	Brooklyn	67	362	Darien	69	389	Port Atkinson	63	3,877
Arbor Vitae	5	1,200	Brownstown	67	222	*Darlington	66	1,808	Postville	5	326
Arcadia	31	1,212	Bruce	15	250	Dayton	67	250	Fountain City	30	1,031
Arena	61	354	Brule	1	250	Deerfield	62	533	Fox Lake		
Argyle	66	603	Bryant	18	333	Deer Park	21	326	Junction	57	851
Arkansaw	25	262	Buffalo	39	255	De Forest	62	431	Frederic	13	511
Arkdale	43	220	Burlington	70	3,212	Delafield	61	261	Frederonia	59	750
Armenia	42	801	Burnett	57	266	Delafield	69	2,450	Freemont	37	305
*Ashland	3	11,594	Butternut	3	717	Delton	55	226	*Friendship	43	276
Athens	28	904	C			Denmark	37	250			
Auburndale	33	297	Cadott	23	765	De Pere	37	4,477	G		
Augusta	26	1,405	Calamine	66	226	De Pete Station	37	4,292	Galesville	31	973
Avoca	61	436	Calumetville	48	330	De Soto	52	331	Gays Mills	53	557
Aztalan	63	250	Cambria	56	654	Dexterville	33	354	Geneseo	64	250
B			Cambridge	62	507	Diamond Bluff	24	222	Genoa	32	275
Babcock	33	520	Cameron	14	562	Dickeyville	60	250	Genoa Junction	69	709
Badger Mills	23	230	Campbellsport	48	660	*Dodgeville	61	1,791	Germantown	53	205
Bagley	69	300	Camp Douglas	42	473	Donaldson	5	366	Gile	4	451
Baileys Harbor	39	250	Carrollville	65	362	Dorchester	27	476	Gilett	19	610
Badwin	21	584	Carter	6	250	Dousman	64	250	Gilmanton	30	250
*Balsam Lake	13	279	Cascade	51	322	Downing	22	319	Glenbeulah	51	562
Bancroft	34	226	Casco	38	399	Downsville	22	286	Glen Flora	15	520
Bangor	40	692	Cashton	41	568	Doxlestown	56	259	Glenrock	44	277
*Baraboo	55	6,324	Cassville	60	890	Drummons	2	522	Greenwood City	21	954
Barnes	2	326	Catawba	11	200	Duckcreek	37	1,696	Gordon	3	606
Barneveld	61	317	Cazenovia	54	392	Dueholm	13	226	Gotham	1	366
*Barron	14	1,419	Cecil	29	351	Dunbar	20	526	Grafton	59	738
Barnett	14	220	Cedarburg	59	1,777	*Durand	25	1,593	*Grand Rapids	33	6,521
Barton	58	562	Cedar Grove	51	493	Dyckesville	38	206	Grandview	2	426
Bavaria	18	200	Centuria	13	301	E			Granton	27	250
Bay City	24	252	Charlesburg	49	362	Eagle	64	339	*Grantsburg	8	721
Bayfield	2	1,689	Chaseburg	52	326	*Eagle River	5	1,454	Gratiot	66	368
Bay Settlement	37	386	Chat	17	203	Eastman	59	223	*Green Bay	37	25,236
Bear Creek	36	426	Chelsea	16	426	East Troy	69	673	*Green Lake	46	563
Beaver Dam	57	6,758	Chetek	14	829	*Eau Claire	26	18,310	Greenleaf	37	226
Beetown	60	222	*Chilton	49	1,530	Eden	48	250	Greenstreet	50	326
Beldenville	24	250	*Chippewa Falls	23	8,893	Edgar	28	746	Greenwood	27	665
Belgium	59	228	Clarks Mills	50	226	Edgerton	68	2,513	Gresham	29	305
Bell Center	53	246	Clay	32	316	Eland	29	368			
Belleville	62	422	Clayton	13	230	Elcho	18	520	H		
Bellevue	37	808	Clear Lake	13	498	Elderon	28	226	Hackley	5	526
Bellmont	66	532	Clinton	68	897	Eleva	31	319	Hales Corners	65	200
Beloit	68	15,125	Clintonville	35	1,747	Elkhart Lake	51	499	Hamburg	28	350
Benton	66	652	Clyman	57	200	*Elkhorn	69	1,707	Hammond	21	408
Berlin	46	4,636	Cobb	61	230	Elk Mound	22	302	Hancock	44	510
Big Bend	64	200	Cochrane	30	250	*Ellsworth	24	1,005	Hartford	64	2,982
Big Flats	43	280	Colby	28	869	Elmwood	24	585	Hartland	28	728
Big Sausamico	37	336	Coleman	20	436	Elroy	42	1,729	Hatley	28	330
						Elton	18	492	Haugen	14	275
									Hawkins	15	460

Explanation: Index to Towns. First Column, Names of Towns; Second Column, Number the Same as Number of the County Where Town is Located; Third Column, Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Cities and Villages of Wisconsin with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Hawthorne	1.	350	Lyndon Station	42.	275	Norwalk	41.	502	Rosholt	34.	383
Hayton	49.	250	Lynxville	53.	274	Nye	57.	226	Royalton	35.	292
*Hayward	10.	3,741	Lyons	69.	426				Rudolph	33.	203
Hazel	10.	621				O					
Hazelhurst	12.	375				Oakfield	48.	522			
Heinemann	17.	230				Oakland	63.	1,287			
Helenville	63.	350	Macfarland	62.	420	Oconomowoc	64.	5,054	Sagole	36.	201
Hersy	21.	260	Madison (capitol)	62.	25,531	Oconto	19.	5,629	St. Anna	51.	201
High Bridge	3.	250	Maiden Rock	24.	337	Oconto Falls	19.	1,427	St. Cloud	48.	309
Highland	61.	1,096	Manawa	35.	290	Odana	3.	2,109	St. Croix	35.	569
Hika	50.	275	Manchester	46.	230	Ogdensburg	35.	308	St. Francis	65.	1,502
Hilbert	49.	572	Manico	12.	650	Ogema	11.	250	St. Lawrence	58.	203
Hilles	6.	526	*Manitowoc	50.	13,027	Omro	47.	1,285	St. Nazianz	50.	503
Hillsboro	52.	804	Maplewood	39.	260	Onalaska	40.	1,146	Salem	71.	303
Hines	1.	526	Marathon	28.	656	Oneida	36.	2,280	Sauk City	55.	867
Hingham	51.	326	Marblehead	48.	275	Orfordville	52.	383	Saukville	59.	200
Hixton	32.	296	Mareno	3.	250	Oscar	51.	380	Sawyer	39.	301
Holcombe	23.	326	*Marinette	20.	14,610	Orfordville	58.	419	Scandinavia	35.	355
Hollandale	61.	265	Marion	35.	798	Oscola	13.	634	Schlesinger	58.	538
Holmes	40.	300	Markesan	46.	895	*Oshkosh	47.	33,062	Schofield	58.	889
Honey Creek	69.	300	Marquette	4.	313	Osseo	31.	690	Scott	51.	202
Horton	57.	1,881	Marshall	62.	459	Otjen	65.	366	Seneca	53.	254
Hortonville	36.	833	Marshfield	33.	5,783	Ottawa	64.	1,500	Seymour	36.	1,109
*Hudson	21.	2,810	Martintown	67.	200	Owen	27.	745	Shanagolden	3.	301
Humbird	27.	500	Mason	2.	750	Oxford	45.	250	Sharon	69.	879
*Hurley	4.	2,532	Mattoon	29.	868				*Shawano	29.	2,923
Hustisford	57.	615	*Mauston	42.	1,701				*Sheboygan	51.	26,398
			Mayville	57.	2,282	Packwaukee	45.	250	Sheboygan Falls	51.	1,633
I			Mazomanie	62.	917	Palmyra	63.	649	*Shell Lake	9.	992
Iduna	31.	630	*Medford	16.	1,843	Pardeeville	56.	987	Sherry	33.	332
Independence	31.	664	Medina	36.	236	Park Falls	11.	1,972	Shiocton	33.	536
Ingram	15.	360	Mellen	3.	2,833	Paynesville	65.	522	Shiocton	68.	301
Iola	35.	850	Melrose	32.	250	Pelican Lake	12.	226	Shullsburg	66.	1,063
Iron Belt	4.	1,000	Menasha	47.	6,081	Pembine	20.	390	Silverlake	71.	301
Iron Mountain	57.	200	Menomonee			Pemunc	40.	390	Sinsinawa	60.	701
Iron Ridge	57.	250	Falls	61.	919	Pensaukee	19.	250	Soldiers Grove	53.	667
Iron River	2.	1,366	*Menomonee	22.	5,036	Pepin	15.	397	Solon Springs	1.	253
Ironton	55.	250	Mercer	4.	226	Perkinstown	26.	306	Somers	71.	251
Itasca	1.	326	*Merrill	17.	8,689	Peshigo	20.	1,975	Somerset Sta.	21.	351
J			Merrill	32.	625	Pewaukee	64.	749	Soperton	6.	463
Jacksonport	39.	226	Merrimack	55.	312	*Phillips	11.	1,948	S. German town	6.	463
*Janesville	68.	13,894	Middleton	67.	679	Phlox	18.	250	S. Milwaukee	65.	6,092
*Jefferson	63.	2,582	Midlin	61.	350	Pine Grove	37.	201	South Range	1.	351
Johnsburg	48.	252	Milladore	33.	325	Pine River	44.	201	South Wayne	66.	301
Johnson Creek	63.	425	Milwaukee	13.	250	Pittsfield	37.	1,213	*Sparta	41.	3,973
Johnstown Con.	68.	200	Milton	68.	833	Pittsville	44.	720	Spencer	28.	362
Juda	67.	621	Milton Junction	68.	926	Plainfield	31.	453	Spirit	11.	801
Juncon	34.	262	*Milwaukee	65.	373,857	Plainville	43.	901	Spooner	9.	1,453
*Juneau	57.	603	Mineral Point	61.	2,925	Platteville	60.	4,452	Springfield	69.	251
			Minocqua	12.	470	Pleasant Prairie	71.	301	Spring Green	55.	732
K			Minong	9.	200	Plover	34.	319	Spring Lake	44.	463
Kansasville	70.	366	Minot	50.	1,325	Plum City	24.	305	Spring Meadow	65.	2,104
Kaukauna	36.	4,717	Minot	50.	1,325	Plymouth	51.	3,094	Spring Valley	24.	2,975
Kelley	28.	200	*Monroe	67.	4,410	Polonia	34.	201	Stanley	23.	672
Kellnersville	50.	385	*Montello	45.	1,104	*Portage	56.	5,441	Starlake	5.	201
Kendall	41.	477	Montfort Junc.	61.	558	Port Edwards	33.	500	Star Prairie	21.	253
*Kenosha	71.	21,371	Monticello	67.	671	Portland	57.	250	State Hospital	47.	1,111
Kewaskum	58.	625	Montreal	4.	562	*Pt. Washington	59.	3,792	Stetsonville	16.	201
*Kewaunee	38.	1,839	Morrisonville	62.	230	Port Wing	2.	251	Stevens Point	34.	8,692
Kiel	50.	1,244	Mosinee	28.	482	Potosi	60.	464	Stiles	19.	466
Kilbourn	56.	1,170	Mount Calvary	48.	350	Pound	20.	301	Stinnet	9.	301
Kimberly	36.	200	Mount Hope	60.	332	Poygan	47.	662	Stitzer	60.	275
Kingston	46.	204	Mount Sterling	53.	303	Poyntette	56.	656	Stockbridge	49.	328
Knapp	22.	413	Mukwonago	64.	615	*Prairie du	53.	3,149	Stockholm	25.	204
			Musoda	60.	798	Chien	53.	3,149	Stoddard	52.	343
L						Prairie du Sac	55.	702	Stoughton	62.	4,761
Lac du Flambeau	5.	226				Prairie Farm	14.	368	Stratford	28.	763
*La Crosse	40.	30,417	Nashotah	61.	226	Prentice	11.	606	Strum	31.	253
*Ladysmith	15.	2,352	Nashville	6.	233	Prescott	24.	936	*Sturgeon Bay	39.	4,262
Lake Geneva	69.	3,079	National Home	65.	2,100	Princeton	46.	1,269	Suamico	37.	301
Lakemills	63.	1,672	Needah	42.	1,054	Pulaski	29.	436	Sullivan	63.	301
Lake Nebagamon	1.	483	Neenah	47.	5,734				Superior	62.	1,119
*Lancaster	60.	2,329	*Neenahville	47.	1,598				Suring	19.	211
Laney	29.	1,814	Nekimi	37.	908	R			Sussex	64.	211
Lannon	64.	450	Nekoosa	33.	1,570	Racine	70.	38,002	Symco	35.	313
Laona	6.	720	Nekoosa Junc.	33.	285	Randolph	57.	937			
Larrabee	50.	362	Nelson	30.	285	Random Lake	51.	408			
La Rue	55.	250	Neosho	57.	304	Readstown	52.	515			
Lavalle	55.	421	Neshkoro	45.	308	Reedsburg	55.	2,615			
Leadmine	66.	226	New Auburn	23.	364	Reeseville	57.	352	T		
Lena	19.	350	New Berlin	64.	380	Redgranite	44.	1,521	Taylor	32.	254
Lewis	32.	200	Newburg	58.	482	Rewey	61.	329	Theresa	57.	345
Limeridge	55.	250	New Cassel	48.	326	*Rhinelander	12.	5,637	Thiensville	59.	254
Linden	61.	580	New Digging	66.	350	Rib Lake	15.	601	Thorp	27.	741
Little Chute	36.	354	New Glarus	67.	708	Rice Lake	14.	3,968	Three Lakes	12.	301
Livingston	60.	662	New Holstein	49.	839	*Richland			Tigerton	29.	728
Lodi	56.	1,044	New Lisbon	42.	1,074	Centre	54.	2,652	Tisch Mills	50.	225
Loganville	55.	260	New London	35.	3,383	Richmond Falls	69.	211	Tomah	41.	3,419
Lohrville	44.	301	New Munster	71.	200	Richwood	57.	212	Tomahawk	17.	2,907
Lonima	57.	529	New Richmond	21.	1,938	Ridgeway	61.	437	Tony	15.	201
Lone Rock	54.	497	Niles	50.	226	Rio	56.	704	Trego	9.	201
Lost Creek	24.	1,066	Norrie	28.	226	Ripon	48.	3,739	Trempealeau	31.	535
Louisburg	60.	2,268	North Crandon	48.	326	River Falls	24.	1,991	Tripp	12.	253
Lowell	57.	318	N. Fond du Lac	48.	1,960	Robbins	21.	201	Truelove	11.	1,680
Loyal	27.	677	N. Freedom	55.	647	Roberts	70.	283	Turtle Lake	14.	442
Luck	13.	383	N. La Crosse	40.	7,096	Rochester	21.	203	Two Rivers	50.	4,851
Luxembourg	38.	403	N. Milwaukee	65.	1,860	Rockdale	62.	202			
			Northport	35.	420	Rockmont	1.	201	U		
			North Prairie	64.	266	Rome	63.	225	Union Center	42.	301
						Rosecrans	50.	201	Union Grove	70.	616
						Rosendale	48.	304	Unity	28.	363
									Utica	62.	853

Wisconsin Cities and Villages with 1910 Populations

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
V			Waterford	70	581	West Allis	65	6,645
Valders	50	231	Waterloo	63	1,222	*West Bend	58	2,462
Valley Junction	41	202	Watertown	63	8,829	Westboro	56	704
Vandyne	48	218	Waukau	47	301	Westby	52	902
Verona	62	355	*Waukesha	64	8,744	West De Pere	37	4,292
Vesper	35	261	Waunakee	62	551	Westfield	45	729
Viola	54	671	*Wauvaca	35	2,739	W. Milwaukee	65	1,458
*Viroqua	52	2,059	Waupun	48	3,362	Weston	22	327
W			*Wausau	28	16,563	West Salem	40	842
Wabeno	6	503	*Wautoma	44	2,066	West Sweden	13	401
Waldo	51	252	Wauwatosa	65	3,346	Weyauwega	35	967
Walworth	69	755	Wauzeka	53	476	Weyerhaeuser	15	371
Warrens	41	1,408	Wayside	37	302	Whitefish Bay	65	542
*Washington	2	3,832	Weiskisit	18	253	*Whitehall	31	703
Harbor	39	738	Welcome	36	341	Whitewater	69	3,224
						Wild Rose	44	551
						Williams Bay	69	553
						Wilmot	71	251
						Wilson	21	505
						Wilton	41	510
						Winchester	47	968
						Windsor	62	203
						Winnebago	47	1,104
						Winneconne	47	943
						Withee	27	443
						Wittenberg	29	1,091
						Wonewoc	42	789
						Woodford	66	200
						Woodville	21	320
						Wrightstown	37	525
						Wyocena	56	425

WISCONSIN

INFORMATION CONCERNING NORTHERN WISCONSIN LANDS

In reply to our questions about Wisconsin cut-over timber lands we receive the following:

College of Agriculture, Madison, Wis.
The price of "cut-over" lands, i. e., those from which the valuable timber has been removed, in Northern Wisconsin, ranges from \$5.00 to \$20.00 per acre; for lands carrying valuable timber the prices range from \$10.00 to \$40.00.

Kentucky blue grass, red top and timothy flourish in Northern Wisconsin in great profusion. Blue grass soon forms a dense sod and timothy, on fertile tracts, grows luxuriantly, yielding crops for many years without reseeded. Red, alsike and white clover flourish, the two former usually giving two cuttings a year. Clover does not so often winter kill as in the southern part of the state because the ground does not thaw out in winter and is usually covered with snow.

Indian corn can be successfully grown over a large part of the north on the warmer sandy-loam soils. As the country becomes more settled considerable crops of corn will be grown. Oats are at home in Northern Wisconsin and yield large crops of heavy grain. Barley grows well there. Some wheat is grown, but the settler should not rely upon that crop. Rye is largely grown and the field or Canada pea flourishes to a surprising degree. Already there are scores of canning factories in the state canning green peas. The yield of ripe peas is from 15 to 30 bushels or more per acre. They are extremely valuable for feeding stock, especially hogs for producing choice bacon and hams.

Root crops of all kinds flourish. Potato growing is already an enormous industry in the north central portion of the state, and where the soils are not too heavy, this is one of the most profitable crops of the northern farmer. Cabbages, rutabagas, beets, etc., yield large returns of excellent quality. The sugar beet grows well in the north and on suitable soils carries a very heavy percentage of sugar.

Dairying is destined to become the great industry of our new north. The abundant grasses and clovers, the pure, cool waters, the temperate summer climate, all combine to this end. The writer predicts that Northern Wisconsin will become the greatest cheese region in all America. Sheep husbandry is also profitable. Hogs do well and can be fed upon peas, clover and other grains grown by the farmer.

As to healthfulness, it may be said that there are no diseases peculiar to Northern Wisconsin. The water is pure and the air invigorating. Malaria is unknown. There are no blizzards in the true sense of that word. There is abundance of fuel for the cutting. Never is there a failure of all crops in any one season. Under the worst of possible conditions one is sure of abundance of food, fuel and water—items not always available to pioneer settlers in many parts of the west.

Every land seeker coming to Northern Wisconsin should know that this vast district possesses all kinds of soil—good, medium and poor. There are many inferior tracts of land in our new north which at this time should be severely let alone by the land seeker. In some places there are gravelly ridges

with a thin, light soil which burns out in dry weather. In other places there are swamps too deep and miry to be successfully drained. Again there are districts where drift bowlders cover the ground so thickly that, although the soil itself is good, one cannot afford to make a farm at the present time. Finally there are regions with a coarse sand and subsoil. On some of these sandy lands there is only a light vegetable mold which will give fair crops for two or three years and then leave fields in which the loose sand will be blown into heaps by the wind and profitable cultivation become an impossibility. Again there are sandy regions covered with a peat or morland formation. Some of these soils are of doubtful agricultural value. In some of the sandy districts the sand is of fine particles and suited to profitable agriculture. The land seeker should avoid all lands of questionable character, since there are numerous tracts of good land available at reasonable prices. One should not take poor lands because they can be bought for a few dollars less per acre than the tracts with a good soil. There are good lands and poor lands in each and every northern county.

The undersigned cannot undertake to inform persons who write him as to the merits of particular tracts. Each separate tract must be seen and studied to gain a correct idea of its value.

The only way to proceed advantageously in securing a home in our new north is to visit one or more seemingly desirable districts. It does not matter so much which county one goes into as it does that a wise selection be made when one has reached some given point. Railroads cross every portion of the state and the highways are generally laid out. Settlers abound everywhere. The land seeker should carefully examine the growing crops in the region visited and from them make up his mind as to the possibilities of forgotten tracts in the same locality. It should not be forgotten that soils differ sometimes on two adjoining farms and sometimes land not worth a dollar an acre lies only a short distance from that which when improved will be worth \$50 or even more per acre. All such facts come out plainly when one studies northern Wisconsin for himself.

The writer believes that no region in the United States today offers more favorable opportunities for persons with limited means to surely and successfully secure homes and ultimately good farms than Northern Wisconsin. At the same time some land-seekers are making serious mistakes by going about this matter in an unbusinesslike manner, not giving to an important vital matter the thought and care it merits.

Government land offices are located at Wausau, Eau Claire and Ashland, Wisconsin. Government lands still unsold are generally of low agricultural value.

Concerning State lands address State Land Commissioner, State Capitol, Madison, Wis.

Wisconsin has no Board of Immigration.

W. A. HENRY, Dean and Director.

CONDENSED IMPORTANT FACTS RELATING TO THE STATE.

Altitude.—Rib Hill, in Marathon Co., 1,940 feet.

Climate.—Winters long and severe, yet healthful. The average annual temperature at Green Bay is 43.65. Snow, falling usually before heavy freezing, and continuing through the winter, protects the roots of plants from frost and hastens vegetation in the spring. Average January temperature at La Crosse, 15 above zero; July, 73; warmest, 104; coldest, 43 below zero; yearly rainfall, 30.7. At Milwaukee, January average, 19 above; July, 69; warmest, 100; coldest, 25 below; yearly rainfall, 32.1.

Dimensions.—Extreme length of state, north and south, 300 miles. Width, east to west, 290 miles. Area of state, 56,040 square miles.

History.—Many evidences of this region having been occupied by the Mound Builders. Visited by Jean Nicolet, a Frenchman, in 1634; French fur traders built a small stockade near the present town of Ashland, 1661; Jesuit mission founded at La Pointe, 1665; Green Bay, 1669. Trading post established at Milwaukee, 1785; Milwaukee founded, 1835;

STATE AND THE 15 COUNTIES OF WYOMING

With Their Boundaries

Location and Population
of

WYOMING COUNTIES

Lo- ca- tion	COUNTIES	Pop. 1910
1.	National Park..	519
2.	 Park..	4,909
3.	 Big Horn..	8,886
4.	 Sheridan..	16,324
5.	 Johnson..	3,453
6.	 Crook.....	6,492
7.	 Weston.....	4,960
8.	 Uinta.....	16,982
9.	 Fremont..	11,822
10.	 Natrona..	1,766
11.	 Converse..	6,294
12.	 Sweet Water..	11,575
13.	 Carbon.....	11,282
14.	 Albany.....	11,574
15.	 Laramie.....	26,127
	Total.....	145,956

WYOMING CITIES AND
VILLAGES WITH
1910 POPULATIONS.

Towns	Loca.	Pop.
Afton	A.....8.	570
Almy	8.	450
*Basin	B.....3.	763
*Buffalo	5.	1,368
Burlington	3.	465
Cambria	C.....7.	909
Carneyville	4.	406
*Casper	10.	2,639
Cheyenne (capital)	15.	11,320
*Cody	2.	1,132
Cowley	3.	574
Cumberland	8.	200
Dayton	D.....4.	313
Diamondville	8.	696
Dietz	4.	1,209
*Douglas	11.	2,246
Elkol	E.....8.	250
Encampment	13.	421
Evanston	8.	2,583
Fairview	F.....8.	350
Fort Mackenzie	4.	362
Fort Russell	15.	1,066

WYOMING CITIES AND VILLAGES WITH 1910 POPULATIONS.

Towns	Loca.	Pop.	Towns	Loca.	Pop.	Towns	Loca.	Pop.
Fort Washakie	G.....9.	328	*Laramie	14.	8,237	Riverton	9.	483
Frontier	8.	1,520	Lonetree	8.	200	Rock Springs	12.	5,778
Gillette	G.....6.	448	Lovell	3.	726	Saratoga	S.....13.	557
Glencoe	8.	590	Lusk	11.	419	Shell	3.	226
Glenrock	11.	426	Manville	M.....11.	250	*Sheridan	4.	8,408
*Green River	12.	1,313	Meeteetse	2.	207	Shoshoni	9.	604
Greybull	3.	258	Monarch	4.	375	Sublet	8.	347
Grover	8.	250	*Newcastle	N.....7.	975	*Sundance	6.	281
Guernsey	15.	274	Oakley	O.....8.	590	Sunrise	15.	226
Gunn	12.	220	Otto	3.	202	Superior	12.	602
Hanna	H.....13.	2,066	Pinebluff	P.....15.	246	Sweetwater	12.	306
Hartville	13.	235	Quarry Spur	Q.....8.	562	Thermopolis	T.....9.	1,524
Hudson	9.	319	*Rawlins	R.....13.	4,256	Upton	U.....7.	244
Hyattville	3.	220				Wheatland	W.....15.	796
Kemmerer	K.....8.	843				Winchester	3.	226
Keystone	14.	309				Wind River	9.	226
Kinnear	9.	620				Worland	3.	265
Koos	4.	250						
*Lander	L.....9.	1,812						

WYOMING.

ONE OF THE RICHEST OF THE UNITED STATES IN NATURAL RESOURCES.

As the reader will observe by examination of dimensions, this state is more than twice the size of Pennsylvania, which is of itself a large state.

What the ultimate outcome of Wyoming will be, when its resources are fully developed, it is impossible to foresee. In the first place it is a very young state. It was admitted to the Union no longer ago than 1890. It is so young yet in being settled that at the census of 1900 there was less than one person to the square mile, while Pennsylvania had 140 persons to the square mile, being over 200 years older than Wyoming.

We speak of Pennsylvania in comparison because Wyoming has several of the natural resources of

Pennsylvania, though vastly greater. Thus the coal area of Pennsylvania covers 470 square miles and had an output of coal in 1906 valued at \$255,269,507. If Pennsylvania coal is worth over \$255,000,000, with 470 square miles of coal area, what will the coal output of Wyoming be when the 20,000 square miles of coal area is fully developed?

CLIMATE COMPARED WITH PENNSYLVANIA.

Climate has very much to do with the growth and ultimate development of a region. In speaking of the two states, compare the temperature of the leading cities. Thus, the average January temperature of Pittsburgh is 30 above zero, Cheyenne is 25; August,

Explanation: Index to Towns. First Column. Names of Towns; Second Column. Number the Same as Number of the County Where Town is Located; Third Column. Population of 1910. Loca. Means Location. Pop. Means Population. Star in Front of Name Indicates County Seat.

Wyoming a State Rich in Minerals and Natural Resources

at Pittsburg, is 74, at Cheyenne it is 67; the warmest at Pittsburg is 103, the warmest at Cheyenne is 100. The coldest at Pittsburg is 20 below zero, while the coldest at Cheyenne is 38 below. In Pennsylvania the annual average temperature is 53.9, while in Wyoming it is 44.9. But the average elevation of 6,000 feet above sea level makes an air so dry as to relieve cold weather of the disagreeable tinge of cold, which is experienced in a moist atmosphere.

The climate here is similar to the mountain region of Italy and is not severe in winter. There are few cloudy days. Winds sometimes prevail during the spring and fall, but cyclones and tornadoes are unknown. Snowstorms are usually followed by Chinook winds from the Pacific ocean which, with their warmth, uncover the pastures, so that live stock get the benefit of the grasses cured by the summer sun, and as the cured native grasses retain their nutrition, it enables the stockman to support his stock upon the open range with little, and in the case of sheep raising, no additional food. But few climates are more healthful or pleasant than the climate of the mountain region of the western states. The almost constant sunlight is not only pleasant, but beneficial from a sanitary standpoint, and it is a well recognized fact in the medical profession, that certain diseases, notably pulmonary afflictions, are much benefited by change from the states of lower altitudes to Wyoming or adjacent states.

Gold, copper and coal mining, petroleum production and raising live stock are the most important business interests of the State up to the present time.

RICH IN NATURAL RESOURCES.

The State is destined in the very near future to become the richest, in its diversified natural resources, of any State in the Union. The minerals are here in quantity. There are vast coal fields as yet unopened and subject to entry under the United States statutes. There is an enormous area of oil land, most of which is still open for location. There are mountains of iron ore. There is probably more copper than in any other state—veins from four to twenty-five feet wide, running from 15 per cent to 70 per cent, and many rich gold-bearing lodes.

Hot springs abound, which not only equal but surpass the famous Carlsbad Springs of Europe. The analysis of the waters and the results of their use have demonstrated this to be true.

BETTER TRANSPORTATION NECESSARY.

The only thing necessary to make the state all and more than is claimed for it is more transportation facilities—railroads operated in the interest of local development and not solely for trans-continental traffic—more capital invested on a business basis, and more men of brains, push and honest purpose. To all such Wyoming extends a hearty greeting and a co-operative hand.

In Albany County there is over \$2,000,000 invested in live stock and just to the south end of the city of Laramie are the Acme Cement Company's works, which owns a thousand acres of plaster land which has a deposit of natural plaster from six to eight feet in thickness. The output is about ten cars per day.

Large shops are here used for the purpose of preparing railroad ties by a process which is said to prolong their life two and a half times.

A large quantity of limestone is shipped to the beet sugar plants and smelters of Colorado from quarries just to the east of Laramie. This limestone is the purest discovered in the United States and is practically inexhaustible. It was used some years ago in the manufacture of glass. All the other ingredients for the manufacture of glass of a superior quality are found at Laramie and it is within the realm of reason to predict that this industry will soon be in a flourishing condition at this point. At the State Fishery, located at this point, more than a million of small fry are hatched annually and distributed among the streams of the state.

WHY CALLED BIG HORN.

Big Horn County is named from the Big Horn or Rocky Mountain sheep, which abound in the Big Horn Mountains, on the east side of the Big Horn Basin. It is anticipated that at an early day, among other enterprises, a beet sugar factory will be established in this county, 400,000 acres of land being soon placed under irrigating ditches. All the roots, vegetables, such as potatoes, carrots, rutabagas and foods of all kinds thrive excellently well up to 6,500 feet elevation. It is not uncommon for beets to attain a weight of ten and fifteen pounds and be solid to the core.

HOT SPRINGS HERE.

The Big Horn hot springs in this county are certain to be widely celebrated. From the main spring a stream seven feet wide and two feet deep, with a temperature of 135 degrees F., flows continually. It possesses strong curative properties.

Carbon County is named from the immense coal deposits which underlie the county. The Saratoga hot spring waters in this county, having a temperature of 135 degrees Fahrenheit, have strong medicinal qualities beneficial to the stomach and kidneys, and when bottled is a pure and pleasant water to drink. These springs are in an ideal place for a summer resort and sanitarium. The streams here abound in trout and the region is waiting the coming of parties who will utilize the locality for resort purposes.

GREAT SIZE OF VEGETABLES.

Converse County, named after a prominent cattleman of that name, has a record for producing on the irrigated lands here several hundred bushels of potatoes to the acre; pumpkin and squash which reach a weight of 100 and 160 pounds. Coal, iron and copper are among the principal mineral products of this county. Large oil fields are in this county and gas has been struck here in commercial quantities.

THE MINERAL PRODUCTS.

Placer mining is going forward in Crook County. Gold, silver, tin, copper, lead, manganese and bituminous coal are found here also in considerable quantity.

Three improved flouring mills are in Fremont County. Coal is here in great quantity; also a number of flowing oil wells.

In Johnson County there are 30,000 acres under irrigation and 200,000 acres are susceptible of irrigation and only await the advent of the industrious settler who can here obtain a good home cheap. Pasture lands sell for \$2; irrigated from \$15 to \$25. Gold, silver, copper and oil are here in large quantities, but are not worked yet from lack of transportation facilities. Water power is also here for a hundred factories.

Cheyenne, the county seat of Laramie County, has a population of 14,000; two daily newspapers; the capitol building, costing \$300,000; postoffice, \$350,000; Opera House, \$80,000; Elks' Home, \$30,000; Masonic Temple, \$50,000; convent school, \$50,000.

In the northern half of Laramie County the Wyoming Development Company has reclaimed a hundred thousand acres of arid land for the Wheatland Colony. Parties wishing to study large and superior systems of irrigation and the beneficial results should come into Wyoming. Independent of the general government, these improvements have been going forward in this region for years. With the assistance of the government every valley and broad plateau, located lower than a stream, will be given the benefit of water supply in regular quantities some day in the future.

That newspaper men, who are abreast of the times, great readers and know what is going on, are alive to the future possibilities of this state is shown in the many newspapers of the state established in small towns in the full belief that the towns will be many times larger. This is seen in the little town of Wheatland, which has a population of 800 and two newspapers. But these papers are on hand to get the advantage and be on the ground floor when the town numbers a population of 8,000.

To show how a little village of 800 people in Wyoming will push right along in business enterprise, look at the directory of Wheatland. Three churches—Methodist, Congregational and Catholic; a library and good library building; a telephone exchange and connections with all towns in Wyoming, Colorado, Utah and Idaho; five general stores; drug store, two livery stables, two hotels, one bank, a harness and saddle manufacturing establishment, two blacksmith and carriage shops, five secret orders, a good hall and modern roller mill with a capacity of 125 barrels a day.

PLENTY OF EMPLOYMENT.

Among the primary reasons for the future growth and prosperity of such a town as this is the fact that there is plenty of employment for every person at good pay in the business houses or out in the field helping to harvest the products grown in the sunshine on the irrigated lands.

How Little Villages Start in Wyoming and Become Prominent.

EASY TO GET STARTED HERE.

And then it is so easy to get hold here. Coal is cheap. Wood is abundant and may be had for simply the cutting and hauling. The pure, bracing air puts life into the newcomer at once, and he feels just like good, active work. After building up a large wood pile he goes to the lumber mills and buys the material for his house at \$7 and \$10 per thousand. Building stone is plenty and bricks are close by.

Located right in the midst of the irrigated lands, where crops are sure and the land owner knows what to depend on, it can readily be seen that this town, like many others in the State, has a good outlook with promise of speedy returns for capital invested.

The agriculturist who is looking for an ideal farming country; cattle and sheep producers who are desirous for the most advantageous conditions for stock raising; the business man who is seeking the new town full of promise, with the growing sur-

roundings country; and those broken in health who seek a favorable climate, will find good openings right here in Wheatland. And we might speak of many other little villages just as approvingly as this. The lands are selling here at \$22 and \$35 per acre. Ten years' time is given with equal annual payments at 6 per cent interest. No payment except the interest has to be made the second year, which gives the settler an opportunity to pay for his farm even though his means be limited.

PLENTY OF WATER.

A perpetual water right goes with each piece of land, and the purchaser of a Wheatland farm cannot be deprived of an equal water right with every other land holder any more than he can be deprived of the land itself. The land and water go together. When the lands and water have all been sold, the irrigation works will be absolutely under the control of those holding lands in the colony.

CONDENSED IMPORTANT FACTS RELATING TO WYOMING.

Altitude—Highest, Fremont Peak, in Wind River Range, Fremont County, 13,790 feet.

Climate—Temperature varies with elevation. Winters severe in higher altitudes, comparatively mild in the sheltered valleys. Average annual temperature for the state 44°. Average, January, at Fort Washakie, on the Shoshone Reservation in Fremont County, 10 above; July 67; warmest, 100; coldest, 54 below. Average, January, at Cheyenne, 25 above;

July, 67. Warmest, 100. Coldest, 38 below. Yearly rainfall, 12.2 inches.

Dimensions—Length, north to south, 275 miles. Width, east to west, 365 miles. Area of the state, 97,890 square miles.

History—Territory partly included in the Louisiana Purchase of 1803. Territory taken from Dakota, Idaho and Utah and organized July 25, 1868. Explored by Fremont about 1842.

FACTS OF INTEREST ABOUT WYOMING.

Yellowstone National Park occupies the northwest corner of the State of Wyoming and strips of the adjacent states—Idaho and Montana. In 1872, by Act of Congress, this portion of the Rocky Mountains was set aside as a national park, "for the benefit and enjoyment of the people."

It is rectangular in shape, fifty-five by sixty-five miles in size—the greater dimension running north and south; it embraces practically three and one-half thousand square miles. Snow-clad mountains within and adjacent to the Park range in elevation from ten to fourteen thousand feet above sea level; while the Park stage route ascends from 6,700 feet at Yellowstone Station, to an altitude of 8,300 feet in crossing the Continental Divide. Nowhere in the world are there geysers to compare, either in magnitude or number, with those in Yellowstone Park. The terraces and beautiful pools of Mammoth even surpass those in New Zealand. The Grand Canyon of the Yellowstone is unsurpassed in beauty and coloring; and the Great Falls, at its head, is three hundred and sixty feet in height.

The acting superintendent of the park is the commanding officer of Fort Yellowstone, a four-company post. Mounted guards escort the coaches on the tour; and scouts are employed to protect the game.

Hunting is not permitted in the park, but the visitor may enjoy trout fishing in mountain streams and Yellowstone Lake, where it is exceptionally good. The animals have government protection. The rock-formations and deposits are preserved in their natural state.

The road system, under the direct supervision of Government engineers, is one of the best in the country. The cost is defrayed by annual Congressional appropriations, and no pains have been spared to make the grades easy, and the roads so wide that coaches can pass at practically every point. Steel and concrete bridges span the streams, doing away with fords and making accessible to the tourist many sights heretofore inaccessible. The roads are sprinkled and kept constantly in repair.

PARK ANIMALS.

The animals of the Park are objects of peculiar interest. No sound of gun or bark of dog is ever heard, and the animals, though wild, have become so tame that they give only curious notice to tourists as they pass. Deer, elk and bear roam at will throughout Geyserland. The red squirrel and the chipmunk scamper along the roadway, and those furry little bundles, the woodchucks, flatten out on the rocks and take no heed of your passing. It is an everyday sight to see deer and their young by the roadside, and now and then you get a glimpse of an antlered elk, with his family of cows, swimming the streams of the Park. So much has been accomplished by law in robbing man of his terrors

to the wild, that all of the animals in the Park, except those that—like the mountain lion and sheep—frequent places inaccessible to travelers, have well nigh lost their fears.

The bears, some of them wrapped in robes that would command a fancy price, come down in the evening from their homes in the hills to feed around the hotels. The after-dinner entertainment they afford to guests is an everyday pleasure.

EDUCATION.

Wyoming was the first state to grant political rights to men and women, and it is but natural that the subject of education should receive the most profound attention. The schools of Wyoming are second to none, and in each county of the state every facility is extended to the children, however isolated are their homes, to secure an education. Schools are provided where there are even a very small number of pupils, and in all large towns are good high schools, which fit the young people for the State University.

The University of Wyoming, located at Laramie, is an admirable institution, which offers splendid courses in literature, science and art, as well as in mining, mechanical and irrigation engineering, agriculture and commerce.

Bulletins are issued by the University from time to time on topics of general interest to farmers and others, and are sent free upon request to all who will apply for them.

BUFFALO BILL.

Last Appearance as a Showman.

A Richmond, Va., newspaper says:

Richmond, Va., Nov. 1, 1911.—Colonel William F. Cody—"Buffalo Bill" to all the world—retired from public life tonight. His show was packed off to winter quarters and his Indians will return to their tepees in what is left of the red man's land, while "Buffalo Bill" intends to spend his remaining years in the Wyoming Big Horn country, where he helped make American history. So far as public exhibitions are concerned he has chased his last Indian.

During a career which began as a pony express rider, led him through more Indian battles than any other living white man, and included twenty-eight years as a showman, Colonel Cody became known as one of the most picturesque figures of American frontier life.

The sobriquet "Buffalo Bill" he earned in the early 60s, when he contracted to furnish buffalo meat to the laborers building the Kansas Pacific Railroad and in less than eighteen months killed 4,280 bison.

Wyoming, a Wonderfully Interesting Region to Visit

CANALS CONSTRUCTED.

The State Land Board has taken especial and practical interest in furthering the interest of the settlers. The state and national governments afford perfect protection for capital invested and to the settler for title to his land and the perpetuity of his water right. There is no possibility of loss to the individual investors or the settlers. The soil, climate and altitude of Wyoming are especially adapted to the most profitable crops grown by irrigation.

LIST OF IRRIGATION PROJECTS.

The Cody Canal Association, Cody, Wyo.
The Big Horn Basin Colonization Co., Cowley, Wyo.
The Big Horn County Irrigation Co., Basin, Wyo.
Hanover Canal Co., Worland, Wyo.
North Platte Canal and Colonization Co., Wyncotte, Wyo., and James Lake Irrigation Co., Laramie, Wyo. All have practically completed their projects and sold out their lands. There are, however, several companies which are ready for settlers and information in regard to the lands can be secured by writing to the following:
Sahara Ditch Company, Buffalo, Wyo.
Boulder Lake Canal Co., Boulder or Rock Springs, Wyo.
Lovell Irrigation Co., Lovell, Wyo.
Wheatland Industrial Co., Cheyenne or Wheatland, Wyo.
Rock Creek Conservation Co., Rock River, Wyo.
Wyoming Land & Irrigation Co., Marquette Bldg., Chicago.
La Frele Ditch & Reservoir Co., Douglas, Wyo.
North Laramie Land Company, Uva, Wyo.
Lake View Irrigation Co., Cody, Wyo.
Uinta County Irrigation Co., Marbleton, Wyo.

There are a dozen other companies having projects in more or less advanced stages of development and some of them will no doubt have lands available for contract during the season of 1911. Two of the largest irrigation enterprises in the west are the Oregon Basin project comprising about 200,000 acres of land in Big Horn County, between Cody and Greybull, Wyoming and the Central Wyoming project on the Indian Reservation near Riverton in Fremont County, which will reclaim over 300,000 acres. At this time propositions are being made to the State Land Board for the building of the necessary irrigation systems and it is hoped that these two projects, which are probably the best in the west, will be begun during the season of 1911. By writing to the Commissioner of Public Lands, Cheyenne, you can secure the biennial report of that department for the period expiring September 30, 1910, which will give a full statement of the present condition of each and every irrigation project.

CHEYENNE.

The capital city of Wyoming and the county seat of Laramie County has a population of 11,320 and adjoins Fort Russell, one of the four largest military posts in the United States, which has a minimum population of about 3,500. An electric railway connects the Fort with the city.

For the use of the Fort and the city one of the finest gravity water systems in the United States has been built, embracing five storage reservoirs which will afford a pure and abundant water supply for domestic irrigation and manufacturing purposes. A home building and loan association with \$500,000 assets has enabled many people of moderate means to build and own their own homes. "The Plains," a large hotel which would be a credit to any city, was completed January 10, 1911, and represents an investment of \$300,000, and several other smaller hotels have recently been built in addition to those which have heretofore taken care of the people, so that in future Cheyenne will be able to care for the large tourist travel. One thousand skilled mechanics are employed in the Union Pacific shops. The State Capitol, the \$400,000 Federal Building, Catholic Cathedral, Elks' Home, Masonic Temple and magnificent church, school and library buildings in the city are the source of constant admiration to visitors. The Park system of Cheyenne is a credit to the community. The annual Frontier celebration is known wherever the English language is spoken and every year attracts parties from outside of the limits of the United States. The climate of Cheyenne and its altitude are the same as that of Colorado Springs, Colorado. Surrounding the town are excellent roads which extend in every direction and which are available for automobile travel, affording excellent trout fishing within a

few hours ride. Cheyenne has many manufacturing establishments. Its pressed brick plant is supplying millions of brick to the surrounding country. A modern packing house offers a ready market for all the hogs and cattle of the vicinity. The Government and State Experimental farms show the results of dry farming and irrigation methods, and over 4,000 people have settled on farms in the vicinity of Cheyenne in the last few years. The Cheyenne Industrial Club, composed of 300 live citizens is always ready to give information to prospective homeseekers or investors.

WYOMING AT A GLANCE.

From Wyoming Commercial Club Circular.

Area, 97,890 square miles.
Average temperature, 44 degrees.
Wool clip worth \$6,000,000.
Peerless in its educational facilities.
Area of coal land, 20,000 square miles.
Cattle, 700,000, worth \$14,000,000.
Highest grade of soft coal known.
Finest trout fishing known to mortal man.
Mean elevation, 6,000 feet above sea level.
Area covered with timber, 10,000,000 acres.
Tons of stream tin have been mined and sold.
Lofty mountains, rolling plains, vast plateaus.
Iron, copper and coal enough for a vast empire.
Five million head of sheep, valued at \$17,500,000.
Finest natural plaster on earth, manufactured at Laramie.
Area subject to irrigation and cultivation, 10,000,000 acres.
Father of modern irrigation law and the reclamation act.
Foremost in the application of the Carey desert land act.
Hundreds of miles of railroad construction laid out for the future.
Nutritious grasses, furnishing abundance of feed for live stock.
One hundred cars per day of iron ore shipped from Sunrise to Pueblo, Colo.
Natural gas in commercial quantities discovered southwest of Douglas.
Average interest rate in Wyoming, about 8 per cent, indicating good business conditions and a strong demand for money. Gilt-edged security, of course, brings money at a lower rate.
In round numbers, the life insurance policies aggregate \$5,000,000.
Great opportunities for making money in sheep, cattle and horses.
Greatest wonderland of the world, the Yellowstone National Park.
All the materials necessary for the manufacture of the finest glass.
Coal mines are being operated in all the counties of the state, save one.
Area subject to entry under the land laws of the United States, 48,000,000.
The property of Wyoming is insured against fire to the extent of \$7,000,000.
Most famous rendezvous in the world for large game; the hunter's paradise.
Source of the Columbia, the Missouri, the Colorado, the Rio Grande and the Platte.
One million acres of land now being reclaimed under government and private enterprises.
Vast iron deposits, second to no State in the Union, cheaply mined and high in value.
Finest hot springs on earth, equal to Carlsbad in mineral properties, located at Thermopolis and Saratoga.
All the mountain ranges contain gold and silver deposits, awaiting the hand of the prospector and the miner.
Resources practically undeveloped. Greatest field on the continent for moneyed men to get in on the ground floor.
Sulphur, asbestos and plumbago are among the minerals discovered in quantities considered commercially valuable.
Grand opportunity for making money in the fattening of lambs upon field peas and alfalfa raised upon Wyoming soil.
The rate of taxation throughout the state has decreased in the aggregate during the past ten years two mills on the dollar.
Semi-anthracite coal has been discovered in Johnson County, and coking coal has been discovered in two or three localities, notably at Newcastle.
County bonds have sold as low as 4 per cent; school district bonds, 4½ per cent and municipal bonds at the same price, showing in the most conclusive manner that the credit of the state is very high.

An Expert's Advice on the Fertilization of Land

HOW TO RESTORE FERTILITY TO WORN-OUT SOILS

The Restoration of Fertility to Worn-out Land Being a Matter of Importance to All Tillers of Soil, We Publish the Following Information for Land Cultivators, Issued by the U. S. Bureau of Agriculture at Washington.

These Directions About Land Culture Come
In a Pamphlet Entitled

RENOVATION OF WORN-OUT LAND

By W. J. Spillman,

Agriculturist in charge of Farm Management Investigations, Bureau of Plant Industry. Assisted by Dr. J. A. Bonsteel of Bureau of Soils Industry.

A summary of subjects treated includes: Differences in Natural Fertility—Nature of the Soil—Mineral Plant Food—Nitrogen Compounds—Soil Moisture and Humus—Soil Air—Substances Thrown Off in the Soil by Growing Plants—Effects of Tillage—Effect of Plowing Soil When Too Wet or Too Dry

—Terracing and Soil Washing—Improving the Soil—Increasing the Stock of Humus—Stable Manure—Green Manures—Crimson Clover—Vetches—Rye—Cowpeas—Miscellaneous Green Manure Crops—Types of Farming That Build Up the Soil Quickly.

PRELIMINARY REMARKS

For nearly two centuries after the advent of the white man in America farming was confined to a narrow strip of land adjacent to the Atlantic; the population was sparse, and when a field became worn out the near-by woodland was cleared. As population increased, the younger generation crossed the Alleghenies, beginning the tide of migration which has moved westward until the present time, but which has now occupied nearly all of the easily available lands from the Alleghenies to the Pacific. In its westward course this advancing host farmed virgin soils for a century. The marvelous development which has occurred in this country during the past century was made possible by the abundant fertility of the new lands brought under cultivation and the consequent abundance and cheapness of farm products.

So long as plenty of fertile land remained unoccupied in the West the exhaustion of the older land in the East was a matter of concern only to the farmers of the older settled communities. But now we are confronted by the necessity of tilling soils whose ability to produce satisfactory crops has been greatly impaired. There is even a perceptible flow of immigration from the high-priced lands of the Middle West to the depleted lands of the Atlantic seaboard. This has been made possible by the recent remarkable development of agricultural science, which has demonstrated the feasibility of restoring fertility to exhausted soils. Agricultural science is also responsible for the present movement from the city to the country. The conditions of country life have been alleviated; the farm has been made attractive by adding the zest of intellectual occupation in the splendid agricultural literature of the day; and farming, when intelligently followed, has been made profitable, even on lands that were formerly unproductive.

DIFFERENCES IN NATURAL FERTILITY.

There is a vast difference in the natural fertility of soils. Some do not produce well from the start unless special attention is given to making them productive; others produce large crops for a short time and then rapidly diminish in fertility; while others, known as strong soils, remain productive for many years without attention to their fertility. But even the strongest soils will wear out in time unless they are intelligently managed. Curiously enough, as the tide of migration went westward in this country, the settlers found soils of increasing natural fertility as they went, and in each new settlement the opinion prevailed that the soil was inexhaustible. But even the strong soils of the western prairies have now been cropped with grain and abused by improper methods of tillage until they show signs of approaching exhaustion.

Fortunately, while the rich soils of the West were being depleted of their fertility, the development of agricultural science was going forward with rapid strides, and, while there is much yet to learn about the soil, we now know, in a general way, the steps necessary to build up and maintain soil fertility. In fact, soils that were originally only moderately productive, and that have been rendered almost sterile by improper methods of farming, can be made richer than they ever were.

NATURE OF THE SOIL.

In order to understand the methods necessary for restoring worn-out soils, let us consider what occurs in a fertile soil that is growing a large crop. Imagine a cubic inch of ordinary field soil magnified into a cubic mile. It would then present very much the appearance of a mass of rocks varying from the size of a pea to masses several feet in diameter. Scattered among these rock masses would be many pieces of decaying plant roots and other organic matter, resembling rotting logs in a mass of stones and gravel. The masses of organic matter would be found to contain large quantities of water, and to somewhat resemble wet sponges, while every mass of rock would have a layer of water covering its surface. The open spaces between the solid masses would be filled with air.

If a crop were growing on this soil, its roots would be found threading their way among the masses of rock and decaying plants, and pushing these aside by the pressure exerted by the growing root. From the surface of the growing root near its tip, small hollow threads (the root hairs) extend into the open spaces and suck up the water covering the rock particles. The root hairs are not open at the end; they absorb the water through their walls. The plant food is dissolved in this water, but is usually present in exceedingly small quantities. While the plant is growing a constant stream of water flows up through it and evaporates at its leaves. For every pound of growth in dry matter made by the plant, from 300 to 800 pounds of water flow up through it.

The plant food substances dissolved in the soil water may be divided into two classes, according to their ultimate source.

MINERAL PLANT FOOD.

Plants in their growth make use of thirteen chemical elements, nine of which they secure directly from the soil. These are called the mineral plant foods; they are phosphorus, potassium, calcium, magnesium, sodium, iron, silicon, chlorine and sulphur. We have already seen that the soil consists mainly of small particles of rock. The rock particles are of many kinds, but nearly all kinds contain more or less potassium, calcium, phosphoric acid, etc. Every year the soil water dissolves off a thin surface layer from each particle. Plants appropriate this water and thus secure mineral plant food.

Many generations of plants have thus been collecting their small toll of food from the soil and storing it up in their tissues. The amount of plant food made ready for plant use during each growing season through the slow solution of the mineral particles of the soil is doubtless supplemented to a considerable degree by the same kinds of material set free from the organic matter also found in the soil—that is, the mineral matter originally secured from the dissolved minerals, but built into plants during some former season, may again be used by other plants when the old matter is given an opportunity to decay in the soil. These foods derived directly from the mineral matter of the soil and indirectly from it through the growth, death, decay, and return of former crops, are also supplemented in many cases by the application of mineral matter in the form of commercial fertilizers.

Effects of Moisture, Air and Cultivation

BEST KINDS OF MANURE IN RENOVATING SOIL

Growing Crops to Plow Under

NITROGEN COMPOUNDS.

In addition to the nine elements already mentioned, the growing plant requires four other elements, as follows: Hydrogen, which it secures from water (water is a compound of hydrogen and oxygen); oxygen, which it secures partly from water and partly from the air; carbon, which is secured from carbonic-acid gas in the air; and nitrogen.

Nitrogen is in many respects the most important of all the plant-food elements. It is not found in appreciable quantities in the rock particles of the soil. Ordinarily plants depend for their nitrogen entirely on decaying organic matter. As decay proceeds nitrates are formed from the nitrogen contained in organic matter. The nitrates are exceedingly soluble, and unless soon made use of by growing crops they are washed out of the soil. Nitrogen is therefore usually the first element to become exhausted in the soil.

Fortunately, there are certain species of bacteria that can use atmospheric nitrogen, of which there is an inexhaustible supply. One family of plants—the legumes—has learned to exchange work with these bacteria, and these plants are thus easily supplied with an abundance of nitrogen in a form they can use. When these nitrogen-fixing bacteria are present in a soil on which a leguminous crop is growing, the bacteria invade the roots of the legume and live there. Their presence is usually made manifest by swellings—the so-called tubercles—on the roots of thrifty plants of clover, alfalfa, beans, peas, and other legumes. Nitrogen from the soil air filters into the roots, where the bacteria appropriate it, manufacture an abundance of nitrates, and give a portion to the plant in exchange for starch. The tissues of leguminous plants become very rich in nitrogenous compounds, and when they decay in the soil they set free large amounts of nitrates for the use of any crop which may be growing at the time.

The cultivation of leguminous crops is one of the most important and economical means of maintaining a supply of nitrogenous plant food in the soil. Nitrates may, of course, be supplied in commercial fertilizers; but fertilizers containing nitrogen are very expensive, and it usually pays better to supply nitrogen by growing legumes or by the application of stable manure, which is rich in nitrogen when properly handled. In good farm practice both stable manure and leguminous crops are used as sources of nitrogen.

SOIL MOISTURE AND HUMUS.

In order to produce a ton of dry hay on an acre of land it is necessary that the growing grass pump up from that acre approximately 500 tons of water. In order to supply this enormous quantity of water, the soil must not only be in condition to absorb and hold water well, but it must be porous enough to permit water to flow freely from soil grain to soil grain. The presence of large quantities of decaying organic matter (humus) adds enormously to the water-holding capacity of the soil. One ton of humus will absorb 2 tons of water and give it up readily to growing crops. Not only that, but the shrinkage of the particles of decaying organic matter and the consequent loosening of soil grains keep the soil open and porous.

Furthermore, humus of good quality is exceedingly rich in both nitrogen and mineral plant food. The maintenance of fertility may almost be said to consist in keeping the soil well supplied with humus. The first step in renovating worn-out soils is to give them an abundant supply of humus of good quality. Perhaps the best source of humus is stable manure containing both the liquid and the solid excrement, especially when the stock are fed rich nitrogenous foods. Even a poor quality of barnyard manure, which has had much of the plant food leached out of it, has considerable value because of the humus it makes.

Another cheap and valuable source of humus, but one which must be used understandingly, is crops grown to turn under as manure. The legumes are especially valuable for this purpose because of the nitrogen they contain, but other crops, such as rye, and even corn sown thick, may sometimes be made to supply large quantities of humus of fair quality. Crops thus used are called green manures. They are more fully discussed farther on.

SOIL AIR.

A proper circulation of air in the soil is just as important as any other factor of plant growth. Nearly half of the volume of ordinary soils is occupied by air spaces. The air spaces in the soil wind in and out between the soil particles, just as they do in a pile of larger stones. If the layer of water on the surface of the soil grains becomes so thick as to stop the air passages here and there the soil is then too wet for most crops and needs drainage. Plants have no special breathing organs, the oxygen required in their breathing finding entrance all over the surface of the plant. Plant roots must therefore be supplied with air, and hence the soil must be porous enough to permit of free circulation of air. A good supply of humus and proper tillage will accomplish this result in clay soils. Sandy soils are usually too porous, needing humus to help them retain water.

Another reason why air must circulate freely in the soil is that large quantities of oxygen are required to insure proper decay of organic matter to supply plant food. Also, carbonic-acid gas is produced by the decay of organic matter, and this must escape easily to make room for the atmospheric oxygen needed in the soil. The movement of air in the soil is frequently shown by the bubbles which appear at the surface of the soil just after a hard rain. As the water soaks into the soil it drives the air out, and bubbles may be seen at the surface if water enough is present to form them.

One of the most important objects of plowing is to loosen up the soil and mix fresh air with it.

SUBSTANCES THROWN OFF IN THE SOIL BY GROWING PLANTS.

Considerable evidence has been accumulated during recent years to show that the cause of the failure of some soils to produce satisfactory crops may be ascribed to unfavorable conditions produced in the soils by the plants themselves. It is thought that during the growth of the plant certain unknown organic substances are given off which, when they accumulate in the soil to any extent, are harmful to the further growth of plants of the kind that produced them. It is possible that some of the benefits known to arise from systematic crop rotation may be explained on this basis. These harmful substances seem to be disposed of rapidly by certain soils, usually those in which organic matter is readily converted into humus. Other soils, usually marked by a lack of the brown carbonized organic matter, do not seem to possess this property of removing harmful plant products to such a degree. This idea is in accord with the common experience that dark-colored soils, well filled with organic matter, are usually very productive.

In connection with the study of these poisonous organic products, it has been found that they may be destroyed or at least rendered harmless in a variety of ways. 'Barnyard manure or decaying organic matter, such as a green crop of rye or cowpeas, turned under has a very marked effect in freeing the soil from them. Almost all of the common commercial fertilizing materials act more or less in the same way. Commercial fertilizers for soil improvement have, therefore, another value besides adding plant food. Thorough and complete airing of the soil will often destroy or overcome these poisonous substances. The beneficial effects of plowing and of thorough surface tillage are thus explained, in part at least, on the basis of the thorough aeration secured. When the same crop is not grown oftener than every three or four years on the same land the injurious substances a crop throws off seem to have time to disappear before the same crop is grown again; hence the benefit from crop rotation. When the soil is well supplied with humus there is seldom any trouble from this source, and the same crop may be grown year after year with good yields, though continuous cultivation of the same crop may invite injury from certain insects and fungous diseases which live over in the soil or in the remains of the crop.

EFFECTS OF TILLAGE.

Improper methods of tillage add very greatly to the evil effects that result from lack of humus. In many parts of the country the land is plowed only

Treatment of New Land When First Broken

PLOWING—WHEN TO PLOW—DEPTH TO PLOW

Effect of Plowing When Soil Is Too Wet

3 or 4 inches deep. Below the plowed stratum the soil becomes sour, densely packed, and unfit for plant roots. When such soils are plowed deep and this sour packed subsoil is mixed with the upper portion, the growth of many crops is greatly retarded. This has led many farmers to believe that deep plowing is ruinous. Some farmers have tried to remedy the difficulty by subsoiling. The subsoil plow breaks up the packed layer but does not throw it out on top. But subsoiling does break up the hard layer into chunks it does not pulverize it or put humus into it. In most cases work done in subsoiling is practically wasted, and it is doubtful if it ever pays. A much better method is to plow a little deeper each year until a depth of 8 or 10 inches is reached. This gives a deep layer of good soil, particularly if the supply of humus is kept up.

When new soil, or that which has lain undisturbed for several years, is broken up, it is always best to plow deep from the beginning, for the deeper layers will be about as fertile as any, except the top inch or two. It is wise, too, never to plow the same depth twice in succession. In general, fall plowing should be from 7 to 9 or 10 inches and spring plowing from 5 to 7 inches deep. There are special cases in which these rules do not apply, but their discussion would take us too far from the purpose of this paper.

We plow the soil in order to loosen up its texture and get air into it; also to turn under stubble, manure, etc., to make humus. Killing weeds is another object accomplished by plowing. After a soil has been thoroughly pulverized to great depths, so that there is no danger of turning up packed clay, the deeper the plowing the better the crops. But the cost also increases with depth, so that ordinarily it does not pay to plow more than about 10 inches deep.

Some crops prefer rather a loose seed bed. Millet is such a crop. Farmers sometimes plow a second time in order to sow millet on freshly plowed land. Other crops, such as wheat and alfalfa, prefer a fairly compact seed bed; hence, frequent harrowing and rolling after plowing is good practice before seeding to these crops. Nevertheless, it pays to plow the land for them, even if we have to compact it again before seeding. The plowing aerates the soil and helps to set plant food free.

EFFECT OF PLOWING SOIL WHEN TOO WET OR TOO DRY.

Sandy soils are usually not injured by handling when wet; but the case is different with clay soils. A fair quality of brick can be made from any heavy clay soil by working it thoroughly when wet and then drying it in the sun. The effect produced by working clay soils wet is known as puddling. Irrigation ditches in the West are puddled by first flooding them to make them muddy and then driving bands of sheep along in this mud. This makes the bottom impervious to water and prevents loss from leakage. If a clay soil is plowed, or even harrowed, when too wet it is more or less puddled. In this condition it becomes cloddy and impervious to air and water. Old roadways that have been thoroughly puddled from traffic in all kinds of weather may be distinguished in fields many years after they have been plowed up and put into cultivation.

The proper time to plow land is when it is just moist enough to break up mellow, neither wet enough to leave a slick surface where rubbed by the moldboard nor dry enough to break up in large clods; or, as the southern farmer puts it, when the soil has a good season in it. If continued rain follows wet plowing, little harm follows; but hot, dry winds would soon leave only a mass of unmanageable clods. In spring and midsummer plowing, particularly, it is of the utmost importance to run the harrow immediately after the plow. This prevents the formation of clods. In late fall plowing, the clods are no disadvantage, for they will be broken up by freezing and thawing during the winter.

TERRACING AND SOIL WASHING.

One of the most serious results that follow shallow plowing, at least in hilly regions, is the washing away of the soil in torrential rains. In some sections particularly in the southern portion of the Appalachian Mountain region, farmers have attempted to

counteract this by means of terraces. Much of the farm land in the Carolinas, Georgia, and Alabama is nothing but a series of stair steps. When terraces are properly laid out they do prevent washing, but they are a very expensive means of accomplishing the end sought. They occupy land that ought to be in crops. They seed the land with weeds. When improperly constructed, and they usually are, they cause great ditches to be washed in the hillsides. Besides this they cut the land up into small, irregular patches and greatly increase the cost of tillage. There is a better way of preventing washing in nearly all cases.

In the first place, where land has been plowed only 3 or 4 inches deep for several years the subsoil becomes impervious to water and can not absorb a heavy rainfall fast enough to prevent its flowing over the surface. But when the land is plowed gradually deeper until a good depth of loose soil is obtained, and particularly when an abundance of humus is supplied from grass roots and stubble, or from green crops turned under, or, better still, from barnyard manure, the soil becomes so porous that the heaviest rains cause little or no flowing of water on the surface. Striking illustrations of this fact are to be found on the farm of Mr. W. L. Williamson, of Jackson County, Ga., and on the farm of Rev. J. D. Detrich, described in the Yearbook of the Department of Agriculture for 1903 under the title "A Model Farm." In the Yearbook paper referred to, illustrations are shown of two fields lying side by side, both in rye. The pictures were taken within a few feet of each other. In one two large ditches had just been filled with dirt. In the other there was no tendency to wash. Mr. Williamson's farm is located in a region where terracing is very general. Since he abandoned cotton culture and began dairying he has plowed up all his terraces, and his land does not wash. He plows deep and manures heavily. But it is possible to accomplish similar results, even on a farm largely devoted to cotton, by deep plowing and the use of green manures to supply humus.

IMPROVING THE SOIL.

We have seen that poverty in soil may be due to poor texture, unfavorable structure, lack of humus, deficiencies in the amount, form, or proportion of plant food, and to the presence of harmful mineral and organic compounds. With the exception of nitrogen, most soils, even those that are very poor, usually contain an abundant supply of plant food, though sometimes other elements are lacking or are present only in those forms that plants can not use.

To increase fertility we must improve texture and add plant food and humus. Tillage may do much to improve texture, but tillage alone will not suffice. We must add humus. In doing so we add plant food, and make the soil more permeable to air and water.

INCREASING THE STOCK OF HUMUS.

There are three general methods of supplying humus to the soil. The first and best is the addition of stable manure. When properly managed it adds large quantities of both plant food and humus. But manure is not always available. When such is the case, the best thing to do is to make it available. Raise more forage, keep more stock, and make more manure. But this takes time and capital, so that other means are sometimes necessary. When stable manure is not to be had, we may plant crops for the purpose of turning them under, thus adding large quantities of humus at comparatively little cost. Plowing under green crops is called green manuring. Under certain conditions this is an excellent practice. Crops adapted to this purpose and the method of using them are discussed farther on (p. 12).

A third method of adding humus is to grow crops like clover and timothy. These crops are usually left down for two years or more. During this time their roots thoroughly penetrate the soil. Old roots decay and new ones grow. When the sod is plowed up, more or less vegetable matter is turned under. This, with the mass of roots in the soil, adds no small amount to the supply of humus. Another advantage from the cultivation of clovers and alfalfa is found in the fact that they are deep-rooted plants, and when their roots decay they leave channels deep

The Careful Saving of All Manures

HOW TO GET BEST RESULTS IN MANURING

The Waste of Manure On Farms

into the earth, thus aiding in the absorption of rains and letting in air to sweeten the soil.

STABLE MANURE.

Properly handled, stable manure is by all means the best remedy for poverty of the soil. Very few farmers handle manure so as to get even as much as half the possible value from it. There is probably no greater waste in the world than in connection with the handling of manure by the American farmer. Five-eighths of the plant food in manure is found in the liquid part of it. This is usually all lost. Not only is this the case, but the solids are piled beside the barn, frequently under the eaves, where rains wash away much of their value. Fermentation in these manure piles also sets free much of the nitrogen to escape into the air.

The writer has seen few farmers who had no apologies to make for their methods of handling manure. He has seen one, however, who believed he was getting every particle of value from the manure. It is possible to get. The farm in question was a dairy farm, and the methods used are not applicable to all types of farms. The cows were kept in their stalls the year around. Every day in the year they had either silage or green stuff from the fields. They also had enough dry hay to keep the manure from being too washy, and what grain they needed. Behind each row of eight cows was a ditch 18 inches wide and 8 to 10 inches deep. This ditch was cleaned thoroughly every morning after milking hours. After the cleaning, a small quantity of wood ashes was sprinkled in the ditch to dry it; then a layer about 1½ inches deep of rotten sod or leaf mold was added. Next morning the contents of the ditch were lifted into a cart by means of forks, and the cart went immediately to the field where the manure was scattered. In exceptionally bad weather the ditch was sometimes left for two days. This farmer always had a place to put manure.

This method may not be applicable to all dairy farms, but it is the ideal to be followed as closely as circumstances will permit. If there is no sod on which to haul manure in wet weather, it is well to have a cemented pit under cover, in which to place the manure until it can be hauled to the field. When the ground is frozen in winter, manure can be spread on almost any field. Generally speaking, it should be spread on the field next to be plowed. The above method of handling manure gets both liquids and solids on the land. If any leaching occurs, let it be into the soil where the leachings will do the most good. Recent investigations indicate that when liquid manure is applied to the soil, the plant food in the manure is absorbed and held in the soil, and is not immediately washed out if not made use of by the plants.

GREEN MANURES.

The practice of plowing under green crops as manures is not very general, and we do not know as much as we should like to know of the value of this method. Some crops do not thrive when sown on land into which a green crop has recently been plowed. This is particularly true of those crops that like a solid seed bed, or which are sensitive to acids. When a heavy green crop is plowed under, it goes through a fermentation not unlike that which occurs in a barrel of kraut, resulting in the formation of a considerable amount of acid.

Alfalfa is particularly sensitive to acids, and it also requires a compact seed bed. It is unwise, seeding to alfalfa. The cereals, particularly wheat and rye, do not do well after a green manure. On the other hand, potatoes and corn are not seriously injured by green manures. In fact potatoes are benefited by them, since the resulting acid condition of the soil prevents the development of potato scab.

Generally speaking, when it is desirable to plow in a green crop before fall-sown crops, it should be done a month or six weeks before planting time, and the soil should be harrowed frequently or otherwise compacted. A few good rains will wash out most of the acids and aid in compacting the soil. The acid may also be counteracted by adding lime.

CRIMSON CLOVER.

Along the Atlantic coast as far north as New Jersey and south at least to Georgia, crimson clover, frequently called German clover, thrives as a winter annual. Like all the legumes it stores up much nitrogen and greatly enriches the soil in this element. This crop deserves a much wider field of usefulness than has yet been accorded it. In the northern part of its territory it should be sown in July. In the South, September is supposed to be the best time to sow it. It is best adapted to sowing in corn or cotton. In sections where it has not previously been grown it frequently fails, apparently from lack of its proper bacteria. It is therefore well to inoculate the seed when it is sown for the first time.

This crop furnishes valuable winter pasture, makes good hay if cut when just coming into full flower, and is valuable as a green feed in spring. It helps to fill the gap in the soiling system between green wheat and early corn. Perhaps its greatest usefulness is as a green manure. It may be plowed under any time in the spring and be followed by corn or potatoes.

In this connection, the practice of a farmer near Hagerstown, Md., is of interest. Ten years ago he began sowing crimson clover in corn at the last plowing, covering the seed with the cultivator, and using 10 pounds of seed to the acre. In the spring the clover was plowed under and another crop of corn planted. Ten consecutive crops of corn have been taken from this field, a crop of crimson clover being plowed under each spring. The yield of corn has increased during that time from about 35 bushels, in the beginning, to about 50 bushels at the present time. Evidently the practice was a good one in this case.

Those who are not familiar with crimson clover should try it on a small scale at first, as there have been many failures with it. The following five-year rotation is a good one on stock farms in middle latitudes, and shows one way of securing the benefits of crimson clover as a green manure: Corn with crimson clover sown at last cultivation, corn, oats, wheat, clover (common red).

VETCHES.

The vetches can be made to occupy a somewhat similar place as a green manure, at least in the South. Prof. E. R. Lloyd, of the Mississippi Agricultural Experiment Station, reports an instance of a cotton grower who uses hairy vetch and cowpeas in a unique manner. At the beginning he sowed hairy vetch broadcast in his cotton at the last plowing. The next spring the old cotton stalks were left standing, the new rows of cotton being planted in the middles, which were bedded up in the usual manner. When the vetch had made seed, the stalk cutter was run over the old rows and they were then plowed out and cowpeas planted in their place. Subsequent cultivation was between the cotton and the cowpea rows. In the autumn the vetch sprang up again and grew during the winter, the cowpeas being left to decay in place. The following spring the cotton rows followed the old cowpea rows, and the vetch was left to seed on the old stalks as before. This method requires that the cotton rows should be about 5 feet apart, but the farmer who practices it assured Professor Lloyd that his yield of cotton had doubled in the three years since the practice was started. This method is worth the attention of farmers who grow cotton continuously on the same land, and this class includes the vast majority of cotton growers.

RYE.

Rye is not half appreciated by the American farmer. It is very hardy, will grow on the poorest land, makes good winter and spring pasture, and if sown early enough makes good fall pasture. It is a good spring soiling crop, giving the earliest bite of green stuff. It makes a fair quality of hay if cut in bloom or before, and its straw always sells at good prices and makes the best of bedding for cattle and horses. It is also an excellent green manure crop

How Frequently Rotate Crops

FERTILIZERS THAT BUILD UP SOIL MOST QUICKLY

Valuable Crops in Plowing to Turn Under

for turning under in early spring. While it does not add nitrogen as the clovers do, it makes a great deal of humus, and thus improves the texture of worn out soils. It will grow in any section that can grow any of the small grains. Where corn or potatoes or cowpeas are grown after corn, rye may be sown in the corn at the time of "laying by," or may be sown on the stubble after the corn is cut, and be plowed under in the spring for any of the crops mentioned.

COWPEAS.

The cowpea has been a boon to the farmers of the South, and its value is coming to be generally recognized. During the past few years the demand for cowpea seed has exceeded the supply, and high prices have resulted. A good way to secure its beneficial effect on the soil is to sow it in corn at the last cultivation. This practice has become well-nigh universal in the South and is extending northward. This crop may also be sown after wheat, oats, or rye, at least from the latitude of Washington, D. C. southward, and may be harvested for hay in time for another fall crop to be sown. Prof. H. J. Waters, of the Missouri Agricultural Experiment Station, has grown cowpeas between wheat crops for several years past and increased the yield of wheat in a marked degree.

It seldom pays to turn under a crop of cowpeas in the green state. It is better practice to make hay of them, feed the hay, and put the manure back on the land. As is the case with all legumes, the roots of the cowpea crop add a great deal of nitrogen to the soil, and have a marked effect on fertility. If a heavy green crop of cowpeas is plowed under in the autumn it is best not to plant the land until the following spring. A very good plan for bringing up the fertility of a worn-out field is to sow rye in the fall, plow this under in the spring, harrow thoroughly, let the land lie a month, and then sow cowpeas. Cut the peas for hay and sow rye again. A few seasons of such treatment will restore fertility to the soil. Fortunately, both of these crops will grow on very poor land.

MISCELLANEOUS GREEN-MANURE CROPS.

Almost any crop may be used as a green manure, as occasion demands. Those previously mentioned are more generally used for this purpose than others. In plowing up clover sod, many farmers, particularly on fields most in need of manure, wait until the clover is nearly ready to cut for hay before plowing, in order to get the additional nitrogen and humus thus produced. Buckwheat is frequently grown as a green manure. This crop is planted in early summer or late spring and turned under in the autumn. Even corn and sorghum have been used for this purpose. They produce large amounts of humus when thickly planted. Sufficient time should be given after plowing in such rank growth to allow the soil to settle and the resulting acids to wash out of the soil before planting another crop. In southern California, fenugreek and Canadian field peas (the so-called "English pea" of

the South) are used extensively as winter cover crops in orchards. They are then plowed under in the spring as green manure.

TYPES OF FARMING THAT BUILD UP THE SOIL QUICKLY.

The quickest way to build up a worn-out soil when barnyard manure is not plentiful is to give it a course of treatment like that just described; then grow only forage crops, buy grain to feed with them, and return all the manure thus produced to the land. Dairy farming permits such a system to be practiced. No other type of farming builds up land so rapidly.

Another type that gives fairly quick results is to grow a succession of pasture crops for hogs, keep the hogs on these pastures, and feed them a fourth to a half ration of grain. In middle latitudes the following system is adapted to this type of farming: Grow corn enough for the pigs on part of the farm, sowing either cowpeas or crimson clover or rye in the corn yearly, to keep up fertility. The two latter crops furnish winter pasture for the pigs. On the remainder of the farm run the following three-year rotation: Sow oats in early spring; follow by rye sown early in August; follow this by sorghum the following spring; in September or October sow rye again after the sorghum; late the next spring sow either sorghum or cowpeas, and begin over again with oats the succeeding spring. This may be made a four-year rotation by inserting artichokes or sweet or Irish potatoes between the August-sown rye and the sorghum. If these crops are all pastured down, the hogs being fed a little grain meanwhile, the soil will improve. With such a system, at least on clay soils, the hogs must not be allowed on the fields when the soil is wet, as they will puddle it to such an extent as to do serious injury. To avoid this difficulty, there should be an additional field of good sod for the hogs to run on in wet weather. In sections where alfalfa thrives, hogs may be pastured on this crop in summer (in winter also in the far South) and fed a little corn. In winter such crops as rape and kale may take the place of the alfalfa, and the grain feed may thus be increased. Such a system takes nothing from the land, but care must be used not to puddle the soil by pasturing in wet weather. There should be a field of good sod in reserve for such periods.

SUMMARY.

We may sum up the matter briefly thus: To build up and maintain fertility in the soil, feed a large part of the crops and return the manure to the land. If manure is not available, plow under crops grown for the purpose. Plow deep (but do not subsoil). Grow leguminous crops for the nitrogen they add to the soil.

Commercial fertilizers and lime may be important means of improving the soil, but the fertilizer requirements of different soils and different crops in different seasons are so little understood that we are not yet in a position to make positive recommendations that are of general application.

Facts Concerning Poultry.

-Different breeds, their live weight, when full grown, the annual number of eggs they will lay, etc.

Breeds.	Live weight of full grown.	Live weight of yearling.	No. of eggs laid per year.	No. of eggs to the pound.
Brahmas, light.....	11½	8	150	7
Brahmas, dark.....	10½	7	150	8
Cochins, black.....	10	7	170	9½
Cochins, buff.....	10	7½	120	8
Cochins, white.....	11	9	140	8
Cochins, partridge.....	11	8	150	8
Common.....	3½	3	160	11
Dorkings.....	6½	5	120	9
Dominiques, American.....	5	4	170	10
Game, black-breast'd, red.....	7½	6	170	10
Hamburgs.....	4	3	180	12
Houdans.....	7½	5	170	9
Leghorns, black.....	4½	3½	200	10
Leghorns, brown.....	4½	3½	200	10
Leghorns, dominique.....	4½	3½	200	10
Leghorns, white.....	4½	3½	200	10
Plymouth Rocks.....	8½	6½	175	8½

Foods for Sheep.

In the course of several experiments by De Raumer, a French scientist, it was found that 1,000 pounds of different kinds of foods produced the following results. It will be seen by examination that wheat proved the most valuable food, barley came next, while mangolds stood lowest in the scale.

Substances.	Increase of weight in living animals.	Wool produced.	Dairy.
Potatoes with salt.....	46½	Ds. 6½	Ds. 12½
Potatoes without salt.....	44	Ds. 6½	Ds. 11½
Mangold-Wurzels.....	38½	Ds. 5½	Ds. 6½
Wheat.....	155	Ds. 14	Ds. 58½
Oats.....	146	Ds. 10	Ds. 42½
Barley.....	136	Ds. 11½	Ds. 54
Peas.....	134	Ds. 14½	Ds. 41
Rye, with salt.....	133	Ds. 14	Ds. 35
Rye, without salt.....	90	Ds. 12	Ds. 43
Corn-meal, wet.....	129	Ds. 13½	Ds. 17½
Buckwheat.....	120	Ds. 10	Ds. 33

Matters of Interest to People who Cultivate the Soil

PRACTICAL FACTS TAKEN FROM REFERENCE TABLES

In Hill's Manual

AGRICULTURAL TABLES FOR FARMERS, GARDENERS AND OTHERS.

For many facts and figures in these various reference tables, credit is due the "American Almanac," edited by A. R. Spofford, "Moore's Universal Assistant," by R. Moore, the "American Farm and Home Cyclopedia," by H. R. Allen, "Farmers' and Mechanics' Manual," by Geo. E. Warring, "Statesman's Year Book," by Frederick Martin, "The Circle of Useful Knowledge" and other valuable works.

Vitality of Seeds.

Length of time that the seeds of various herbs and vegetables retain their powers of germination.

Vegetables.	Years.	Vegetables.	Years.
Cucumber.....	8 to 10	Leek.....	2 to 3
Melon.....	8 to 10	Onion.....	2 to 3
Pumpkin.....	8 to 10	Parsley.....	3 to 3
Squash.....	8 to 10	Parsnip.....	2 to 3
Broccoli.....	5 to 6	Pepper.....	3 to 3
Cauliflower.....	5 to 6	Salsify.....	2 to 3
Artichoke.....	5 to 6	Tomato.....	2 to 3
Endive.....	5 to 6	Egg-plant.....	1 to 2
Pea.....	5 to 6		
Radish.....	4 to 5		
Beets.....	3 to 4		
Cress.....	3 to 4		
Lettuce.....	3 to 4		
Mustard.....	3 to 4		
Rhubarb.....	3 to 4		
Spinach.....	3 to 4		
Turnip.....	3 to 6		
Asparagus.....	2 to 3		
Beans.....	2 to 3		
Carrots.....	3 to 3		
Celery.....	2 to 3		
Corn (on cob).....	2 to 3		

Herbs.

Anise.....	3 to 4
Hyssop.....	3 to 4
Balm.....	2 to 3
Caraway.....	2 to 3
Coriander.....	1 to 2
Dill.....	2 to 3
Fennel.....	2 to 3
Lavender.....	2 to 3
Sweet Marjoram.....	2 to 3
Summer Savory.....	1 to 2
Sage.....	2 to 3
Thyme.....	2 to 3
Wormwood.....	2 to 3

Number to an Acre

Of plants or trees set at regular distances apart.

Distances apart.	No. of plants.	Distances apart.	No. of Plants.
3 inches by 3 inches.....	696,960	6 feet by 6 feet.....	1,210
4 inches by 4 inches.....	392,040	6½ feet by 6½ feet.....	1,031
6 inches by 6 inches.....	174,240	7 feet by 7 feet.....	881
9 inches by 9 inches.....	77,440	8 feet by 8 feet.....	680
1 foot by 1 foot.....	43,680	9 feet by 9 feet.....	537
1½ feet by 1½ feet.....	19,360	10 feet by 10 feet.....	435
2 feet by 1 foot.....	21,780	11 feet by 11 feet.....	360
2 feet by 2 feet.....	10,890	12 feet by 12 feet.....	302
2½ feet by 2½ feet.....	6,960	13 feet by 13 feet.....	257
3 feet by 1 foot.....	14,820	14 feet by 14 feet.....	229
3 feet by 2 feet.....	7,260	15 feet by 15 feet.....	193
3 feet by 3 feet.....	4,840	16 feet by 16 feet.....	170
3½ feet by 3½ feet.....	3,555	16½ feet by 16½ feet.....	160
4 feet by 1 foot.....	10,890	17 feet by 17 feet.....	150
4 feet by 2 feet.....	5,445	18 feet by 18 feet.....	134
4 feet by 3 feet.....	3,630	19 feet by 19 feet.....	120
4 feet by 4 feet.....	2,722	20 feet by 20 feet.....	108
4½ feet by 4½ feet.....	2,151	25 feet by 25 feet.....	69
5 feet by 1 foot.....	8,712	30 feet by 30 feet.....	48
5 feet by 2 feet.....	4,356	33 feet by 33 feet.....	40
5 feet by 3 feet.....	2,904	40 feet by 40 feet.....	27
5 feet by 4 feet.....	2,178	50 feet by 50 feet.....	17
5 feet by 5 feet.....	1,742	60 feet by 60 feet.....	12
5½ feet by 5½ feet.....	1,417	66 feet by 66 feet.....	10

Cost of Producing Pork.

The cost of producing a pound of pork depends upon the cost of corn per bushel, as follows:

Corn per Bushel in Cents.	Will make the cost of pork per hundred.
12½ cts.....	81.50
15.....	1.78
17.....	2.08
20.....	2.38
22.....	2.63
25.....	2.96
30.....	3.57
35.....	3.93
40.....	4.09
45.....	4.42
50.....	4.78
55.....	5.00
60.....	5.35
65.....	5.95
70.....	6.54
75.....	7.14
80.....	7.74
85.....	8.37

Cost of Small Quantities of Hay.

Price per Ton.	50 lbs. worth.	100 lbs. worth.	200 lbs. worth.	300 lbs. worth.	400 lbs. worth.
Four dollars.....	10 cts.	20 cts.	40 cts.	60 cts.	80 cts.
Five dollars.....	12.....	25.....	50.....	75.....	1.00
Six dollars.....	15.....	30.....	60.....	90.....	1.20
Seven dollars.....	17.....	35.....	70.....	1.05.....	1.40
Eight dollars.....	20.....	40.....	80.....	1.20.....	1.60
Nine dollars.....	22.....	45.....	90.....	1.35.....	1.80
Ten dollars.....	25.....	50.....	1.00.....	1.50.....	2.00
Eleven dollars.....	27.....	55.....	1.10.....	1.65.....	2.20
Twelve dollars.....	30.....	60.....	1.20.....	1.80.....	2.40
Thirteen dollars.....	32.....	65.....	1.30.....	1.95.....	2.60
Fourteen dollars.....	35.....	70.....	1.40.....	2.10.....	2.80
Fifteen dollars.....	37.....	75.....	1.50.....	2.25.....	3.00

Facts About Sheep.

The weight of any animal at a certain age, will, of course, depend upon the manner in which it is fed and cared for. Supposing sheep to be well fed and sheltered, the following presents an average yield of flesh and wool at a certain age.

Breeds.	Bucks weigh.	Ewes weigh.	Age at maturity Years.	Annual yield of wool lb.
Cotswold.....	300.....	200.....	2.....	14
Lincoln.....	300.....	200.....	2.....	11
Licester.....	250.....	150.....	2½.....	8
Merino, American.....	150.....	130.....	2.....	9
Merino, Spanish.....	125.....	110.....	2.....	10
Southdown.....	200.....	140.....	2.....	6
Shropshire.....	200.....	140.....	2.....	6
Common "Scrub".....	120.....	90.....	3.....	4

Weight of Horses.

Breeds.	Stallions.	Fillies and Mares.	Age when matured.
Cleveland Bay.....	1,400.....	1,300.....	6
Clydesdale.....	1,900.....	1,700.....	4½
English draft.....	1,800.....	1,650.....	6
Hambletonian.....	1,150.....	1,100.....	6
Mambrino.....	1,200.....	1,150.....	5
Morgan.....	950.....	900.....	5
Percheron-Norman.....	1,750.....	1,550.....	4
Pony-Canadian.....	950.....	900.....	4
Pony-Mustang.....	500.....	450.....	3
Pony-Shetland.....	300.....	250.....	3
"Scrub," or Native.....	1,000.....	950.....	4½
Thoroughbred.....	1,150.....	1,000.....	2
Ass.....	700.....	600.....	6
Mule.....	1,000.....	1,000.....	5

Quantity of Seed Required to Sow or Plant an Acre.

Kind of Seed.	Quantity.	Kind of Seed.	Quantity.	Kind of Seed.	Quantity.
Asparagus in 12-inch drills.....	18 qts	Egg plant, plants 3 by 2 feet.....	4 oz	Pumpkin, in hills 8 by 8 feet.....	2 qts
Asparagus plants, 4 by 1½ feet.....	8,000	Endive, in drills 2½ feet.....	3 lbs	Parsley, in drills 2 feet.....	4 lbs
Barley.....	2½ bu	Flax, broadcast.....	20 qts	Peas, in drills, short varieties.....	2 bu
Beans, bush, in drills 2½ feet.....	1½ bu	Grass, timothy with clover.....	6 qts	Peas, in drills, tall varieties.....	1 to 1½ bu
Beans, pole, Lima, 4 by 4 feet.....	20 qts	Grass, timothy without clover.....	10 qts	Peas, broadcast.....	3 bu
Beans, Carolina, prolific, etc., 4 by 3.....	10 qts	Grass, orchard.....	25 qts	Potatoes.....	8 bu
Beets and mangold, drills, 2½ feet.....	9 lbs	Grass, red top or herds.....	20 qts	Radish, in drills 8 feet.....	10 lbs
Broom corn in drills.....	12 lbs	Grass, blue.....	28 qts	Rye, broadcast.....	1½ bu
Cabbage, outside, for transplanting.....	12 oz	Grass, rye.....	20 qts	Rye, drilled.....	1½ bu
Cabbage, sown in frames.....	4 lbs	Grass, millet.....	32 qts	Salsify, in drills 2½ feet.....	10 lbs
Carrot in drills, 2½ feet.....	4 lbs	Hemp, broadcast.....	½ bu	Spinach, broadcast.....	30 lbs
Celery, seed.....	8 oz	Kale, German greens.....	3 lbs	Squash, bush, in hills 4 by 4 feet.....	3 lbs
Celery, plant, 4 by ¼ feet.....	25,000	Lettuce, in rows 2½ feet.....	3 lbs	Squash, running, 8 by 8 feet.....	3 lbs
Clover, white Dutch.....	13 lbs	Leek.....	4 lbs	Sorghum.....	4 qts
Clover, Lucerne.....	10 lbs	Lawn grass.....	35 lbs	Turnips, in drills 2 feet.....	3 lbs
Clover, Alsike.....	6 lbs	Melons, water, in hills 8 by 8 feet.....	3 lbs	Turnips, broadcast.....	3 lbs
Clover, large red with timothy.....	12 lbs	Melons, citrons, in hills 4 by 4 feet.....	2 lbs	Tomatoes, in frames.....	3 oz
Clover, large red without timothy.....	16 lbs	Oats.....	2 bu	Tomatoes, seed in hills 3 by 3 feet.....	8 oz
Corn, sugar.....	10 qts	Okra, in drills 2½ by ¼ feet.....	20 lbs	Tomatoes, plants.....	3,000
Corn, field.....	8 qts	Onion, in beds for sets.....	50 lbs	Wheat, in drills.....	1½ bu
Corn, salad, drill 10 inches.....	25 lbs	Onion, in rows for large bulbs.....	7 lbs	Wheat, broadcast.....	2 bu
Cucumber, in hills.....	3 qts	Parsnip, in drills 2½ feet.....	5 lbs		
Cucumber, in drills.....	4 qts	Pepper, plants, 2½ by 1 foot.....	17,500		

Government Map, Showing Percentage Increase of Population—1900 to 1910

POPULATION PER SQUARE MILE BY STATES, 1910, 1900 AND 1890

State.	Population Per Square Mile.		
	1910.	1900.	1890.
Continental United States	30.9.	25.6	21.2
Rhode Island	508.5	400.7	323.8
Massachusetts	418.8	349.0	278.3
New Jersey	337.7	250.7	192.3
Connecticut	231.3	188.5	154.8
New York	191.2	152.5	126.0
Pennsylvania	170.6	141.6	117.2
Maryland	130.3	119.5	104.9
Ohio	117.0	102.1	90.1
Delaware	103.0	94.0	85.8
Illinois	100.7	86.1	68.3
Indiana	75.3	70.1	61.1
Kentucky	57.0	53.4	46.3
Tennessee	52.4	44.5	42.4
Virginia	51.2	46.1	40.3
West Virginia	50.8	40.1	31.8
South Carolina	49.7	44.0	37.8
Michigan	48.9	42.1	36.4
Missouri	47.9	45.2	39.0
New Hampshire	47.7	45.6	41.7
North Carolina	45.3	38.9	33.2
Georgia	44.4	37.7	31.3
Wisconsin	40.2	37.7	30.3
Alabama	41.7	35.7	29.5
Iowa	40.0	40.2	34.1

State.	Population Per Square Mile.		
	1910.	1900.	1890.
Vermont	39.0	37.7	36.4
Mississippi	38.8	33.5	27.8
Louisiana	36.5	30.4	24.8
Arkansas	30.0	25.0	21.5
Minnesota	25.7	21.7	16.2
Maine	24.8	23.2	22.1
Oklahoma	23.7	17.4	9.5
Kansas	17.1	18.0	15.3
Washington	17.1	7.8	5.3
Nebraska	15.5	13.9	13.8
California	15.2	9.5	7.8
Texas	14.8	11.6	8.5
Florida	13.7	9.6	7.1
North Dakota	8.2	4.6	2.7
Colorado	7.7	3.2	4.0
South Dakota	7.6	3.2	4.5
Oregon	7.0	4.3	3.3
Utah	4.5	3.4	2.6
Idaho	3.9	1.9	1.1
New Mexico	2.7	1.6	1.3
Montana	2.6	1.7	0.8
Wyoming	1.8	1.1	0.8
Nevada	1.5	1.0	0.6
District of Columbia	0.7	0.4	0.4

Population of the

The Thirteenth Census of the United States was taken by the Bureau of the Census as of April 15, 1910. The total area enumerated includes continental United States, the territories of Alaska and Hawaii, and Porto Rico. The enumeration also includes persons stationed abroad in the military and naval service of the government, who were specially enumerated through the co-operation of the War and Navy Departments.

United States, 1910.

Herewith is complete population statement for the area enumerated in 1910, distinguishing continental United States, Alaska, Hawaii, Porto Rico, and military and naval. The last four classes are grouped together under the head of "Noncontiguous territory." The corresponding figures of the Twelfth Census of 1900 are also given for purposes of comparison.

Population of the United States—Total Area of Enumeration, Continental United States, and Noncontiguous Territory: 1910 and 1900.

	1910.	1900.
The United States (total area of enumeration).....	93,402,151.	77,256,630
Continental United States....	91,972,266.	75,994,575
Noncontiguous territory.....	1,429,885.	1,262,055

Alaska	64,356	63,592
Hawaii	191,909	154,001
Porto Rico	1,118,012	895,243
Persons in military and naval service stationed abroad	55,608	91,219
a—Includes 953,243 persons enumerated in Porto Rico in 1899.		

b—According to the census of Porto Rico taken in 1899 under the direction of the War Department.

The rate of increase from 1900 to 1910 was 20.9 per cent for the total area of enumeration and 21 per cent for continental United States. It will be noted that Table I does not cover other possessions of the United States than the ones mentioned. Including the population of Philippine Islands as enumerated by the census of 1903 under the direction of the War Department, 7,755, and adding estimates for the islands of Guam, Samoa and the Canal Zone, the total population of the United States and possessions is about 101,100,000.

The United States from the Atlantic to the Pacific Ocean

Map of the States and Territories. When States Were Settled, Areas, Capitals, Etc., Up to Date, 1912.
Stars on Map Indicate Location of State Capitals.

States and Territories.
Forty-eight states. The population of the United States including all the territories is about 101,055,723. Oklahoma Territory in 1907 became one state, named Oklahoma. Area of the states, 3,616,484 square miles.

Length and Breadth.
The greatest length of the territory from the Atlantic to the Pacific Ocean, occupied by the United States, on the parallel of 42°, is 2,768 miles; and its greatest breadth, from Point Isabel, Tex., to the northern boundary of North Dakota, is 1,650 miles. The Mexican boundary line is 1,600 miles in length. The boundary line separating the United States from the British possessions is about 3,400 miles long.

The star in the upper northwest corner of Wyoming indicates the location of Yellowstone Park.

States and Territories.	Year Settled.	Admitted to the Union.	Area in Sq. Miles.	Population, 1910.	No. to Sq. Mile.	Capital of the State.	Population of the Capital.	Electoral Vote.	Governor, Term, Years.	Sal. ary.	Legislature, Session Days Begins. Limit.
Alabama	1702	1819	52,250	2,138,093	41.7	Montgomery	38,136	12	4	\$5,000	Jan. \$50
Alaska	1801	1866	577,390	64,356	1	Juneau	2,000	4	4	5,000	Jan. \$40
Arizona	1540	1863	113,020	204,554	1.8	Phoenix	11,143	3	4	3,000	Jan. \$60
Arkansas	1685	1836	53,850	1,574,449	30.0	Little Rock	43,941	9	4	3,500	Jan. \$60
California	1769	1850	158,360	2,377,549	15.2	Sacramento	44,696	13	4	6,000	Jan. \$100
Colorado	1858	1876	103,925	799,024	7.7	Denver	213,381	6	2	5,000	Jan. \$60
Connecticut	1633	1788	4,990	1,114,756	231.3	Hartford	98,915	7	2	4,000	Jan. \$None
Delaware	1627	1787	2,050	202,322	103.0	Dover	3,720	3	4	2,000	Jan. \$None
Dist. Columbia	1634	1790	70	331,069	5,517.8	Washington	331,069	3	4	2,000	Jan. \$None
Florida	1565	1845	58,680	752,615	13.7	Tallahassee	5,018	6	1	5,000	Apr. \$60
Georgia	1733	1788	59,475	2,609,121	44.4	Atlanta	154,839	14	2	5,000	Nov. \$50
Guam Colony	1898		150	11,378		Agana					
Hawaii	1900		6,740	191,909	23.9	Honolulu	39,306	4	4	5,000	Feb. \$40
Idaho	1811	1890	84,800	632,594	3.9	Boise City	17,358	4	2	5,000	Dec. \$60
Illinois	1720	1818	56,650	5,638,591	100.7	Springfield	51,678	29	4	12,000	Jan. \$None
Indiana	1730	1816	36,330	2,700,876	73.3	Indianapolis	233,550	15	4	8,000	Jan. \$60
Iowa	1788	1845	56,025	2,231,771	40.0	Dos Moines	86,368	13	2	6,500	Jan. \$None
Kansas	1831	1861	82,080	1,690,949	20.7	Topeka	43,684	10	2	5,000	Jan. \$40
Kentucky	1793	1792	40,400	2,289,906	57.0	Frankfort	10,467	13	4	6,500	Dec. \$60
Louisiana	1699	1812	48,720	1,656,388	36.5	Baton Rouge	14,897	10	4	5,000	May \$60
Maine	1624	1820	33,040	742,371	24.8	Augusta	13,211	6	2	3,000	Jan. \$None
Maryland	1634	1788	12,210	1,295,346	130.3	Annapolis	8,609	8	4	4,500	Jan. \$90
Massachusetts	1620	1788	8,315	3,366,416	418.8	Boston	670,585	18	1	8,000	Jan. \$None
Michigan	1670	1837	58,915	2,810,173	48.9	Lansing	31,229	15	2	4,000	Jan. \$None
Minnesota	1805	1858	83,365	2,075,708	25.7	St. Paul	214,744	12	2	7,500	Jan. \$90
Mississippi	1716	1817	46,810	1,797,114	38.8	Jackson	21,262	10	4	4,500	Jan. \$60
Missouri	1764	1821	69,415	3,293,335	47.9	Jefferson City	11,856	18	4	5,000	Jan. \$70
Montana	1809	1889	146,080	376,053	2.6	Helena	12,515	4	4	5,000	Jan. \$60
Nebraska	1847	1867	77,510	1,192,214	15.5	Lincoln	43,973	8	2	2,500	Jan. \$60
Nevada	1850	1864	110,700	81,875	7	Carson City	2,666	3	4	4,000	Jan. \$60
New Hampshire	1623	1788	9,305	430,752	47	Concord	21,497	4	2	2,000	Jan. \$None
New Jersey	1620	1787	7,815	2,337,167	337.0	Trenton	96,815	14	3	10,000	Jan. \$None
New Mexico	1537	1850	122,580	327,301	2.7	Santa Fe	5,072	3	4	3,000	Jan. \$60
New York	1614	1788	49,170	9,113,614	191.2	Albany	100,253	35	2	10,000	Jan. \$None
North Carolina	1650	1785	52,250	2,206,287	45.3	Raleigh	19,218	12	4	4,000	Jan. \$60
North Dakota	1780	1889	70,795	577,056	8.2	Bismarck	5,443	5	2	3,000	Jan. \$60
Ohio	1788	1802	41,669	4,767,121	117.0	Columbus	181,511	24	2	10,000	Jan. \$None
Oklahoma	1889	1907	70,430	1,637,155	23.9	Guthrie	11,654	10	4	4,500	Jan. \$160
Oregon	1810	1859	96,030	672,765	7.0	Salem	14,094	5	4	5,000	Jan. \$40
Pennsylvania	1682	1787	45,215	7,665,111	171.0	Harrisburg	64,186	38	4	10,000	Jan. \$None
Philippines	1570	1898	114,000	7,635,426		Manila	219,928			15,000	Jan. \$60
Porto Rico	1510	1898	3,690	1,118,012		San Juan	32,048			4,800	Apr. \$60
Rhode Island	1636	1790	1,250	542,610	508.5	Providence	22,426	5	1	3,000	Jan. \$None
South Carolina	1670	1788	30,570	1,515,400	49.7	Columbia	26,319	9	2	3,500	Nov. \$None
South Dakota	1856	1889	77,650	583,888	7.6	Pierre	3,856	5	2	3,000	Jan. \$60
Tennessee	1757	1796	42,050	2,184,789	52.4	Nashville	110,364	12	2	7,500	Jan. \$75
Texas	1686	1845	265,780	3,896,542	14.8	Austin	29,860	20	2	4,000	Jan. \$60
Utah	1847	1896	84,970	373,351	4.5	Salt Lake City	92,777	4	4	4,000	Jan. \$60
Vermont	1764	1791	9,505	335,956	39.0	Montpelier	7,856	4	2	2,500	Oct. \$None
Virginia	1607	1788	42,450	2,061,612	51.2	Richmond	86,514	12	4	5,000	Jan. \$60
Washington	1811	1889	69,180	1,141,990	17.1	Olympia	6,996	7	4	6,000	Jan. \$60
West Virginia	1862	1862	24,780	1,221,119	50.8	Charleston	11,099	8	4	5,000	Mar. \$45
Wisconsin	1669	1848	56,040	2,333,860	42.2	Madison	25,531	13	2	5,000	Jan. \$None
Wyoming	1858	1890	97,890	145,965	1.5	Cheyenne	13,320	3	4	4,000	Jan. \$40

101,055,723

*Biennially. †Annually. ‡Meet once in 4 years.
By Congressional apportionment, made Aug. 3, 1911, the membership of the House of Representatives at Washington will be 435. Adding 2 votes for 2 senators from each state will make the total 531. By later enactment this apportionment is liable to be changed.

"BACK TO THE LAND"

"Back to the land is the cry today, back to the dear old farm;
To the fields and the brook and the winding lane; back to their sylvan charm.
Back to the little attic room, which in boyhood days you knew,
When the raindrops pattered upon the roof, and sometimes pattered through."

AGRICULTURE

The Development of Agricultural Industry Since the Days of Abraham and Moses on the Banks of the Nile in Egypt

In order to supply the human family with food the art of planting and stirring the soil for production of food came into existence, along with the invention of numerous implements of husbandry designed to aid in the cultivation and production of various grains, vegetables, and fruits.

Gradually, through long ages the change from the state of nature, in which the human family must have lived, has been evolved.

The early account of agriculture relates to the countries bordering on the Mediterranean Sea. Here the different soils watered by the Euphrates, the Tigris, and the Nile taught the inhabitants the difference in fertility, the valley lands being rich in vegetable production while the hilly countries were better adapted to grazing.

The enrichment of land from overflow once a year on the eight-mile strip of land which borders the River Nile laid the foundation for much of the wealth of Egypt.

The annual several-weeks' overflow extending into the months of August, September, and October, taught the Egyptians the value of fertilization through the manurial deposits left on the land.

From Egypt a knowledge of agriculture extended into Greece, where it flourished a thousand years before Christ. Here the art was carried to a high degree of perfection.

The Greeks had fine breeds of cattle, horses, sheep, and swine and importations were made from foreign countries for the purpose of improving the stock.

The use and value of manures were well known to the Greeks, and the importance of thorough tillage was well understood.

From Greece a superior agriculture extended into Rome, where a century previous to the Christian Era they had an agricultural literature, which surpassed that of any other country on the globe at that time.

But gradually through wars and as a result of the country being overrun by races who knew little of scientific cultivation of the soil, agriculture in the Roman Empire declined, but not until the Romans had carried their knowledge of agriculture to the Britons, where it has flourished, with varying success, up to the present time.

The first English treatise on husbandry was published in 1534. This work was entitled "The Book of Husbandry," and contains directions for draining, clearing and enclosing a farm; for enriching the soil and rendering it

fit for tillage, lime, marl, and fallowing being highly recommended.

During Queen Elizabeth's reign appeared Tusser's "Five Hundred Points of Good Husbandry," published in 1580. This work contained a great deal of useful information.

About 1645 the field cultivation of red clover was introduced into England, the interest taken in that grass, we may suppose, being similar to that experienced at the present time on the subject of alfalfa in the United States.

The Dutch having devoted much attention to the improvement of winter roots, and also to the cultivation of clover and other artificial grasses, the farmers and landed proprietors of England soon saw the advantages to be derived from their introduction.

Potatoes were introduced during the latter part of the sixteenth century, but were slow in coming into general cultivation.

Robert Bakewell and others effected some important improvements, in the eighteenth century, in the breeds of cattle, sheep, and swine. By the end of the century it was a common practice to alternate green crops with grain crops, instead of exhausting the land with a number of successive crops of any one kind of grain.

The wars caused by the French Revolution, 1795-1814, called so many men from the fields and so lessened production as to cause a great increase in price of farm products. This resulted in an extraordinary improvement in methods of agriculture.

In like manner the great increase in price of food products in the United States, at the present time, will so stimulate improvement in cultivation of the soil as will result in great advance in agriculture throughout this country in the near future.

While agricultural art is well advanced in Europe the conditions are particularly very favorable in the United States.

The vast territory here presents every variety of soil and climate. Its agriculture embraces all the products of European cultivation, together with some of those of the warmer countries—as cotton, sugar, and indigo.

This country exceeds all other nations in wonderful adaptation of machinery for all purposes of cultivation and harvesting of crops.

The disposition of the American to experiment, to test alleged improvements, to adopt labor-saving devices and expedients, gives a

Improvement Being Made by Agricultural Societies

great impulse to the genius of inventors. This mental activity of the local farmers is owing, in great measure, to his superior intelligence.

The American reaper was invented by McCormick in 1834; by many improvements it has secured the European as well as the home market. In 1855 the first American Agricultural College was established. In 1862 the passage of the Homestead Law served to hasten the occupation of public land.

The dairy system based on the principle of association has advanced rapidly. Agricultural societies, both state and county, are established in all parts of the United States for the following objects:

To encourage the introduction of improvements in agriculture.

To secure improved agricultural implements and farm buildings.

To foster the application of chemical knowledge to agriculture.

To forward the destruction of insects injurious to vegetation.

To promote the discovery and adaptation of new varieties of grain or vegetables.

To collect information regarding the management of timber lands and plantations.

To improve the education of those supported by the cultivation of the soil.

To advance the veterinary arts and science.

To improve the breeds of all the domestic animals.

Fairs are held at which prizes are distributed for live stock, implements, and farm produce.

Through efforts of the above-mentioned societies, the investigations of scientific men, and the general diffusion of knowledge among all classes, by means of several hundred periodicals devoted to its interests, agriculture has made great progress during the past century.

Among the improvements we may mention deep plowing and thorough drainage; with the introduction of new and improved agricultural implements, by which heavy farm labor has been greatly diminished.

Science also has been called in to act as the handmaid of agricultural art, and, aided by the chemist and the entomologist, agriculture has been put on a really scientific basis.

The organization of plants, the primary elements of which they are composed, the food on which they live and thrive, and the constituents of soils, have all been investigated and most important results obtained, particularly in regard to manures and rotation of crops.

Artificial manures in great variety to supply the elements needed for plant growth have come into common use, not only increasing the produce of land previously cultivated, but extending the limits of cultivation itself.

An improvement in all kinds of stock is becoming more and more general, feeding of domestic animals is conducted on more scientific principles, and improved varieties of plants used in field crops have been introduced. As a result of the new conditions, to be a thoroughly trained and competent agriculturist, requires a special education, partly theoretical and partly practical.

In particular, no scientific cultivator can now be ignorant of agricultural chemistry, which teaches the constituents of the various plants grown as crops, their relation to the several soils and the nature and function of different manures.

Nearly all the States have colleges or departments of colleges devoted to the teaching of agriculture and large allotments of public land have been made for their support.

In the United States the Department of Agriculture was organized in 1862, the secretary of which is now a cabinet officer. Through the enterprise and efforts of this department of the government, experiment is constantly going forward at the different experiment stations, the results of which are published in bulletins by the government and sent broadcast throughout the country.

At this writing the government, aided by public-spirited agriculturists, is putting forth special effort in the introduction of a new grass plant known as alfalfa, the merit, growth and cultivation of which we explain elsewhere. Other plants and improved features of agricultural industry will be developed from time to time.

It is impossible to forecast the great future of agriculture in the United States. To partially imagine it we need only go back in memory a short time to the period of the ox-cart, now supplanted by electricity; to the short time ago when the land, now yielding forty and fifty bushels of grain to the acre, gave us only eight and ten bushels.

Today the farmer is just beginning to realize some of the profits of his vocation. Many of his fowls each give 200 eggs a year; he is making use of the reaper, the milking machine, the riding-cultivator, and the auto that goes to the market town to deliver in an hour the same bulk which would have formerly consumed the time of the farmer one whole day to transport.

As we have advanced in the past, so will agricultural art progress in the future. This great advancement will largely come from the thousands of students now in the agricultural colleges, from the pupils that have graduated from the schools in domestic science, and from the knowledge that will be disseminated through the wonderful multiplicity of agricultural instruction that will come from handbooks distributed in the schools.

More People Must Engage in Cultivating the Soil

Temporary Discouragement from Time to Time

Encouraging as seem the prospects for the future of agriculture in the United States there come times when the balance between production and consumption of food is disturbed. Such have been the conditions in recent years when the prices of food were excessive through scarcity of agricultural products. The cause for this is told in the following reasons:

Cause for Advancing Prices of Foodstuffs

1. Millions of immigrants coming into the United States, the majority of whom settle in the cities. There they consume but they do not produce food.

2. Sale of government lands and fencing of the same by private parties, resulting in increased expense for pasture which is charged to consumers.

3. Universal killing of calves by farmers and selling to butchers for veal, making shortage of beef cattle, milk, and butter.

4. Great numbers of graduates from educational institutions into professions, all of whom consume, but do not produce food.

5. Multitudes of people traveling the country in automobiles, consuming, but not growing farm products.

6. Great multitudes of people at pleasure resorts—liberal consumers who never produce a pound of food.

7. Merchants, clerks, policemen, firemen, government officials, hundreds of thousands—all eating, not one cultivating the soil.

8. The public institutions, including asylums, jails, bridewells, State prisons—all filled—all consuming food, increasing its price. No body producing.

Must Get Back To Land

It is plainly evident there is but one remedy for this lack of balance which makes consumption so much in excess of production of foodstuffs.

More people must engage in cultivating the soil. The excess portion of the population now congested in the cities must get back to the land.

The vacant government lands should be occupied. There are millions of acres of these free lands, waiting for settlers.

Where are they?

See the following list of States and the amount of vacant acres yet unappropriated for cultivation.

Much information about land for new settlers may be obtained from reading the following:

VACANT PUBLIC LANDS IN THE UNITED STATES

Statement, by States, Territories, land districts, and counties, showing the area of land unappropriated and unreserved on July 1, 1912. Area unappropriated and unreserved.

State or Territory.	Surveyed. Acres.	Unsurveyed. Acres.	Total. Acres.	State or Territory.	Surveyed. Acres.	Unsurveyed. Acres.	Total. Acres.
Alabama	93,040	1,600	94,640	New Mexico	22,241,833	11,329,650	33,571,483
Alaska		*368,010,643	368,010,643	North Dakota ..	1,354,571	.....	1,354,571
Arizona	12,003,186	28,592,537	40,595,723	Oklahoma	39,525	.....	39,525
Arkansas	436,210	82,000	518,210	Oregon	13,141,921	3,346,148	16,888,069
California	17,671,839	5,343,499	23,015,338	South Dakota...	4,039,892	81,920	4,121,812
Colorado	17,684,401	1,564,797	19,249,198	Utah	12,011,921	22,037,256	34,049,177
Florida	249,408	155,531	396,439	Washington	1,106,753	761,306	1,868,059
Idaho	7,172,856	11,757,537	18,970,393	Wisconsin	11,520	.....	11,520
Kansas	91,328	.....	91,328	Wyoming	30,905,022	2,570,720	33,475,742
Louisiana	69,198	.....	69,198				
Michigan	92,544	.....	92,544	Grand total ..	185,362,030	497,622,732	682,984,762
Minnesota	1,525,775	.....	1,525,775	*The unreserved lands in Alaska are mostly unsurveyed and unappropriated.			
Mississippi	52,400	.....	52,400	As change in amount of unappropriated land is liable to continually occur, land seekers should apply to the Land Office for specific information about land in localities where they may wish to go.			
Missouri	1,197	.....	1,197				
Montana	13,697,086	15,356,909	29,053,995				
Nebraska	832,750	.....	832,750				
Nevada	28,844,824	26,230,679	55,075,503				

PARTICULARS AT LOCAL LAND OFFICE

No specific descriptions of the character of the land, climate, water, or timber can be given by the General Land Office.

Unoccupied public lands, subject to settlement and entry, are to be found in all the States and Territories west of the Mississippi River, except Iowa and Texas. There is also considerable vacant public land in the States of Michigan, Florida, Alabama, and Mississippi.

Persons who desire to make homestead entry should first decide where they wish to locate, then go or write to the local land office of the district in which the lands are situated, and obtain from the records diagrams of vacant lands.

A personal inspection of the lands should be made to ascertain if they are suitable, and, when satisfied on this point, entry can be made at the local

land office in the manner prescribed by law, under the direction of the local land officers, who will give the applicant full information. Should a person desire to obtain information in regard to vacant lands in any district before going there for personal inspection, he should address the register and receiver of that particular local land office, who will give such information as is available.

Seeking Location for Permanent Home

If desirous of settling upon government land, he has learned herewith where government land may yet be found and the particulars about any which he wishes to investigate he will get from the land office.

General Directions for Procuring Government Land

LIST OF UNITED STATES LAND OFFICES

The General Land Office does not issue maps showing the location of vacant public land subject to entry. This information can be reliably obtained only from the records of the various district land offices, which are located as follows:

ALABAMA: Montgomery.	FLORIDA: Gainesville.	Lewistown. Miles City. Missoula.	Lakeview. Portland. Roseburg. The Dalles. Vale.
ALASKA: Fairbanks. Juneau. Nome.	IDAHO: Blackfoot. Boise. Coeur d'Alene. Hailey. Lewiston.	NEBRASKA: Alliance. Broken Bow. Lincoln. North Platte. O'Neill. Valentine.	SOUTH DAKOTA: Bellefourche. Gregory. Lemmon. Pierre. Rapid City. Timber Lake.
ARIZONA: Phoenix.	KANSAS: Dodge City. Topeka.	NEVADA: Carson City.	UTAH: Salt Lake City. Vernal.
ARKANSAS: Camden. Harrison. Little Rock.	LOUISIANA: Baton Rouge.	NEW MEXICO: Clayton. Fort Sumner. Las Cruces. Roswell. Santa Fe. Tucumcari.	WASHINGTON: North Yakima. Olympia. Seattle. Spokane. Vancouver. Walla Walla. Waterville.
CALIFORNIA: Eureka. Independence. Los Angeles. Sacramento. San Francisco. Susanville. Visalia.	MICHIGAN: Marquette.	NORTH DAKOTA: Bismarck. Devils Lake. Dickinson. Fargo. Minot. Williston.	WISCONSIN: Wausau.
COLORADO: Del Norte. Denver. Durango. Glenwood Springs. Hugo. Lamar. Leadville. Montrose. Pueblo. Sterling.	MINNESOTA: Cass Lake. Crookston. Duluth.	OKLAHOMA: Guthrie. Woodward.	WYOMING: Buffalo. Cheyenne. Douglas. Evanston. Lander. Sundance.
	MISSISSIPPI: Jackson.	OREGON: Burns. La Grande.	
	MISSOURI: Springfield.		
	MONTANA: Billings. Bozeman. Glasgow. Great Falls. Havre. Helena. Kalispell.		

Directory of Agricultural Experiment Stations in the United States

State.	Postoffice Address.	State.	Postoffice Address.	State.	Postoffice Address.
Alabama	Auburn (1)	Maine	Orono	South Dakota	Brookings
Alabama	Uniontown (2)	Maryland	College Park	Tennessee	Knoxville
Alabama	Tuskegee (3)	Massachusetts	Agricultural College	Texas	College Station
Alaska	Fairbanks	Minnesota	St. Anthony Park	Utah	Logan
Alaska	Kodiak	Mississippi	Agricultural College	Vermont	Burlington
Alaska	Rampart	Missouri	Columbia	Virginia	Blacksburg
Alaska	Sitka	Montana	Mountain Grove (9)	Washington	Pullman
Arizona	Tucson	Nebraska	Lincoln	West Virginia	Morgantown
Arkansas	Fayetteville	Nevada	Reno	Wisconsin	Madison
California	Berkeley	New Hampshire	Durham	Wyoming	Laramie
Colorado	Fort Collins	New Jersey	New Brunswick (10)		
Connecticut	New Haven (4)	New Mexico	Mesilla Park	(1) College Station.	
Connecticut	Storrs (5)	New York	Geneva (12)	(2) Canebrake Station.	
Delaware	Newark	New York	Ithaca (13)	(3) Tuskegee Station.	
Florida	Lake City	North Carolina	Raleigh	(4) State Station.	
Georgia	Experiment	North Dakota	Fargo	(5) Storrs Station.	
Idaho	Moscow	Ohio	Wooster	(6) State Station.	
Illinois	Urbana	Oklahoma	Stillwater	(7) Sugar Station.	
Indiana	Lafayette	Oregon	Corvallis	(8) North Station.	
Iowa	Ames	Pennsylvania	State College	(9) Fruit Station.	
Kansas	Manhattan	Rhode Island	Kingston	(10) State Station.	
Kentucky	Lexington	South Carolina	Clemson College	(11) College Station.	
Louisiana	Baton Rouge (6)			(12) State Station.	
Louisiana	New Orleans (7)			(13) Cornell Station.	
Louisiana	Calhoun (8)				

U. S. Ten-Year Average Prices and Yield Per Acre for Certain Crops

	Wheat	Buckwheat	Potatoes	Hay	Corn	Oats	Rye
	Yield Price	Yield Price	Yield Price	Yield Price	Yield Price	Yield Price	Yield Price
	bu. cents	bu. cents	bu. cents	tons \$	bu. cents	bu. cents	bu. cents
1903	12.9 .69.5	17.7 .60.7	94.7 .61.4	1.54 .90.8	25.5 .42.5	28.4 .34.1	15.4 .54.5
1904	12.5 .92.4	18.9 .62.2	110.4 .45.3	1.52 .87.2	26.8 .41.1	32.1 .32.3	15.2 .68.8
1905	14.5 .74.8	19.2 .58.7	87.0 .61.7	1.54 .85.2	28.8 .41.2	34.0 .29.1	16.5 .61.1
1906	15.5 .66.7	18.6 .59.6	102.2 .51.1	1.35 .10.37	30.3 .39.9	30.2 .31.7	16.7 .58.9
1907	14.0 .87.4	17.9 .69.8	95.4 .61.8	1.45 .11.68	25.9 .51.6	23.7 .44.3	16.4 .73.1
1908	14.0 .92.8	19.8 .75.6	85.7 .70.6	1.52 .89.8	26.2 .60.6	25.0 .47.2	16.4 .73.6
1909	15.8 .99.0	20.9 .69.9	106.8 .54.9	1.42 .10.62	25.5 .59.6	30.3 .40.5	16.1 .73.9
1910	13.9 .88.3	20.9 .66.1	94.4 .55.7	1.33 .12.26	27.7 .48.0	31.6 .34.4	16.0 .71.5
1911	12.5 .87.4	21.1 .72.6	80.9 .79.9	1.10 .14.29	23.9 .61.8	24.4 .45.0	15.6 .83.2
1912	15.9 .	22.9 .	113.4 .	1.47 .11.79	29.2 .	37.4 .	16.8 .
Average	14.15 .84.25	19.79 .66.13	96.09 .60.27	1.42 .10.63	26.98 .49.58	29.71 .40.92	16.11 .68.73

*Price average for nine years. Compiled from the year books of the U. S. Department of Agriculture.

Benefits of Small Farms

The Island of Jersey, situated in the English Channel, eleven miles long and less than six miles wide, nourishes a population of about two persons to the acre, or 1,300 inhabitants to the square mile.

Compare this density of population with old, thickly-settled Massachusetts, settled in 1620, having 418 persons to the square mile; with Rhode Island, having 508½ persons to the square mile; with California and its delightful climate but having a population of only 15.2 inhabitants to the mile; and Wyoming with 1½ inhabitants to the square mile.

The density of population and capacity for supporting a dense population on small area of land in the old countries is largely the result of fertilization and intensive cultivation, the increased crop output coming from restricted area of farm land compelling better cultivation.

It is readily seen in this what an immense increase of foodstuff would be produced if all land were made to do its best by manuring and cultivation.

To Stop Land Monopoly

Various plans have been suggested for reducing the size of farms and increasing the size of crops. Among these is Single Tax.

Henry George, in a visit to Europe, had his attention called to the vast inequality of land ownership. For the purpose of breaking up the enormous monopolies of land which he found there, he devised the system of Single Tax, which various regions of the world are beginning to adopt. That system proposes that the tax on all land shall be five per cent on its rental value.

That is, for any tract of land which upon being sold and the money coming from the sale placed at interest would yield a certain sum at five per cent interest, that that amount of interest should represent the amount of tax which the land owner should pay.

Thus, the individual who owns a tract of land, say 100 acres adjoining a town, the land not in cultivation, yet worth \$300 an acre, as other land around it sells;

That the owner of that 100 acres can any minute sell that property for \$30,000, which placed at interest at 5 per cent would yield in interest the sum of \$1,500.

Yet the owner of the 100 acres will not sell. He is holding his land from sale expecting as the town grows in population to get \$1,000 per acre. The single tax advocate looks up the tax on that 100 acres and finds that the owner pays a very light tax, whereas it is clearly a property worth \$30,000 and may pay its 5 per cent tax which would be \$1,500 annually.

The single taxer claims that this tax, entirely reasonable, would induce the owner to sell such tract of land in small parcels and thus the monopoly of that land would be broken.

Vacant City Lot Cultivation

Some years since an association was formed in Philadelphia for the purpose of utilizing the vacant lots throughout that city.

In a report of the work of the association we find the following:

First: That many people out of employment must have help of some kind;

Second: That a great majority of them prefer self-help and many will take no other. Nearly all are able and willing to improve any opportunities open to them;

Third: That to open opportunities to them does not pauperize or degrade, but has the opposite effect of elevating and ennobling. It quickly establishes self-respect and self-confidence. The best and most effectual way of helping people in need is to open a way whereby they may help themselves. The most effective charity is to give opportunity accompanied with kindly and a personal interest in those less fortunate than ourselves.

Benefit of Vacant Garden Associations

Among the benefits resulting from vacant garden associations which have been established in various eastern cities in the last few years are:

Help extended to many families in need; they have taught the inexperienced how to get a living from the soil and in the hundreds of garden plots that have been cultivated they have demonstrated what can be grown on various sized parcels of land.

To illustrate: "An area of 150x100, about two-fifths of an acre, is generally sufficient to supply a family of five persons with vegetables, not considering the winter supply of potatoes; but the acres must be well tilled and handled," according to Bailey in "Principles of Vegetable Gardening."

The Product of an Acre

One farm in the Sacramento Valley, California, consists of one single acre of irrigated land and gives a better home and larger net income for its owner than many of his neighbors enjoy on places of thousands of acres each. The little farm is at Orland, in Glenn County, and is the property of Samuel Cleeks, who has grown old tilling it for the past thirty years.

Mr. Cleeks makes a comfortable living from this one acre and is able to save an average of \$400 a year besides. He has money to loan, if not to burn, as well as fruit, vegetables, and poultry products to sell to those who are getting poorer every year in carrying big farms without irrigation. Here is a list of

What the Place Contains

Barn and corral space, 75x75 feet; rabbit hutch, 25x25 feet; house and porches, 30x50 feet; two windmill towers, 16x16 feet each; garden, 46x94 feet; blackberries, 65x90 feet; citrus nursery, 90x98 feet, in which there are 23,000 trees budded; one row of dewberries, 100 feet long; 4 apricot; 2 oak trees; 3 peach trees; 6 fig trees; 10 locust trees; 30 assorted roses; 20 assorted geraniums; 12 lemon trees, bearing, which are seven years old; lime tree, nine years old and bearing, from which were sold last year 160 dozen limes; 8 bearing orange trees; 4 bread-fruit trees; 3 pomegranate trees; one patch of bamboo; 3 calla lilies; 4 prune trees; 3 blue gum trees; 6 cypress trees; 4 grape vines; 1 English ivy; 2 honeysuckle; 1 seed bed; one violet bed; 1 sage bed; 2 tomato vines; 13 stands of bees. (Wm. E. Smythe in Maxwell's Talisman.)

California is not the only place in the United States where a man can live on one acre of ground, by intensive culture and with irrigation. The Eastern and Middle States can present just as good if not better, opportunities especially where land in small tracts is available near large cities.

At Hyde Park, a little village three miles north of Reading, Pa., there is a small farm owned by Oliver R. Shearer, who may be said to be one of the most successful farmers in the United States. This farm contains 3 1/3 acres, only 2 1/2 of which are cultivated, but they yield the owner annually from \$1,200 to \$1,500. From profits of his intensive farming Mr. Shearer has paid \$3,800 for his property, which, besides the land, consists of a modern two-story brick house with barn, chicken yard, and orchard, the whole surrounded by a neat fence. He has also raised and educated a family of three children.

There are no secrets, Mr. Shearer says about his method of farming. A study of conditions, the application of common-sense methods and untiring energy, he asserts, will enable any farmer to do what he has done.

Amount of Fruit Grown on an Acre

And Average Price at Which It Will Sell.

Blackberries, 10,000 qts. at 7c a qt.	\$700
Dewberries, 9,000 qts. at 7c a qt.	630
Gooseberries, 250 bu. at \$2.00 a bu.	500
Strawberries 8,000 qts. at 5c a qt.	400
Currants, 3,000 plants yield 6,000 bu.	200
Raspberries, per acre.	\$200 to 600
Peaches, per acre	200 to 400
Apples, per acre	100 to 500
Grapes	100

Profits from an Acre of Vegetables

Asparagus, 3,000 bunches at 20c per bunch.	\$600
Cauliflower, 100 to 300 bbls. at \$1.50.	450
Onions, 600 bu. at 75c per bu.	450
Cabbage Seed, 1,000 lbs. at 40c lb.	400
Brussels Sprouts, 3,000 qts. at 10c per qt.	300
Celery, 6,000 bunches at 5c per bunch.	300
Lettuce, 9,000 heads at 3c a head.	270
Lima Beans, 50 bu. at \$5.00 a bu.	250

THE VEGETABLE GARDEN

How to Prepare Soil, Plant, and Fertilize

COMPILED FROM PUBLICATIONS OF PETER HENDERSON

Author of many books on Agriculture and Horticulture

Location of vegetable garden.—Where a choice can be made, the ground selected for the growing of vegetables should be level; if any slope, it should be smooth and toward the South. If the garden is protected from the North and Northwest winds by either a hill, a tree wind-break, a high board fence or wall, it will greatly facilitate earliness in producing crops.

Selection of suitable soil.—This is a most important factor in the growing of vegetable crops. A sandy loam, at least a foot deep, with plenty of humus incorporated, overlying a gravelly or sandy subsoil through which surplus water readily filters, is the ideal for most vegetables, especially for early crops. The soil should be "quick," that is it should warm up early in the spring, and quickly get into working condition after rains. Should the subsoil be clay, then under-drainage, or at least subsoil plowing is essential. For late crops, especially for late peas, beans, cabbage and celery, a cooler soil is desirable, such as a well-drained clayey loam of friable texture. **Hard clay is to be avoided** always; it is cold, late, and hard to work, either wet or dry; plants start slowly and grow poorly in it. The physical condition of garden soil is considered of more importance every year, as better understood. Even the question of fertilizing is less vital to the production of bountiful crops, for if the physical texture is not suitable the effect of fertilizers is lost. The elementary principles are these: Originally soil was, and in rare localities still is, **purely disintegrated rock**, a chemical analysis of which might indicate an abundance of all of the essentials of plant food structure. Yet these constituents are so locked up in an insoluble form that but few plants, excepting lichens and the like, can extract the nutriment requisite for their growth. Slowly these rock particles are fined down by frost, rain and the other varied processes of nature, and gradually accumulate and become associated with animal remains and decayed vegetable matter (humus), thus forming the organic matter of soils, which retains the soil moisture and holds in solution the dissolved constituents of plant food, and plants thrive (other conditions being congenial) in proportion to their supply of requisite foods held in solution, for the only way they can absorb their food is through their root hairs.

Effect of Humus in Fertilizing

Humus improves the texture of the soil by rendering it open and mellow and it also contains plant food. Should the soil be lacking in humus, then it must be incorporated by plowing under some growing crop, preferably clover or some leguminous crop, because they add nitrogen to the soil which they derive from the air. **Stable manure** assists in obtaining similar results. Aeration or Ventilation of the Soil is another essential condition to enable the millions of soil-germs (bacteria) in the soil to continue their work of converting the crude materials of manure and all organic matter into available plant food, for plants do not feed upon the raw fertilizers, etc., as they are put into the soil. **Soil ventilation** also enables the warm sunshine to more readily effect its share in the transformation taking place below the surface of the soil. Paradoxical as it may seem to the unthinking, yet one of the most serious problems of successful gardening is in supplying a continuous abundance of moisture to the growing plants, and yet allow sufficient air for the micro-organisms in the soil to thrive and surcharge the moisture with available plant food. **There must not be too much air**, nor too much water, but that happy balance which is most nearly obtained in a finely pulverized, mellow, sandy loam with an open subsoil.

Importance of Necessary Moisture

The Water-Storing Capacity of Soil is Dependent upon the Texture. The finer the texture of suitable loamy garden soil the greater will be the water-

holding capacity, and the more uniformly will it be distributed. When rain saturates soil every individual atom of soil is enveloped with a film of moisture, and the smaller and more numerous the particles the more water is contained in a given space, on the same principle that a clay marble withdrawn from the water will be enveloped with a film of moisture equal to the marble's surface, but break the marble into a thousand pieces and the aggregate surface area would then be increased by about one hundred times; this illustrates the water-storing value of well-pulverized soil over coarse-grained soil.

Necessity of Proper Drainage

Drainage is very essential for many garden soils, especially those of clayey texture or having clay subsoils. Nature's Drains, namely gravelly or sandy subsoils, are the best, but when gardens are not situated over such, then we must resort to artificial drainage. For temporary purposes the land may be ridged, thus forming dead furrows, which act as surface drains, but these simply carry off the surface water and do not improve the texture of the soil like under-drainage, which makes the soil looser, more friable, and earlier. Clayey soils will **cement or puddle** when they remain wet for a long time and finally dry out hard and brick-like, whereas, if the surplus water is allowed to percolate through them and is drained off from below, cementing does not take place and the soil becomes friable, in which condition it retains the capillary moisture necessary for growing crops. Garden soil may be excellent in all respects and yet remain wet and "spongy," so that it is **impossible to work or plant** it until very late in the spring—in such cases it should be reclaimed by draining—the drains should be placed about 3 feet below the surface and in stiff, clay soil lateral drains should be about 18 feet apart—in lighter, more porous soils, 20 to 25 feet apart, and in exceptional locations and soils, 50 to 75 feet will answer.

Best Materials for Drains

Drains, of course, should have a clear outlet to allow unimpeded flow, and to secure this in some situations it may be necessary to connect the laterals with main drains, which should be placed somewhat deeper than the laterals; the positions of the mains depend entirely upon the lay of the land and the outlet to secure the necessary fall. The best and most effectual drains for a long term of years are those made with **drain tiles**, either the "sole" tile or the "horseshoe" pattern; the latter we prefer. We place this pattern of tile on narrow **hemlock boards at the bottom of the trench**, which prevents sagging where there may be a soft spot in the earth; a strip of sod, grass down, is then placed on the joints of the tile to prevent earth getting in and stopping the flow—the trench is then filled in. Cheaper drains are made by filling in the bottom of a 3-foot trench with about a foot of stones, placing the stones so they form a continuous conduit at the bottom; cover the stones first with straw, brush or sod before filling the trench with soil. Board drains are made by nailing 3 boards together thus Δ.

Plowing to Loosen Soil

Plowing.—The object of plowing is to pulverize the soil, and the character of the soil and the intended crop determines the depth. Under average conditions plow as deep as possible so long as the subsoil is not turned up, endeavor to deepen the soil, and if the subsoil is near the surface run a subsoil plow in the furrow of the turning plow.

How to Make Seed Grow

The subsoil plow does not turn a furrow, but, like a huge mole, it lifts and breaks the hard crust that forms under the ordinary plow, thus deepening the soil and allowing the roots to penetrate deeper, and rendering the crop less susceptible to drought. **Shallow plowing** is advisable in sandy, leachy soils, the object being to plow the same depth every year, so as to compact the undersoil and restrain leaching. **Fall plowing** improves the physical condition, especially of heavy, loamy soils; left rough, the lumps slack and break down through the action of winter weather. Such soils, however, should contain plenty of vegetable matter, grain or grass stubble, or be covered with manure before plowing, to prevent any tendency of the soil to puddle or run together. Light and sandy soils that dry out quickly in spring and are naturally early do not need to be plowed in the fall.

Rolling.—The object of rolling soil is to compact light soils—break up lumps and pulverize heavier soils—rolling brings capillary water to the surface, and to prevent loss of same by evaporation the ground should be gone over within a day or two after rolling with a harrow.

Success with Seeds

Seed Beds.—Finely pulverized mellow soil, continuously moist, and a congenial temperature are the essentials to success in germinating seeds. An even and continuous supply of capillary moisture to some extent regulates the soil temperature and this moisture—from the soil below—can be brought up to the seeds and soil surrounding them by merely compacting the soil over them with the foot, a plank or a roller; this, if properly done with mellow, dryish soil, brings the soil particles in contact and establishes the capillarity necessary to bring the moisture from the undersoil to the surface, thus hastening the germination of shallow-sown seeds that might otherwise "dry out."

Better Get Moisture from Below

When moisture from below can be secured it is better than surface watering from a watering pot or hose as they tend to cause the soil to crust over; of course, keeping seeds moist by capillarity is wasteful of the undersoil's stores of moisture, for it passes off into the air. So it is advisable, as soon as the seedlings are rooted and sturdy enough, to stir and loosen the surface soil about them, thus forming an "earth mulch" to check evaporation. Where large seeds, like beans, peas, etc., are sown deep, after the soil has been firmed over them, then the surface can be immediately loosened so there may be no undue loss of moisture.

Secret of Success in Dry Farming

Cultivation to Conserve Soil Moisture.—Many people imagine that as long as a garden crop is free from weeds it does not need to be cultivated, but nothing could be further from the fact; frequent cultivation, at least once in every ten days, is one of the most important factors in the successful growing of vegetable or other crops, and especially so in dry weather. Growing plants require an immense amount of moisture and for perfect and unchecked development must have it continuously. As rain falls irregularly, plants must depend for their supply during dry periods upon the reserve moisture stored in the soil below them, as we have described previously in this article, and it is only by frequent cultivation that we can prevent this reserve moisture from escaping by capillary conduction into the dry summer atmosphere.

Cultivate 3 inches deep.—If the capillary tubes—between the stores of moisture and the surface—are not kept disconnected in dry weather, the quantity of moisture, drawn forth as effectually as through a suction hose, by drying winds and air, will in a few days' time deplete the entire reserve store. The capillary rise of water to make good the evaporation from the surface sometimes equals a pound of water per square foot of soil a day. Therefore, one can realize the importance of checking this loss as soon as possible, which is effectually accomplished by cultivating the soil at least 3 inches deep, leaving the surface pulverized and open, thus forming an "Earth Mulch," and before the surface compacts again, allowing the suc-

tion tubes to be connected, the ground should be again cultivated. By using the hand-power wheel hoes and cultivators for small gardens, and the riding horse cultivators for market gardens, the work may be done cheaply, quickly and easily.

Manures and Fertilizers.—This is a large question and the limited space at our disposal only allows us to generalize. (Those interested should get a special book on the subject; "Fertilizers by Voorhees," one of the latest, is recommended.)

Some Plants Come from the Air

Plants are composed of many ingredients, some of which are drawn from the air and over which we have no control; but most of the materials for plant growth and structure are supplied through the soil, and we can, when necessary, supply the deficiency. Most of the plant-building constituents of the soil are therein stored in superabundance, and therefore they are seldom taken into consideration when the fertilizer question is considered; but there are three constituents: nitrogen, potash and phosphoric acid; that generally have to be supplied by the gardener. **Plants cannot grow** after the supply of any one ingredient has been exhausted, on the principle that a chain is no stronger than its weakest link. To grow vegetable crops to perfection liberal quantities of plant-feeding materials must be applied to the soil, and we always find it advisable to use both manures and commercial fertilizers.

Best Manures

Natural Manures (stable manures, etc.) usually contain varying quantities of the three essentials above mentioned, and when manure is intelligently stored and cared for, these essentials may all be retained until the manure is applied to the soil, but it is too frequently the case that "firing," "leaching," etc., cause more or less loss, reducing the value of such manure to its usefulness as humus. Natural manures feed plants more slowly but more continuously than chemical fertilizers and improve the texture of the soil, the effects of which last for more than one season—50 to 100 tons per acre is not too much to apply to a garden before plowing.

Commercial Fertilizers

Artificial or commercial fertilizers act immediately, starting the plants into an early and rapid growth, and hasten maturity. A high-class "complete fertilizer," suitable for the variety of vegetables usually grown in a garden, contains all three of the needed constituents in about the following proportions: 98 lbs. nitrogen, 120 lbs. phosphoric acid and 120 lbs. potash per ton, and should be applied after plowing and before harrowing at the rate of 500 to 1,000 lbs. per acre, and rowed crops may be further stimulated by 2 or 3 supplementary side-dressings during the growing season, using 100 to 200 lbs. per acre for each application. **Commercial Fertilizers** are composed of some base or superstructure, such as ground bone, phosphate rock, etc., to which the three plant-feeding essentials—nitrogen, potash, and phosphoric acid—are added in varying quantities suited to the needs of the crop the fertilizer is going to feed. As the quantity of each of the three essentials contained in a ton is always known, and as we know the average proportions that various crops consume, it enables us to approximately estimate the quantities to apply. The missing factor in enabling us to gauge the exact amount required of the essentials is the unknown quantity of each already in the soil. This can be approximately judged only by experimental plots on which different crops and different essentials are used. (Full instructions and tables for this experimental work are given in several works on Fertilizers.)

Nitrogen and Potash

Nitrogen is conducive to rapid growth and should be used more freely early in the season where tender and succulent growth, especially leaf-growth, is desired.

Potash hardens the wood-growth and checks too succulent leaf-growth, hastens maturity, and causes the plant to throw more vigor into fruits or flowers.

Importance of Firming the Soil

Make Soil Firm

The importance of firming the soil after seeds are sown and covered is a detail that is not usually appreciated by the amateur gardener, and, in consequence, there is often a disappointment because seeds either do not "come up" or germinate feebly and irregularly.

The failure to properly firm the soil after seeds are sown also has its effect upon the later growth and maturity of crop, particularly in light soil or during a dry season, as it allows too free a circulation of drying air and wind around the roots, depriving them of moisture and checking the growth of the plants; for it must be remembered that a sufficient amount of moisture is necessary not only to prevent plants from "wilting," but also to enable them to assimilate their food, which is consumed only in solution, through their root hairs.

Vegetable, Flower, and Farm Seeds

A soil may be ever so rich in fertilizing constituents, but if there is not sufficient moisture to dissolve these essentials, and if this plant-feeding solution is prevented by barriers of dry atmosphere from coming in contact with the thirsty little rootlets, then the plants languish, and possibly the crop "burns up," if the weather continues hot and dry. Therefore we cannot too strongly impress upon the cultivator the vital importance of properly compacting the soil, if dry enough, after sowing and covering seeds; whether vegetable seeds, flower seeds, farm seeds, or grass seeds. Of course, there are conditions of soil and weather that render it inadvisable to press the soil too compactly about the seeds, as when the soil is heavy or too wet, or

in very early spring or late fall, when copious rains can be depended upon to perform the operation for us, and when there is no danger from hot, drying atmosphere.

Press Soil with Foot

Under ordinary conditions when soil is of the mellow, friable and crumbly texture, in which it is suitable to sow seeds, then the planter should press every inch of soil over the seeds with the ball of his foot, allowing his whole weight to come on it, or the rows can be patted down with the back of a spade, or a narrow board may be placed over the row and be stamped down. But the foot is best because it confines the pressure to a narrow strip immediately over the seeds, bringing the moist soil into immediate contact with them, thus inducing quick and even germination, and gives them an earlier start than the weed seeds in the lighter soil between the rows.

Loosen Soil After Pressing

After the soil has been firmed as above described, the surface should be lightly raked over with a short-tooth rake, to prevent any tendency to "bake" or form a "crust," through which seedlings might have difficulty in forcing their way. This light raking leaves the immediate surface loose, like a "mulch," thus breaking the capillary tubes through which the soil moisture would otherwise escape.

In large gardening and field operations, and on lawns, it is of course impossible to firm the soil with the foot, so the roller should be used to accomplish a similar result.

GENERAL DIRECTIONS RELATING TO GARDEN VEGETABLES

Kind of Vegetable.	Days to "Come Up."	Ready for Use from Seed Sown.	—Distance Table—		Quantity of Seed, etc., Required.
			Apart in Rows.	Rows Apart.	
Asparagus, Seeds	20 to 28	3 to 4 years	.....	.....	2 oz. for 100 ft. row.
Asparagus, Roots	.....	.....	1 ft.	2 ft.	100 for 100 ft. row.
Beans, Dwarf	6 to 10	45 to 75 days	3 in.	2 ft.	1 qt. for 100 ft. row.
Beans, Pole and Lima	6 to 10	65 to 100 days	3 ft.	4 ft.	1 qt. for 100 hills.
Beets	7 to 10	60 to 75 days	4 in.	1 ft.	2 oz. for 100 ft. row.
Borecole (Kale) for spring use	6 to 10	85 to 120 days	2 ft.	2½ ft.	¾ oz. for 100 ft. row.
Borecole (Kale) for fall use	6 to 10	85 to 120 days	2 ft.	2½ ft.	¾ oz. for 100 ft. row.
Brussels Sprouts	6 to 10	100 to 120 days	1½ ft.	2½ ft.	¾ oz. for 100 ft. row.
Cabbage, Early	6 to 10	100 to 125 days	1½ ft.	2 ft.	¾ oz. for 100 ft. row.
Cabbage, Late	6 to 10	120 to 180 days	2½ ft.	2½ ft.	¾ oz. for 100 ft. row.
Carrot, Early	10 to 15	65 to 85 days	4 in.	1½ ft.	1 oz. for 100 ft. row.
Carrot, Late	10 to 15	100 to 120 days	5 in.	2 ft.	1 oz. for 100 ft. row.
Cauliflower, Early	6 to 10	100 to 115 days	1½ ft.	2½ ft.	¾ oz. for 100 ft. row.
Cauliflower, Late	6 to 10	100 to 135 days	2 ft.	3 ft.	¾ oz. for 100 ft. row.
Celery	12 to 20	125 to 150 days	6 in.	3 to 5 ft.	¾ oz. for 100 ft. row.
Corn, Sugar	8 to 10	60 to 100 days	3 ft.	4 ft.	1 qt. for 200 hills.
Cucumber	6 to 8	60 to 85 days	4 ft.	4 ft.	1 oz. for 60 hills.
Egg Plant	10 to 14	125 to 160 days	2½ ft.	2½ ft.	¾ oz. for 100 ft. row.
Endive	6 to 10	75 to 100 days	1 ft.	1 ft.	1 oz. for 100 ft. row.
Kohl Rabi	6 to 8	65 to 85 days	1 ft.	2 ft.	¾ oz. for 100 ft. row.
Lek	6 to 10	120 to 180 days	6 in.	1½ ft.	1 oz. for 100 ft. row.
Lettuce	6 to 10	75 to 100 days	4 ft.	1 ft.	¾ oz. for 100 ft. row.
Melon, Musk	6 to 10	90 to 120 days	4 ft.	1 ft.	1 oz. for 60 hills.
Melon, Water	8 to 12	100 to 125 days	8 ft.	8 ft.	1 oz. for 30 hills.
Onion, Seed	6 to 10	120 to 150 days	3 in.	1 ft.	1 oz. for 100 ft. row.
Onion, Sets	.....	.....	3 in.	1 ft.	3 pts. for 100 ft. row.
Parsley	18 to 24	90 to 100 days	4 in.	1 ft.	¾ oz. for 100 ft. row.
Parsnip	12 to 18	100 to 150 days	6 in.	1½ ft.	½ oz. for 100 ft. row.
Peas, Wrinkled	5 to 10	50 to 75 days	2 in.	2 to 4 ft.	1 qt. for 100 ft. row.
Peas, Smooth	5 to 10	50 to 65 days	2 in.	2 to 4 ft.	1 qt. for 100 ft. row.
Pepper	10 to 14	135 to 150 days	2 ft.	2½ ft.	¾ oz. for 100 ft. row.
Potatoes	15 to 25	75 to 100 days	10 in.	2½ ft.	1 peck to 100 ft. row.
Pumpkins	6 to 10	100 to 125 days	8 ft.	8 ft.	1 oz. for 30 hills.
Radish	4 to 6	25 to 50 days	2 to 4 in.	1 to 1½ ft.	1 oz. for 100 ft. row.
Salsify	8 to 12	125 to 160 days	6 in.	1½ ft.	1½ oz. for 100 ft. row.
Spinach	6 to 12	60 to 75 days	4 in.	1 to 1½ ft.	1 oz. for 100 ft. row.
Squash, Summer	6 to 10	60 to 75 days	4 ft.	4 ft.	1 oz. for 50 hills.
Squash, Winter	6 to 10	100 to 125 days	8 ft.	8 ft.	1 oz. for 50 hills.
Tomato	6 to 10	125 to 150 days	3 ft.	3 ft.	¾ oz. for 100 hills.
Turnip	4 to 7	60 to 75 days	6 in.	1 to 1½ ft.	¾ oz. for 100 ft. row.

FORTY VARIETIES OF GARDEN VEGETABLES

How to Plant and Cultivate

Vegetable Plants in Colors Shown on Following Pages

Artichoke

Artischüke, Ger. Artichaut, Fr.

Sow seeds in deep, rich, sandy loam with plenty of rotted manure. When large enough, transplant into rows three feet apart and two feet in the rows.

This vegetable is a great delicacy, highly valued in all parts of Europe, and also one of the most prominent table vegetables in California and other parts of this country. It is a perennial producing the large flower heads, which are the part eaten, the second season, and every year thereafter. The young stalks are also sometimes tied and blanched like celery, but they are not equal to the flower heads. Cook like asparagus and serve with cream or butter sauce. Sow seed early in hotbeds or box in the house, and when weather becomes settled transplant in rows four feet apart and two feet in the row. When started early sometimes blooms the first year.

One Variety

The **Globe Artichoke** is cultivated for its flower-heads, which are cooked like asparagus. Plants set in any good soil, with slight covering in winter, will remain in bearing several years.

Asparagus

One of the earliest and most delicious of spring vegetables. We strongly urge all those having enough available space to put in a bed for their own use, following carefully the cultural directions given below.

Beds are usually formed by setting roots, which can be procured. If you wish to grow plants from the seed yourself, pour warm water on the seed and allow it to stand until cool; pour it off and repeat two or three times with fresh warm water. Sow in spring in drills about 18 inches apart and 2 inches deep, in light, rich soil, planting 15 to 20 seeds to each foot of row. When the plants are well up, thin to about one inch apart and give frequent and thorough cultivation during the summer. If this has been well done, the plants will be fit to set the next spring.

The permanent beds should be prepared by deep plowing or spading and thoroughly enriching the ground with stable manure or other fertilizer; a moist, sandy soil is best. If the subsoil is not naturally loose and friable, it should

be made so by thoroughly stirring with a subsoil plow or spade. Set the plants about 4 inches deep and 1 to 2 feet apart in rows 4 to 6 feet apart. After the plants are well started, give frequent and thorough cultivation. Early the next spring spade in a heavy dressing of manure and about one quart of salt and double the quantity of fresh wood ashes to each square rod, and cultivate well as long as the size of plants will permit, or until they begin to die down. The next season the bed may be cut over two or three times, but if this is done, all the shoots, no matter how small, should be cut. After the final cutting, give a good dressing of manure, ashes, and salt. Cultivate frequently until the plants meet in the rows.

In autumn after the tops are fully ripe and yellow, they should be cut and burned. A bed 15 feet by 50 feet, requiring about 100 plants, if well cultivated and manured, should give the following season an abundant supply for an ordinary family and continue productive for 8 or 10 years.

Three Varieties

Palmetto.—A very early maturing and prolific variety, producing an abundance of very large, deep green shoots of the best quality.

Conover's Colossal.—This sort is one of the largest and most extensively used green varieties. Shoots bright green, sometimes tinged with purple at the top, very tender and of the best quality.

Early Giant Argenteuil.—A French variety of excellent quality; very early, stalks large and thick; resists ravages of rust and blight better than any other sort.

Asparagus Seed

One Ounce Will Sow About 50 Feet of Drill

Sow in autumn, or spring, when soil is in good working condition. Cultivate during summer; give plants light covering of stable litter during winter. At 1 or 2 years, transplant to permanent beds.

Asparagus Roots

A saving of 1 or 2 years is effected by planting roots. For this you should select strong 2-year-old roots. For private use or for marketing on a small scale, beds should be formed 5 feet wide, with 3 rows planted in each, one in the middle and one on each side a foot from edge; distance between plants in rows, 9 inches.

Beans

Bohnen, Ger. Fajorenano, Sp. Haricot, Fr.

Planting requires 1 quart to 100 feet of drill or 200 hills; 2 bushels per acre, in drills.

Warm, light, slightly fertilized soil, in a sunny situation, should be used. As soon as all danger of frost is past, plant in drills 18 to 30 inches apart, 2 inches in depth, and at a distance of 3 to 6 inches in the row; the distance between both drills and plantings varying according to the habits of the varieties used. If hills be preferred, space them 2 feet apart one way and 3 feet the other. Never work among the vines when wet, as it induces rust.

A succession of sowings can be made from the first week in May until September. Plant in drills about 2 inches deep, and from 18 inches to 2 feet apart, according to the richness of the soil; the plants should be about 3 inches apart.

Pole Lima Beans

Lima beans are not only profitable as green shell beans, but are also a paying crop to sell as dried beans during winter. They are always in demand and bring good prices.

Lima beans will not grow until the weather and ground are warm; if planted earlier, the seeds are apt to rot in the ground.

Two Varieties

Seibert's Early Lima.—In earliness, ease of shelling, and quality of the green beans, this variety is far in advance of all other early Limas for either the garden or market. The vine is very productive; although the pods rarely contain more than four beans, the total yield is enormous. The green shelled beans are of immense size, tender, and of finest quality.

King of the Garden Lima.—Vines vigorous and productive, producing a continuous bloom and fruitage to the end of the season. The pods are of enormous size, many specimens measuring from 5 to 8 inches, and some containing seven beans to the pod, all perfectly formed and of superior quality.

Dwarf, Bush or Snap Beans

In many localities the low-growing varieties are known under different names. Under this classification we include the best sorts selected after years of careful observation—bush, bunch, snap, string or dwarf beans.

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About the first of May select a warm, dry, sheltered spot; dig and manure slightly; make drills 2 inches deep and 18 inches to 2 feet apart; drop the beans 3 inches apart in the drills, and cover not more than 2 inches deep. Hoe well in dry weather to keep down the weeds. Sow every two weeks for a succession until September.

1 qt. to 100 ft. of drill; 1½ bu. to the acre in drills

Four Varieties

Improved Red Valentine.—For snaps there is nothing superior to this variety among the green-podded sorts, and many prefer it to the wax varieties. Vine erect, with dark-green leaves; pods medium length, curved, cylindrical, with crease in back, very fleshy, crisp and tender; seed long, of medium size and unsymmetrical in shape; pink, marbled with red.

Black Valentine.—An extra early green-pod bean. It produces long pods that are almost straight, round, thick and meaty. They are soft green in color; in flavor unsurpassed. A good bean to force as well as to use for late planting.

Challenge Black Wax.—Fully one week earlier than any other. Pods clear waxy white, round, fleshy, crisp and tender. The dry bean is jet black, long, curved, and rather flat.

Currie's Rust-Proof Wax.—Pods long, flat and tender. Seeds blue-black.

Pole, or Running Beans

One quart will plant 100 hills

Plant in hills 3 to 4 feet apart each way, and 2 inches deep, allowing 6 seeds to each hill. When the plants are well established they should be thinned out to four. They are more sensitive to cold than the bush beans, and should not be planted before the middle of May.

Three Varieties

Extra Early Jersey Lima.—This is ten days earlier than the ordinary variety, while it is equal in flavor and productiveness.

Dreer's Improved Lima.—Beans thick, sweet and tender; very productive.

Large White Lima.—A large, late sort; broad, very thick, dark green.

Dwarf Lima Beans

Bush limas should be planted 3 feet apart, dropping 2 or 3 beans 15 inches apart in the row. Cover about an inch deep. Dwarf limas require no support.

Three Varieties

Burpee's Dwarf Lima.—Plants make perfect bushes from 18 inches to 2 feet high. They are sure croppers and immense yielders. Pods as large as those of the pole lima, and contain three to five beans of the best quality.

Dreer's Dwarf Lima.—Thick pods, and large thick beans, three or four in a pod. Ripens fully ten days earlier than the pole lima of same name.

Henderson's Bush Lima.—Valuable on account of extreme earli-

ness. Extremely productive, tender and delicious. The dry beans are small and white.

Beets

Runkelrueben, Ger. Remolacha, Sp. Betterave, Fr.

One oz. to 100 ft. drill; 5 to 6 lbs. to the acre, in drills

A rich, deep, light soil is particularly necessary for a successful growth of beets. For early supply, sow very early in spring, soon as ground can be worked, in drills 18 inches apart, 1 inch deep and thin to 4 inches in the row. For autumn and winter crops, sow later in the season. When young, the leaves make excellent greens.

If wanted very early, sow such sorts as Crosby's Egyptian and Detroit Dark Red in hotbeds and transplant, cutting off the outer leaves. For general crop, sow in freshly prepared soil as soon as the ground will permit, about an inch deep and pressing the soil firmly over the seed. When the plants are well established, thin out. For winter use the turnip varieties may be sown in June so as to mature late in the season. The roots are stored in a cellar and covered with sand or sandy soil to prevent wilting, or they may be kept outdoors in pits such as are used for apples and potatoes.

Three Varieties

Albani.—One of the best, extra early beets in cultivation; very sweet and tender; fine for home and market garden use.

Eclipse.—Very early and especially desirable for the home garden; roots nearly globular, with a small tap root; flesh bright red.

Edmund's Blood Turnip.—Very uniform; roots always smooth, round and handsome; top small, of good marketable size and among the best for table use; color dark red; crisp, tender and sweet; good keeper.

Borecole, or Kale

One ounce will produce 3,000 plants

To grow this valuable winter vegetable successfully, it is important that the soil should be deep, well worked, and liberally manured. Sow about the middle of April in prepared beds, covering thinly and evenly; plant out in June, following directions recommended for cultivating cabbage.

Three Varieties

Dwarf Green Curled.—Very dwarf, spreading variety. Leaves beautifully curled, quite hardy; will remain over winter where the temperature does not fall below zero.

Dwarf-Brown.—Same as Dwarf Green, but dark purple.

Siberian, or Sprouts.—One of the best known varieties of kale, also called sprouts or German greens. The green curled leaves are tender and of delicate flavor.

Broccoli

Nearly allied to the cauliflower, but more hardy. The seed should be sown in the early part of May and transplanted in June; south, the sowing should be delayed until June or July, and the transplanting accordingly from August to October. In parts of the country where the thermometer does not fall below 20 or 25 degrees broccoli may be had in perfection from November until March. It succeeds best in a moist and rather cold atmosphere.

Two Varieties

White Cape.—Heads medium size, close, compact, and of creamy white color. One of the most certain to head.

Purple Cape.—Differs only in color.

Brussels Sprouts

This is one of the best vegetables for winter use, producing from the axils of the leaves an abundance of sprouts, resembling small cabbages, of excellent, mild flavor.

Two Varieties

Tall French.—Very fine. **Dwarf Improved.**—A variety producing compact sprouts of excellent quality.

Cabbage

Kohl, Ger. Chou, Fr. Berza, Sp.

One oz. will produce 1,500 plants; ½ lb. to transplant for an acre

Culture.—For plants of the earliest sorts sow seed in January or February under glass, and prick out in flats or frames about 2 inches apart each way. Transplant to open ground as soon in spring as the land can be properly prepared. A rich, warm, fibrous loam is best. Have the plants in the rows 20 to 24 inches apart, and rows at least 2 feet apart. Give thorough cultivation, and irrigate in dry weather if practicable. Protect against the ravages of cutworm, maggot and green worm. A little nitrate of soda applied around the plant is of great benefit. Potash applications, such as wood ashes or muriate, may also do much good. For late cabbage plants, sow seed in drills in open ground during April and May, and transplant in June and July, giving the plants more room than allowed for earliest cabbages. Dusting with tobacco dust, insect powder, etc., or splashing with hot soapsuds, especially whale-oil soap solution, are good and safe remedies for some of the insect pests attacking plants of the cabbage.

Early Varieties

Copenhagen Market.—A new variety from Denmark, which matures as early as Wakefield. Heads weigh 10 to 12 pounds and are very solid. It is the largest of the

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early round-head varieties, and of excellent quality.

Small Extra Early Jersey Wakefield.—The earliest strain of Wakefield cabbage, very hardy, and may be set out early. Heads small, but very solid.

Volga.—One of the earliest main crop cabbages of superior quality. Very desirable where a large, uniformly round head with short stem and compact growth is wanted. Matures very early for a variety furnishing such large heads of excellent shape. Very hardy, good keeper.

Early Drumhead.—A second early, sure heading cabbage of good quality. Plant of compact growth. Head large, thick, flattened on the top, solid, crisp and tender.

Red Cabbage

Red Delicacy.—Medium size and late; most delicious of all red varieties.

Early Red Dutch Erfurt.—Earlier than the Red Drumhead, but equally as valuable for pickling.

Red Dutch Drumhead.—A large heading variety, fine for pickling.

Mammoth Rock Red.—The largest and most solid of the Red varieties; a sure-heading sort and tender.

Carrot

Moehren, Ger. Zanahoria, Sp.
Carotte, Fr.

One oz. 100 ft. drill; 3 lbs. per acre

For early crops, sow as soon as ground can be worked, in drills 1 inch deep and 1 foot apart (3 feet for field culture), thinning 4 to 8 inches, according to varieties. Keep your plants well cultivated. Under favorable conditions 600 bushels per acre is a fair crop. The carrot, being enormously productive and of superior nutritive quality, is a desirable and profitable crop to grow for stock feed.

Carrots do best in warm, deep, rather light and fairly fertile soil, that is well supplied with humus, or on strong loam having been in clover and broken the year before. For earliest crop sow seed of the early short-rooted sorts in April or May, in drills a foot apart, and thin to 2 inches. For main crop, sow in May or June, or for succession even in July, using the longer-rooted varieties. The rows for these may be 16 to 20 inches apart, and the plants thinned to 2, 3 or even 4 inches. To raise carrots for stock, the rows may be made wide enough apart, say 2 to 2½ feet, to allow of cultivation by horse power. In sowing carrot or other small seeds, especially during dry weather, pains should be taken to firm the soil well over the seed, either by means of the feet or with the roller of the garden drill.

Three Varieties

Chantenay.—Tops medium sized; necks small; roots tapering slightly but uniformly stump rooted and smooth; color deep orange-red; flesh very crisp and tender. Although this is a medium early sort, it furnishes roots of usable size as early as any, is a heavy

cropper, and is undoubtedly one of the best for both the market and private garden, while its great productiveness makes it very desirable as a field sort.

Long Orange.—The most popular of the older sorts for farm use on mellow soil. An improvement obtained by years of careful selection of the best formed and deepest colored roots.

Victoria.—Largest carrot grown, heaviest cropping and most nutritious variety cultivated; roots remarkably fine, light orange; symmetrical, excellent quality of high feeding properties; good keeper; heavy cropper on all soils; best adapted for rich land; grows half as much weight again per acre as ordinary sorts; grows well out of ground, easily harvested. All who have cattle should raise a quantity of carrots for feeding milch cows in winter. It increases the flow of milk and gives to the butter a delicious flavor and a rich golden color. Breeders of fine horses feed carrots to help keep them in health and condition.

Cauliflower

Blumen Kohl, Ger. Choufleur, Fr.
One ounce of seed for 3,000 plants

Cauliflower succeeds well in any soil where cabbages will grow. It delights in a rich soil and plenty of water. For early sorts, sow in a hotbed in February or March; for later crop, sow in May in a moist place. Transplanting should be done in moist weather.

Three Varieties

Extra Early Dwarf Erfurt.—Best for forcing, good for open ground. Dwarf and very solid, with short outside leaves. Can be planted 20 inches apart each way and forced. Almost as early as Snowball.

Barnard's Snowball Cauliflower.—For main crop, and for every purpose except for first early, or for culture under glass (for which the Extra Early Dwarf Erfurt is excellent) growers recommend Barnard's Snowball as a variety of the highest quality and reliable, sure cropping strain.

Vaughan's New Snowball.—This is an excellent strain of this popular vegetable, the superior of which cannot be found. In size, compactness and color it represents quality of the highest type. A well grown head will measure 9 or 10 inches across and have depth in proportion, very solid, and the core will be perfectly white.

Celery

Sellerie, Ger. Apio, Sp. Celeri, Fr.
1 oz. to 2,000 seeds.

Celery delights and thrives best in a muck land, but can be grown in any good garden soil. Sow the seed in the open ground early in spring, as soon as ground can be worked.

Prepare the soil well, and sow in drills a quarter inch deep and about 10 inches apart, taking care to firmly press the soil over the seed.

When 2 inches high, after careful hardening, transplant to 2 inches apart each way. Later dig trenches 4 feet apart and 6 inches deep, or they may be set on level ground, and when large enough trim off the tops (to render stocky) and enough of the roots to admit of straight planting, and set in trenches 6 inches apart, covering to the crown only.

Other Directions.—For first crop sow seed early in hotbeds, or in boxes in the house, in rich, moist soil, covering seed very lightly. For main crop sow in open ground in April, or soon as soil is in good condition. Seed germinates slowly and if the weather is hot and dry protect with light covering of hay or straw. Stir soil as soon as plants are well up; thin out and transplant so that they stand about an inch apart in the row. If they grow too rapidly, shear the tops off when about 4 or 5 inches high, and this will make them more stocky. For main crop set plants out between June 15th and July 15th, in rows 3 feet apart, and plants 6 inches apart in the row. Care should be taken to firm the earth well around plants when setting and they will root better. Keep clear of weeds until about the middle of August, when it will be time to begin earthing up. Draw the soil up against plants with a hoe as closely as possible, firming it enough to keep plants in an upright position. Later in the season the blanching process must be finished by digging soil from between rows and banking clear to the tops on each side of the row of celery. Much labor is saved by growing the self-blanching varieties. They are easier to grow but do not do quite so well.

Three Varieties

White Plume.—Stalks, portions of the inner leaves and heart naturally white, become fit for use by simply tying up closely with soft twine. More used than any other by gardeners.

Golden Self-Blanching.—By far the most popular sort on the market. It is of medium earliness, of dwarf, compact habit, with thick, solid, heavily ribbed stalks which blanch easily to a clear waxen yellow. When grown in rich, moist soil, the stalks are numerous and large, with a solid heart of beautiful yellow.

Rose-Ribbed Self-Blanching.—Is a sport from the Golden Self-Blanching, having all its good qualities, with the additional attraction of beautiful rose-tinted ribs, making it very handsome.

Celeriac

(Or Turnip-Rooted Celery)
Knollen Sellerie, Ger.

Celeri-rave, Fr. A pio nabo, Sp.

A turnip-shaped, tender, marrow-like variety, possessed of more pungent taste and odor than the common sorts. Keeps well, and is principally used for flavoring meats and soups.

A popular German vegetable worthy of more extensive cultivation. The roots, which are used in salads or boiled like parsnips or turnips, have a celery flavor that

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is particularly pleasant to those who like celery. These roots keep well all winter. Celeriac is deserving of much more popularity.

Three Varieties

New Celeriac "Delicatess."—Produces perfectly smooth oval roots, without any side roots, and never rusts. Flesh is pure white, tender and of the best quality of all varieties of this vegetable. This size does very well on light soils.

Giant Prague.—This is unquestionably the largest and best celeriac for main crop, and is the most popular with American growers. The roots are very large, almost twice the size of Erfurt, almost globe-shaped, smooth, and with only a few roots at the bottom. The flavor and quality are excellent. The common kinds of celeriac one sees while marketing are often small and crooked, with a mass of unsightly and useless roots. The Giant Prague averages very regular in shape and has few side roots. It is a general favorite.

Earliest of All.—This is a variety ready in June. Flesh pure white and very tender; roots of good size, fine quality and never woody. Foliage short and tubers remarkably smooth. On account of its earliness may be planted for succession as late as July.

Chicory

Kaffeewurzel, Ger.

One ounce of seed for 100 feet of drill

Sow one-half inch deep, in drills, one foot apart and cultivate like carrots.

The dried roots are used for mixture with coffee, or as a substitute. The young leaves make excellent greens, and are preferred by some even to the dandelion.

Two Varieties

Large-Rooted Magdeburg.—The roots are cut in thick slices, roasted and used for coffee. The leaves in spring also make a good salad.

Witloof Chicory or French Endive.—This European delicacy has in the past few years become a standard salad in all of the best American hotels and restaurants. It can be easily grown by any one. Seed is planted in the spring and roots like parsnips are produced. The roots are stored in sand until wanted for growing on during the winter. They are then forced in soil in some deep place.

Citron

Wassermelone, Ger. Sandia, Sp.
Melone d'eau Pastèque, Fr.

One oz. to 30 hills, 4 to 5 lbs. in hills to an acre.

The culture of the citron is very similar in all respects to that of the musk varieties. Being hardier and of much more vigorous habit, however, it may be planted before settled warm weather appears, in hills not less than 8 feet apart, and thinned to two vines per hill. If melons of largest size are the object, remove all but a few when quite small.

Collards

Well adapted to the southern climate, where it is extensively used. It is a species of cabbage, highly esteemed for its delicious flavor.

Seed may be sown in the extreme south from early fall until late spring. The plant is quite hardy. Plants may stand 8 inches apart. Treat as cabbage.

Corn

Sweet or Table Varieties

One quart for 200 hills. One peck for acre in hills.

A rich, warm, alluvial soil is the best, but excellent sweet corn can be raised on any good, ordinary soil, if it is deeply and thoroughly worked before planting. In the north sweet corn should be planted as early as can be done without risking great loss from frosts or from rotting of the seed in the soil.

If planted in rows, make the rows about 4 feet apart and place the seed 14 to 16 inches apart in the row, covering one inch deep with fine soil firmly pressed down.

If planted in hills, make the hills for the early varieties 3 feet apart each way and plant 6 kernels to the hill. For the later sorts the hills should be not less than 4 feet apart each way. Hoe frequently, and when 6 inches high thin so as to leave 3 or 4 plants in the hill. Give frequent and thorough but shallow cultivation until the tassels appear. For succession, plant every two weeks until late summer.

Three Varieties

Stowell's Evergreen.—This standard main crop variety excels all other late sorts in sweetness and productiveness. It is more popular than any other for canning, for marketing and for the home garden. Great care has to be exercised in the selection of stock to grow seed from, as this variety has a tendency to deterioration and a shorter grain, which makes it less sugary and desirable.

Mammoth Sugar.—A large, late variety, having ears of mammoth size, 14 to 20 rows. Quality excellent, not exceeded by any variety. A good canners' variety, being white grained and very uniform. A week later than Stowell's Evergreen.

Early Evergreen.—The ears of this new corn grow 8 inches long, are mostly 14 to 18 rows. This is a magnificent kind for market gardeners and for main crop in every home garden. It ripens 10 to 12 days in advance of Stowell's Evergreen and is equally as good for all purposes. The kernels are very sweet and tender, and when eaten from the cob break off free from husky tips so common to some otherwise fine table corns.

Corn Salad

A small, quick growing salad plant for late fall, winter and spring use. The leaves are used

as a substitute for lettuce and spinach.

During August and September sow the seed in shallow drills about one foot apart, covering with about one-fourth inch of fine soil firmly pressed down. On the approach of severe cold weather, cover with straw or coarse litter. The plants will also do well if the seed is sown very early in the spring, and, like most salad plants, are greatly improved if sown on very rich soil; indeed, the ground can scarcely be made too rich for them.

Cress

Brünnenkresse, Ger. Cresson de Fontaine, Fr. Berro, Sp.

One ounce will sow 150 feet of drill

A popular salad which should be sown early in the spring, very thickly in shallow drills, and at short intervals, for succession, as it soon runs to seed.

This is a well-known hardy perennial, aquatic plant, growing abundantly along the margins of running streams, ditches and ponds, and sold in immense quantities in our markets in spring. Where it does not grow naturally, it is easily introduced by planting along the margins of ponds and streams, where it increases, both by spreading of the roots and by seeding. It has a particularly pleasant, pungent taste, agreeable to most people.

Two Varieties

True Water.—Sow seeds along the border of running water.

Upland Cress.—A perennial variety; hardy, produces well; same flavor as water cress. Grown on high, dry land; does not run to seed rapidly.

Cucumber

Gurken, Ger. Concombre, Fr.
Pepino, Sp.

One ounce will plant fifty hills; two pounds will plant one acre

Culture.—For very early cucumbers, sow April 1st, in a hotbed upon pieces of sod (grass side down), so that they can be readily transplanted to the open ground, in rich soil, when danger of frost is over, or protect by hand-glasses. For early use, plant, if the weather has become settled and warm, in hills 4 to 6 feet apart each way; thin out to four of the strongest plants to each hill, after all danger from insects is over. They succeed best in a warm, moist, rich, loamy soil. Continue planting at intervals for a succession. The cucumbers should be gathered when large enough for use, whether required or not; if left to ripen, it destroys their productiveness. For pickles, plant from June until the middle of July.

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The yellow-striped cucumber or squash beetle is the most serious insect enemy of this crop. Bordeaux Arsenate of Lead Mixture is by far the best remedy yet discovered. Dilute it with water, 3 ounces to the gallon, and spray it on the vines when in danger of the beetle or blight.

Two Varieties

The Davis Perfect.—For a number of years this variety was controlled by the originator, who states that he experimented several years in trying to get an improved strain of cucumber for forcing under glass and outside culture. The cucumbers grow long and slim, sometimes measure 12 inches in length; the color is a rich, dark, glossy green, which they hold until nearly ripe. It is very tender, brittle, and of fine flavor.

Everbearing.—This is a valuable variety, producing pickles and cucumbers until frost kills the vines. It is very productive; fruits of all sizes will be found on the vine at same time; size is small and well adapted for pickling.

Dandelion

One ounce will sow 150 feet of drill

In spring the blanched leaves of this plant make a most delicately flavored and wholesome salad. The seed may be sown in May or June, in drills half an inch deep, and 12 inches apart; thin out the plants to 6 inches; cultivate during summer and the following spring the leaves will be fit to cut. The quality is improved by blanching, which can be done by covering with leaves or other loose litter, or by placing a large inverted flower pot over each plant.

Two Varieties

Improved Thick-Leaved.—A very early, large-leaved variety.
Common.—A popular sort for greens and salads.

Egg Plant

Eierpflanze, Ger. Aubergine, Fr. Berengena, Sp.

One ounce will produce 1,000 to 2,000 plants

Culture.—Sow the seeds in hot-beds early in March. When 3 inches high pot the young plants, using small pots, and plunge them in the same bed, so that the plants may become stocky. They can be planted out from the pots when the season becomes sufficiently warm, in May or June. Egg-plant seed requires a higher temperature for germination than any other garden vegetable, and this temperature should be maintained right along in order to maintain strong and healthy growth. The soil can hardly be made too rich. After settled warm weather has set in, set the plants in open ground, al-

lowing 3 feet space between rows, and 2 feet space between the plants in the row. Watch for the potato beetle. This pest as well as blight may be controlled by spraying with Bordeaux Arsenate of Lead Mixture.

Three Varieties

New York Improved Large Purple.—This variety is largely grown and produces the egg plants in great quantities, as the plants bear from 6 to 8 fruits each. They are large, nearly round, dark purple, free of thorns and of excellent quality.

Early Long Purple.—Earliest and hardest, very productive; fruit 6 to 10 inches long.

Black Pekin.—Fruit purplish-black, round, large, solid, smooth and glossy; very prolific and early.

Endive

Endivie, Ger. Chicoree, Fr. Endibia 6 Escarola, Sp.

One ounce of seed to 300 feet of row

Endive is one of the best and most wholesome salads for fall and winter use. Sow in shallow drills in April for early use or for late use in June or July. When 2 or 3 inches high, transplant into good ground or thin out to 1 foot apart. When nearly full grown, and before they are fit for the table, they must be bleached. This is done by gathering the leaves together and tying with yarn to exclude the light and air from the inner leaves, which must be done when quite dry, or they will rot. Another method is to cover the plants with boards or slats. In three or four weeks they will be blanched.

Two Varieties

Green Curled Winter.—Standard sort for fall and winter crop; when tied up this variety blanches splendidly.

White Curled (Self-blanching.)—Leaves pale green, grows to a large size, always crisp and very tender.

Gourds

Sow in the garden, in late spring, after the ground has become warm. The plants are tender, requiring the same culture as squash or melon. Should be sown where they are to grow, as they do not transplant easily.

Two Varieties

Japanese Nest Egg.—Grows almost uniformly to the size, color and shape of a hen's egg. The shells are hard and make the very best of nest eggs, as they do not crack. The largest ones, when sowed in two, make excellent pots for starting tomato, strawberry and other plants.

Dipper.—Makes a lighter and more convenient dipper than can be bought. Dippers of various sizes of a capacity from a pint to a quart and a half, can be had from a few vines.

Curious Vegetables

The Iowa Seed Company, located at Des Moines, Iowa, suggests that exhibitors at agricultural fairs will aid in making the fair interesting by showing something new in vegetables unlike what the neighbor grows, including mixed peppers, gourds, kale, endive, egg plants, brussels sprouts, kohlrabi, okra, borecole, cress, dandelions, corn salad, chicory, celeriac, parsley, salsify, mustard and other plants not generally grown. Several of these are found in the list of vegetables shown in this volume.

Herbs, Sweet, Medicinal and Pot

The cultivation of herbs is very simple, and but little care is needed beyond keeping down the weeds. Sow in April or May, in drills 12 to 15 inches apart, and thin out the young plants where they stand too thick. Gather when just coming into bloom, tie in small bunches and dry in the shade.

Varieties marked with an * are perennials.

Anise.—Used for seasoning and garnishing.

***Balm.**—Leaves used medicinally.

Basil, Sweet.

Borage.—Leaves are used as a salad.

Catnip.—Good for bee pasture.

***Caraway.**—Seeds used medicinally and in bread.

Coriander.—Seeds used for flavoring.

Dill.—Leaves used with pickles, seeds for flavoring soups and vinegar.

Fennel.—Seeds for flavoring; leaves for garnishing.

Hops.—Used in making beer.

***Horehound.**—Has medicinal qualities.

Hyssop.—Used in medicine.

***Lavender.**—Its flowers are used in the manufacture of oil and distilled water.

Marjoram, Sweet.—Used for seasoning.

Rosemary.—Leaves used for seasoning.

Mint.—For soups, etc.

Rue.—Cures roup in poultry.

Saffron.—Used for coloring.

Sage.—Leaves are used in stuffing and sauces.

Savory, Summer.—Used for seasoning.

***Thyme.**—For seasoning.

Tobacco.—For smoking.

***Wormwood.**—Beneficial for poultry.

Kohl-rabi

One ounce will sow 200 feet of drill

This vegetable, the popularity of which is rapidly increasing, combines the virtues of the turnip and cabbage, but excels both in nutri-

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tive, hardy and productive qualities. The seed may be sown in June, in rows 18 inches apart, and the plants thinned out to 8 or 10 inches.

Two Varieties

Short Topped Early White Vienna.—The most desirable variety for forcing and early outdoor planting. Fine for table use.

Large White Vienna.—A large late variety, which remains tender longer than any other sort.

Leek

This belongs to the onion family. Leaves flat; stems very large, cylindrical, bulbous.

Sow early in spring in drills 12 to 15 inches apart, covering one-half inch deep. Thin plants to 6 inches apart in row and draw the earth about them when cultivating.

If one desires very white and tender leeks, transplant when about 6 inches high, setting 4 inches apart in trenches about 2 feet apart, and gradually earth up like celery.

Three Varieties

London Flag.—This variety is hardy, of good quality, and is extensively cultivated in this country.

Large American Flag.—A variety similar to, but larger than, the London Flag, and very popular. One ounce of seed to 150 feet of drill. This is the sort chiefly grown by market gardeners. It is of excellent quality, mild flavor and uniform.

Monstrous Carentan.—The very largest variety, often three inches in diameter, and becoming very white and tender. A very hardy and desirable sort, which is worthy of more extensive cultivation.

Lettuce

Lattich, odor Garten-Salad (Ger.),

Laitue (Fr.), Lechuga (Sp.)

One ounce will produce about 3,000 plants

Culture.—Sow the seed in hot-beds or flats during February or early March, prick the young seedlings out in flats or coldframe, several inches apart each way, and, as soon as a nice, rich, warm spot can be prepared in open ground in spring, transplant the well-hardened plants in rows a foot apart, allowing 8 to 12 inches space between the plants in the row. For succession sow seed thinly in open ground, and thin the plants to 5 or more inches apart. Sow for succession every few weeks until the fall. Some varieties do well in a cool forcing house during winter.

Two Varieties

Early White Cabbage (White Butter Lettuce).—A good variety for sowing in the fall, as it is nearly hardy and requires but little protection. Heads are very firm and nicely blanchet.

Black-seeded Tennisball.—Forms a close, hard head, with few outer leaves.

Musk Melon

One ounce will plant 75 hills

Cultivate in hills, which should be 5 to 6 feet apart each way, and composed of light, moderately rich soil. The hills should be dug about 2 feet square, 18 inches deep, and half filled with well-rotted manure, which must be thoroughly incorporated with the soil. Plant in May, 10 seeds to the hill, and when the plants are well up, thin out to three. Cultivate until the vines cover the ground, and pinch the ends of the growing shoots to induce early fruiting.

Three Varieties

Miller's Cream, or Osage.—A remarkably fine variety of large size and delicious flavor. The flesh is deep salmon color and very thick. A great favorite for the market and home garden.

Rocky Ford.—A very popular small melon, of a most delicious flavor.

Extra Early Hackensack.—The fruit is medium-sized, nearly round, and very thickly netted; flesh light green, of delicious flavor.

Mustard

Mustard is not only used as a condiment but the green leaves are used as a salad or cut and boiled like spinach. Sow as early in the spring as the ground will permit, in drills about eighteen inches apart, covering one-half inch deep. For succession, sow every few weeks 'till autumn. Water freely. In the South the seed may be sown in autumn and the plants used early in the spring as a salad and for greens.

Two Varieties

Ostrich Plume.—Leaves long, frilled, and curved gracefully as an ostrich plume; desirable for garnishing. Can be cut quite early; excellent for "greens."

Southern Giant Curled.—True curled leaf variety so popular in the South for planting in fall to furnish early spring salad; also fine for spring sowing.

Okra, or Gumbo

Essbarer Eibisch (Ger.), Gombaud (Fr.), Quimbombo (Sp.)

Culture.—This vegetable is extensively grown for its green pods, which are used in soups, stews, etc., to which they impart a rich flavor, and are considered nutritious. Sow the seed thickly in rich ground, about the middle of May, or when the ground has become warm, in drills 3 feet apart, 1 inch deep; thin to 10 inches apart in drills. Culture otherwise much like corn.

Two Varieties

Perkins' Long-Pod Okra.—An exceedingly handsome variety of okra, which is a great improvement upon other varieties heretofore grown. The pods grow 4 or

5 inches in length and are very tender, long, slim and of a beautiful deep green color. The habit of growth of plant is dwarf, and it is very productive.

Dreer's Little Gem.—The best of the dwarf sorts. It makes a stocky growth of plant and is very productive. The pods are long, slender and of a light green color.

Onions

One ounce of seed for 200 feet of drill; four to five pounds for an acre

The onion is most successfully grown in a rich, sandy loam. Continued cultivation upon the same plot of ground, contrary to the general rule, rather improves the crop than otherwise.

As early as the ground can be worked in the spring, sow the seed in drills 14 inches apart, covering half an inch. When the plants first appear in the rows, commence hoeing, just skimming the surface. Subsequently, weed thoroughly and carefully by hand. When the tops die, pull the onions and spread evenly over the ground; stir or turn until thoroughly dried, then cut the tops off one-half inch from the bulb. Winter in a frost-proof place.

Globe onions are preferred by some growers to those of any other shape. Such onions do not occupy any more space in the row; their size and solidness make them weigh out and measure more, and their attractive appearance finds for them ready sale in nearly all markets.

Two Varieties

Barnard's Yellow Globe.—This is a superb onion for all classes of soil (well enriched) on account of its quick maturing qualities, and especially good for muck lands. The onions from this strain of seed ripen early and all at once. They are distinct and perfect in shape, with very small necks; handsome, bright, even color. The firm solid bulbs are all that can be desired in size and quality. Being excellent winter keepers, they are sought in all onion markets.

White Globe.—One of the most beautiful globular, mild flavored onions. A favorite for market; salable everywhere. It is of very large size, and of fine quality.

Onion Sets

For early onions for bunching; ready for table in a very few weeks. It is cheaper to grow from seed but considerable work to weed, and many prefer to buy sets.

Four Varieties

Potato Onion Sets.—A species of Multiplier onion, increasing from bulb early; matures quickly; mild.

White Multiplier Onion Sets.—Pure silvery white; frequently producing as many as twenty bulbs in a single cluster; excellent quality; very early.

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

ARTICHOKE

ASPARAGUS

BEANS

BEET

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

BORECOLE OR KALE

BROCOLI

BRUSSELS SPROUTS

CABBAGE

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

CARROT

CAULIFLOWER

CELERY

CELERIAC

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HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

CHICORY

CITRON

COLLARDS

CORN

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HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

CORN SALAD

CRESS

CUCUMBER

DANDELION

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HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

EGG PLANT

ENDIVE

GOURD

HERBS

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KOHL RABI

LEEK

LETTUCE

MUSKMELON

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HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

MUSTARD

OKRA

ONION

PARSLEY

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

PARSNIP

PEAS

PEPPER

PUMPKIN

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

RADISH

RHUBARB

RUTABAGA

SALSIFY

Forty Varieties of Garden Vegetables

HOW TO PLANT AND CULTIVATE EXPLAINED ELSEWHERE IN THIS VOLUME

SQUASH

TOMATO

TURNIP

WATERMELON

Forty Varieties of Garden Vegetables. How Plant and Cultivate

Red Top Sets.—Commonly known as Button onion sets.

Perennial or Winter Sets.—Also called Egyptian or Tree onions. Usually set in fall; produce earliest spring onions without winter protection. Do not make large bulbs.

Parsley

Petersille (Ger.) Persil (Fr.),
Peregil (Sp.)

Culture.—Used for garnishing and seasoning soups, meats, etc. Succeeds best in a mellow, rich soil. Sow thickly early in April in rows 1 foot apart and $\frac{1}{2}$ inch deep; thin out the plants to stand 6 inches apart in the rows. The seed is slow of germination, taking from three to four weeks to make its appearance, and often failing to come up in dry weather. To assist its coming up quicker, soak the seed a few hours in warm water, or sprout in damp earth, and sow when it swells or bursts. For winter use protect in a frame or light cellar.

Three Varieties

Dreer's Summer Green.—Well adapted for growing during the hot summer months. It holds its color late.

Dwarf Extra Curled Perpetual.—Leaves tender, crimped and very curly, of a bright green color.

Fern Leaved.—A fine-leaved variety, excellent for garnishing.

Parsnip

Pastinake (Ger.), Panais (Fr.)

One ounce will sow about 150 feet of drill

The value of the parsnip as a culinary vegetable is well known but is not generally appreciated at its full value for stock feeding. On favorable soil it yields an immense crop of roots, more nutritious than turnips and very valuable for dairy stock.

Parsnips are usually grown on deep, rich, sandy soil, but will make good roots on any soil which is deep, mellow and moderately rich. Fresh manure is apt to make the roots coarse and ill shaped. As the seed is sometimes slow and uneven in growth, it should be sown as early as possible in drills two and one-half feet apart; cover one-half inch deep and press the soil firmly over the seed. Give frequent cultivation and thin the plants to six inches apart in the row.

One Variety

Hollow Crown or Guernsey.—An excellent variety for the table. Roots long, with smooth white skin, uniform in shape, tender and of the best quality. The variety is easily distinguished by the leaves growing from the depression on top or crown of the root.

Garden Peas

Erbsen (Ger.), Pois (Fr.),
Chicaros o Ginsantes (Sp.)

One quart will plant about 100 feet of drill. One and one-half to two bushels for an acre.

Culture.—Peas of extra early, smooth class are the very first thing to be planted in the garden in spring. The wrinkled sorts follow a little later, as they are not quite so hardy. Tall late varieties need brush or other support. By selecting sorts that do not grow much over two feet high, the necessity of providing brush may be avoided. Judicious selection of varieties and planting frequently for succession will give us a full supply of the choicest green peas almost during the entire season, with the possible exception of the hottest part of the summer. Open furrows three or four inches deep and three feet apart; scatter the seed peas into them and cover with hoe or plow. Cultivate like corn or beans. The late tall sorts may be planted in double rows and brush stuck in between for support. All garden peas, however, require good, strong and fertile land. Heavy yields cannot be obtained on poor soil. The very dwarfest sorts of the American Wonder type will succeed only on the very richest garden land, and may be planted in rows a foot apart.

Extra Early Varieties

Ferry's First and Best.—The earliest and most even strain of white, extra early peas, maturing so well together that sometimes a single picking will secure the entire crop. Vines vigorous and hardy, of medium height, about two and one-half to three feet, bearing three to seven straight pods of good size, about two and one-half to two and three-fourths inches long, each containing five to seven medium sized, smooth peas of fair quality.

Early Morn.
Market Surprise.
Sutton's Green Gem.
The Leader.

Pepper

Pfeffer, Ger. Piment, Fr.

It will require one ounce of seed for 1,500 plants

Peppers are indispensable as a seasoning for soups and meats. The large varieties are mainly used for the purpose, and for pickling. The mild, sweet varieties, like Golden Dawn and Ruby King, are used for mangoes, while the small-fruited sorts are best for sauces.

Peppers are more tender than most vegetables. The seed should be sown in a hotbed, cold frame, or if no other convenience a box in the window, and transplanted about the last of May. They can

be sown in the open ground when the weather becomes warm and settled. Warm, mellow soil, well fertilized, should be used.

Two Varieties

Chinese Giant Pepper.—This desirable variety is undoubtedly the largest sweet pepper ever offered. The flesh is quite thick, very mild and remarkably sweet.

Giant Crimson.—This new pepper is of upright growth, and produces fruits nearly as large as Chinese Giant. It ripens early and is very mild.

Pumpkin

Grosse-Kürbis, Ger. Potiron, Fr.
Calabaza, Sp.

One ounce of seed for 25 hills, three pounds for an acre

Culture.—Sow in good soil in May, when the ground has become warm, in hills 10 feet apart each way, or in fields of corn about every fourth hill; plant at the same time with the corn. Pumpkin varieties if planted together will mix. There is not much danger of their mixing or hybridizing with squashes or other vines.

Two Varieties

Winter Luxury Pumpkin.—A very good keeper and a splendid pie pumpkin; shape round, skin finely netted, and beautiful russet-yellow color; flesh thick and of fine flavor.

Sugar, or New England Pie.—For making pies this variety cannot be excelled. The pumpkins are small, but very sweet, fine-grained and of the best quality. The skin is a deep orange and flesh rich yellow.

Radish

Radischen, Rettig (Ger.), Radis,
Rave, Petite Rave (Fr.),
Rabana (Sp.)

One ounce of seed will grow 100 feet of drill

Culture.—Sow early and often. In good, warm, fibrous loam, especially if quite sandy, summer radishes will make a crop in 4 to 6 weeks from sowing. The soil should be well prepared, and fertilizers may be used freely. Have the rows a foot apart, and sow just seed enough so they will not require thinning. Any little spot that becomes available during summer may be utilized for planting radishes. The short or turnip-rooted sorts are quickest and easiest to grow, and good for forcing also. On greenhouse bench or in frames the rows need not be more than 4 inches apart. Sow winter radishes in July and August. They grow best in the cooler autumn weather. Take them up before severe freezing and store in sand in the cellar, or in a pit, where they will keep tender and crisp all winter.

Forty Varieties of Garden Vegetables. How Plant and Cultivate

A Profitable Crop.—Farmers' boys can make money easily and very quickly by sowing an ounce or two of radish seed. It is surprising how many bunches can be sold at five cents each from the little garden plot. Only four to five weeks required from sowing to selling. Try it and see.

Five Varieties

New Perfection. Crimson Globe.

Cardinal Globe.—Those who like the crisp little red radishes that come so early will be pleased with this variety. The radishes grow globular in shape, and are of a most brilliant cardinal-red color. It will stand considerable heat; therefore it is a quick forcer, and the quality is fine, being crisp and tender. It is by far the best variety for forcing, and also does well in open ground.

Early Bird.—Decidedly the earliest of radishes. Quick growth is one of the main essentials for a crisp and tender radish, and with loose soil and proper culture the Early Bird is ready for the table in twenty days from the time of sowing the seed, which makes it one of the most desirable sorts ever offered for either forcing or outdoor culture. It is of round or turnip shape as shown in our illustration, of bright scarlet color and pure white flesh, which is tender, crisp and of the very best flavor. It has few and short leaves, which admits of very close growing, thus producing a large number of bundles of radishes on the same ground. Very desirable for the home garden and money maker for the market gardener.

Early Scarlet Gem.—An extremely early variety which has matured fit for the table in seven-teen to twenty days from the time of sowing the seed and is fully grown in less than four weeks. It is of a perfect globe shape, and of a bright, rich scarlet color, tipped with white, thus making it particularly handsome on the table.

Rhubarb

Rhabarber (Ger.), Rhubarbe (Fr.),
Ruibarbo (Sp.).

One ounce of seed to 125 feet of drill

Culture.—Good plants are easily grown in any good garden soil. Sow seed thinly in shallow drills a foot apart, thin to 4 or 5 inches. Keep soil loose and free from weeds. The plants are liable to vary considerably. Pick out the strongest and best. In fall or spring following, transplant to the permanent bed, four feet apart each way, in deep, warm and very rich soil. The more manure the better stalks. For winter forcing take up two-year roots in fall, leave out to freeze, then bed close together on cellar bottom or under greenhouse bench in the dark.

Two Varieties

Linnaeus.—Early, large, tender and very fair.

Large Victoria.—A very large, late variety.

Rutabagas

Largely grown in the north for stock feeding, and for this are superior to turnips. Sow not later than June in drills two feet apart and thin out to eight inches in the row.

Four Varieties

American Purple Top.—Deep purple above, yellow underneath; flesh yellow, solid and sweet. Good for stock or table use.

Monarch.—A superior variety to cultivate for cattle feeding, the flesh being nutritious.

Skirving's Purple Top.—Flesh yellow. Good keeper.

White Swede or Russian.—Grows very large; excellent for table or stock; flesh firm, white, solid, has a very rich and sweet flavor.

Salsify

Or Vegetable Oyster

Hafer-Wurzel (Ger.), Salsifis (Fr.),
Ostien Vegetal (Sp.)

One ounce for 50 feet of drill

Used the same as carrots, or, after having been boiled, made into cakes and fried like oysters, which they resemble in flavor.

Culture.—Cultivate the same as carrots or parsnips; it is hardy; can remain in the ground all winter for early spring use, but should be taken up before it starts growing; take up a supply for use during the winter. Succeeds best in a light, well enriched, mellow soil. Sow early in the spring in drills 12 to 15 inches apart, 1 inch deep; thin, if necessary, to 6 inches apart.

Two Varieties

Mammoth Sandwich Island.—This variety of salsify grows to a very large size, and resembles a good-sized parsnip. It is very mild and delicately flavored, and very popular.

Long White.—A favorite market variety and fine flavored.

Squash

One of the most nutritious and valuable of garden vegetables. The summer varieties come to the table early in the season, while the fall and winter sorts can be had from August until the following spring. The winter varieties are very well adapted for stock feeding and we heartily recommend them for that purpose.

Squash plants are very tender and sensitive to cold and so planting must be delayed until settled warm weather. General methods of culture are the same as for cucumbers and melons, but squash is less particular as to soil. Summer varieties should be planted four to six feet apart each way and winter sorts eight to ten. Three plants are sufficient for a hill. In gathering the winter sorts care should be taken not to bruise or break the stem from the

squash, as the slightest injury will increase the liability to decay. Winter squashes should be stored in a moderately warm, dry place and the temperature kept as even as possible. For those who desire very early squashes, seed can be planted in boxes, and transplanted.

Insect pests that attack the vines when small, such as the striped beetle, may be kept off by frequent dustings with air-slaked lime, soot, or sifted ashes diluted with fine road earth. For the large squash bug, the best remedy is a kerosene emulsion.

Five Varieties

No. 1, True Hubbard; No. 2, Blue Hubbard; No. 3, Warted Hubbard; No. 4, Red Hubbard.

Delicious.—This fine squash has proved to be a most desirable new winter variety. Color of the skin is green, with an occasional blue specimen, about the same size as the Hubbard, weighing 5 to 10 lbs. Has very thick flesh, cooks dry and is of superior flavor. Although a good fall variety it is in its best condition during the winter.

Early Prolific Marrow.—Early and productive, the two most important features for the market gardener, while its attractive color—brilliant orange red—good cooking and keeping qualities, make it popular with consumers.

Tomatoes

Liebesapfel (Ger.), Tomate (Fr.),
Tomate (Sp.)

Use one ounce of seed for 1,500 plants; one-fourth pound to transplant for an acre

The tomato is very easy to grow as an outdoor crop, requiring little or no expert knowledge. Any fairly enriched garden soil will produce good specimens. For the early crop the seed is usually sown about March 1, in shallow boxes, in a greenhouse, a hotbed or a sunny window where the temperature ranges from 65 degrees at night to 80 degrees in the daytime. The seed should be covered about one-fourth of an inch. When the plants are about 1 inch high, transplant into boxes of soil 3 inches deep, the plants 2 inches apart, and keep at an average temperature of 60 degrees, where they may remain until time for planting in the field. If a few plants are grown for home use and early fruit is desired, then shift the necessary number of plants into 4-inch pots when the plants are about 6 inches high, using a very rich soil. By this method strong, stocky plants may be had for planting out about May 20, which is as early generally as it is safe to do it. Should the thermometer fall below 40 degrees at night after planting, cover the plants with plant protectors, taking them off in the morning when the thermometer is above 40 de-

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greens. A very rich soil is not desirable for tomatoes, as, if too rich, the fruit does not set as early or as bountifully as in a moderately rich soil; however, there should be a fair coat of well-rotted stable manure spread on the soil and plowed or dug under prior to setting the plants and then thoroughly harrowed. Take the plants from the boxes with the least disturbance of the roots possible. With an ordinarily loose soil in the boxes, the plants can be pulled apart without breaking many roots, but take the entire contents of the boxes out first, using a spade for that purpose; this renders it easier to accomplish. Plant in rows 3 to 4 feet apart and the same distance in the rows. All that now remains to be done is hoeing and cultivating occasionally, allowing no weeds to grow. In garden culture supports for the vines are desirable. The simplest way to train the vines is by driving a stake, say 6 feet long by 2 inches square, about 4 inches from each plant, which, when 1 foot high, should be tied loosely to the stake with some soft twine, and thus continue to tie at intervals of 1 foot as the plants grow. Grow to a single stem and cut off all superfluous side shoots at intervals. During the season cut out all growths which exclude sunlight from the fruits; it will repay the trouble taken to do it. To grow the large specimens all that is necessary in addition to the method just described is, plant the "Ponderosa" or "Crimson Cushion." When the fruit begins setting pinch off all fruits excepting 3 or 4 on each vine. At this period give two or three liberal applications of some reliable garden fertilizer for vegetables, at intervals of two weeks, hoeing it well into the soil. Very large, handsome specimens can be grown in this way. The late summer and early fall crop is often grown by sowing the seed about May 10 in land carefully prepared and properly enriched, in hills 3 or 4 feet apart. It is customary to drop from 8 to 12 seeds in a hill and when about 6 inches high, thin out to one plant in each hill, taking care to keep hills free from weeds. The cultivation used for this crop is the same as employed for the early crop.

Five Varieties

Ponderosa—The Giant Tomato.—This is the largest-fruited tomato and is of fine quality for slicing. The vines are of strong growth; fruits largely oblong in form, deep through, and generally ridged or ribbed; deep purple in

color. They are solidly fleshy, with small seed cells; of fine sweet flavor. Planted in good soil, pruned to a single stem, fruits frequently attain a weight of one pound or more.

Tall Champion Tomato.—An unusually strong, rank grower and a heavy bearer. The fruits resemble the Dwarf Champion in color and smoothness, although they run a little larger in size. Fair average size of the fruit is 2¼ inches thick and 3¼ inches broad. Very hardy. It is also extremely prolific and certainly one of the most desirable sorts for the private garden and market use.

Two Peach Tomatoes.—They resemble a peach in shape and color. They are eaten raw or preserved. Each red or yellow.

Yellow Plum.—The fruits average 2 inches in length and 1 inch in diameter, of a bright lemon-yellow; are solid, fleshy and of excellent flavor.

Henderson's "Tenderloin" Tomato.—A sturdy, healthy grower; it ripens its first fruits immediately following those of the early sorts, and from that time until frost it is practically ever-bearing, yielding enormous quantities of tomatoes.

The fruit is borne in clusters of from 4 to 6; the individual fruit, 4 to 5 inches in diameter, run remarkably uniform in size and shape, being almost round, solid, and weigh about 1 lb. each; the surface is smooth, never cracks and the rich glossy crimson color permeates the flesh to the heart; it ripens thoroughly to the stem.

Turnip

Steckrübe (Ger.), Navet (Fr.), Nabo Coman (Sp.)

Allow one ounce of seed to 150 feet of drill; sow one to two pounds per acre in drills

Turnips do best in highly enriched, light, sandy or gravelly soil; commence sowing the earliest varieties in April in drills, from 12 to 15 inches apart, and thin out early to 6 or 9 inches in the rows. For a succession, sow at intervals of a fortnight until the last week in May for early crop, and from August to September for late. August sowings may be made for the fall and main crops. Turnips may be preserved until spring by cutting off the tops about 1 inch from the bulb and storing in a cellar or cool shed during winter, covering the roots with dry sand; they should be harvested before severe frosts set in, for, though comparatively hardy, few of the varieties will survive the winters of the Northern States in the open ground.

Four Varieties

White Milan.—Earliest of all turnips. Best quality in its class. Fine snowy white color. The skin is smooth and neat as if polished. Foliage is short. Medium size, flesh white, tender and smooth

grained. Can be used spring or fall.

Purple Top Milan.—(See Illustration.)—Almost in season with White Milan, the earliest; size medium; shape flat; skin very smooth. Surface color is white with a purple white top. White flesh, excellent quality. Very even in growth.

Early Purple Top, Strap Leaved.—This is a popular early variety, week or so later than Milan, favorite for table use. Flat like a broad disc in shape, medium size. Purple or dark red above ground, white below. Flesh white, fine-grained and tender, leaves few, entirely upright in growth. A good keeper.

Early White Flat Dutch.—Early garden variety, largely used in Southern states. Medium size, flat white; very early; sweet and tender; desirable for table use, but spongy and inferior when overgrown.

Water Melon

One ounce of seed is required for 40 hills; three pounds will plant an acre

A light, sandy soil, with good exposure to the sun, is the best for watermelons. It should be prepared deep, but receive shallow cultivation. Hoe often and thoroughly. Plant in hills 8 to 10 feet apart each way. Plant 8 to 10 seeds in a hill, and finally, when danger of insects is past, leave but three strong plants.

Four Varieties

Cole's Early.—Decidedly the finest variety for the private garden, but is too brittle for long shipments. It is very early and will mature farther north than most other sorts. Of medium size, very productive, continuing to bear throughout the season. Flesh of bright red color, of granulated, sparkling appearance. In flavor lusciously sweet and refreshing. One of the best early melons and is specially valuable for growing for home market, as it matures in advance of other sorts and has the form and color that recommend it to buyers.

Fordhook Early.—Large early sort. From seeds planted May 10, ripe melons have been produced the last of July. The rind is tough, making it valuable for shipping. Color is uniform medium green; flesh red, very sweet, solid, and of excellent quality. In markets where a solid green color is preferred the Fordhook will be a favorite.

Kob's Gem.—For many years a favorite sort among Northern market growers. On account of its excellent shipping qualities it is extensively grown for that purpose. Nearly round; color a dark green with lighter narrow stripes. Very thin rind; flesh bright red, good flavor.

Long Light Icing.—An old standard variety, still highly regarded by market growers. It is a melon of splendid quality with the attractive bright red flesh so desirable. The fruits are large, oblong in shape, with light colored rind, making it distinctive.

ONE HUNDRED VARIETIES OF FAVORITE FLOWERS

How to Plant and Cultivate

BLOSSOMS IN COLORS SHOWN ON FOLLOWING PAGES

Abronia

Umbellata

Trailing plants with verbenalike flowers; long green oval leaves and fleshy stem lying prostrate on the ground. Very fragrant and a long time in bloom. Half-hardy annual, 6 to 18 inches high.

Culture.—Remove the husk from the seed before planting and transplant to a foot apart. They may with profit be started in a hotbed or frame and transplanted to any desired situation. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Acroclinium

Helipterum Roseum

This is one of the most beautiful of the everlasting flowers. It is of strong growth and bears a great number of pink and white daisy-like flowers. Should be picked the first day they open to secure a bright center when dried. 18 inches high. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Adonis

Pheasant's Eye

Plants with fine graceful foliage and brilliant flowers, remaining in bloom throughout the summer. Delight in a shaded position. Hardy annual, 1 foot high.

Culture.—Seeds should be planted in the autumn, as they will stand the winter well, and they are a long time in coming up. If started in-doors, young plants can be transplanted to the open as soon as warm weather appears.

Ageratum

Conyzoides

A very beautiful Mexican flower of a delicate, brush-like appearance; very attractive in the garden. They bloom all summer, and if sown in fall will give winter bloom under glass. Keep a foot apart. Annual, 1½ feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. The soil should be well pulverized and rich.

Alyssum

Maritimum

A low-spreading, light green plant with small white flowers of a peculiar delicate fragrance. Most effective in masses of plants 1 foot apart. Hardy annual. Grows 1 foot high.

Culture.—Sow out of doors after danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Amaranthus

Candatus

Foliage brilliantly ornamental, producing a striking effect in the border, as a background, or as centerpiece for beds, and is the peer of variegated-leaved plants. Annual. Should be thinned to 3 feet apart. Two to 3 feet high.

Culture.—Seeds should be sown early in a warm hot-bed; when started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Ampelopsis

A well-known, popular climbing plant, clinging to any surface and growing to a height of 30 to 50 feet. Foliage beautiful in autumn. Plant early in spring in hot-bed and transplant when well established to the place where it is to grow.

Antirrhinum

The antirrhinum, perhaps better known by its old and popular name, snapdragon, is an old favorite border plant. Succeeds best in dry, loamy soil. Tender perennial, 2 feet high.

Aster

The aster is considered the queen of all fall flowers. For beauty and variety of form and color it is unrivaled, and of all flowers is best adapted to win the admiration of all lovers of floral beauty. Set a foot apart. Height 1½ feet. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich well-pulverized, garden soil should be prepared for them.

Bachelor's Button

Centaurea Cyanus

Old-fashioned, but one of the most popular. Its slender branching stems bear enormous heads of bright flowers, which bloom until frost and come up in the spring from self-sown seed. Annual, 1 foot high.

Culture.—To get good plants for setting out, seed should be sown in January or February, in window boxes or green-house, young plants can be transplanted to the open as soon as warm weather appears.

Balsam

Lady Slipper

An old and favorite garden flower, producing its gorgeous masses of beautiful, brilliant-colored double flowers in the greatest profusion. Half hardy annual, 2 feet high.

Culture.—Careful growers never use seeds less than three years old. Plant in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather comes.

Balsam Pear

Charantia Balsamina

Very curious, rapid and dense climber with ornamental foliage. Its large, golden yellow fruit opens when ripe and displays its brilliant blood-red inside. Hardy annual, 10 feet.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Bartonia

Bartonia Aurea

Bartonia aurea is a very showy, half-hardy annual from California. The leaves are somewhat thistle-like in appearance, gray and downy. The flowers are of a very bright metallic yellow and exceedingly brilliant in the sunshine. It likes considerable moisture.

Begonia

One of the leading and most beautiful window plants. Are of easy culture and produce a profusion of elegant flowers. Seeds are fine and require care in sowing.

Succeeds best with greenhouse culture, and needs to be grown in loam, peat and sand mixed.

How Grow One Hundred Varieties of Favorite Flowers

Browallia

A favorite, profuse-blooming plant covered with beautiful flowers during summer and autumn until frost. In transplanting keep a foot apart. Annual, 1½ feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in window-box or hot-bed, transplant into similar boxes when the seedlings have formed two or three leaves. They may be finally transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Calacia

A very pretty and showy plant with flowers borne in clusters on slender stalks about a foot in height. They keep in bloom from early summer until autumn, furnishing flowers for cutting every day. Annual, 1½ feet high.

Culture.—Can be grown readily from seed sown where the plant is wanted to grow, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Calendula

Officialis

(Pot Marigold)

One of the easiest grown, brilliantly showy, and free-flowering plants, producing a fine effect in beds or borders. Blooms all the time; fine for cut flowers. Hardy annual, 1 to 2 feet high.

Culture.—Sow the seeds out of doors, in a rich soil, after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears.

Calliopsis

Or Coreopsis

Showy and free-flowering plants, blooming all summer and excellent for cutting and massing. Annual, 1 to 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Canary Bird Vine

Tropaeolum Peregrinum

A beautiful climber, the charming little canary-colored blossoms bearing a fancied resemblance to a bird with its wings half extended. Grows to a height of 20 feet. Annual.

Culture.—Seeds should be started in-doors, young plants can be transplanted to the open as soon as warm weather appears, and

placed near some trellis or other support, which they will soon cover.

Candytuft

Hardy

A handsome, compact-growing plant and considered the best spreading dwarf plant with white flowers. Now developed in tints of pink and blue. Well adapted for permanent front rows of borders, clumps or beds. Few hardy plants will give as much satisfaction as this little gem.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Canna

Stately plants with foliage of elegant growth, presenting a luxurious and tropical appearance. Much employed in ornamental planting, and are very effective planted in clumps. Height 3 to 5 feet. Annual. Keep a foot apart.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best. Soak seed thoroughly in warm water before planting. The roots can be kept in the cellar over winter.

Canterbury Bell

Campanula Medium

This old-fashioned flower is a favorite with all. A free bloomer with flowers large and bell shaped. Borne on stately stalks. One to 4 feet high. Biennial. Thin to 12 inches apart.

Culture.—The seed should be planted early in spring, in open ground, and will blossom before fall. The plants will bloom again the following year, but the young plants bloom best and seed should be sown every spring.

Carnation

Marguerite

These are a comparatively new class of carnations. They are highly prized for massing in summer beds, and their perfect form, beautiful shades of color and lavish profusion of bloom continue till frost, or continue in-doors. Semi-dwarf, 10 to 15 inches high. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Catchfly

Silene Armeria

An easy-growing, free-flowering plant, producing dense clusters of blossoms. The plant is covered with a glutinous moisture from which flies cannot disengage themselves, hence the name. Hardy annual, 1 foot high.

Culture.—Sow out of doors when danger from frost is over. They can also be sown in shallow boxes (2 inches deep) in the green-house, hot-bed or light window of dwelling, if desired early, and transplanted to flower beds at the beginning of warm weather.

Celosia

Feathered

Annual plants of tropical origin and one of the most showy for garden decoration. Half hardy; should not be sown till warm, settled weather. Of easy culture.

Centranthus

The flowers of the centranthus are small, borne in clusters on light green, transparent stems. They form beautiful masses or borders, and for cutting, for bouquets or other floral work are excellent. Annual, 1 to 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Chrysanthemum

These showy and effective garden varieties are extensively grown for cut flowers. The foliage is ornamental and finely cut. They grow 16 to 18 inches high and blossom in fall. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. If possible plant in a warm, sheltered spot, since they will bloom up to November.

Clarkia

A very bright and attractive flower which is a great favorite in England. Blossoms are borne on long, graceful sprays and are especially valuable for cut flowers, as all the buds open in water. Hardy annual, 1½ to 2½ feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

How Grow One Hundred Varieties of Favorite Flowers

Clematis

These flowering vines are universally admired for their quick growth, fragrance and superb blossoms; fine for trellises, arbors, and rockwork. Transplant in the open ground in early summer. Hardy perennial.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Mixed Climbers

A mixture of many varieties of climbing plants which will produce the most gorgeous effect. When the space to be planted is limited this will save expense in purchasing so many varieties. Plant in spring where they are to remain; the soil should be rich and deep.

Clintonia

Hardy annual. Dwarf growing plants for summer use, of all shades of color. Well suited for rockwork, etc. Six inches.

Cobœa

Scandens

A fine climber with handsome foliage and large, bell-shaped flowers. Always clean of insects. Place seed edge down. Grows 15 to 20 feet. Annual.

Culture.—Seeds should be sowed in March, in light, rich soil, over gentle heat, a sunny window with south or southeast exposure is excellent. The seedlings potted in small pots and when about a foot high planted out of doors.

Cockscomb

Celosia Cristata

Highly ornamental plants producing crested heads of flowers somewhat resembling a cock's comb. Plenty of moisture and frequent transplanting is important. Should be 3 feet apart. Half-hardy annual, 1 to 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Coleus

The elegantly marked leaves of the coleus are now familiar to all, and are seen in almost every bed of ornamental-leaved plants. To have fine plants by the last of May, seed should be sown during

March or early in April, in shallow boxes of rich soil, in the sunny window of a warm room, and the young plants grown in pots as soon as they are large enough to transplant from the seed-boxes.

Columbine

Aquilegia

One of the most popular perennials, easy of cultivation and flowering from early summer until frost. Very desirable for borders and groups among shrubbery. One to 3 feet high.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Convolvulus

Minor

Dwarf Morning-glory

This is a dwarf species of the old-fashioned morning-glory. Of trailing habit, each plant covering about 2 feet. Very useful for low trellises or rockwork. Hardy annual, 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Cosmos

Compositae

None of our autumn flowers are more prized than these graceful and brilliant garden plants. It has long stem and feathery foliage, and continues to blossom in fall till freezing weather. Four to 5 feet high. Annual. Keep about 18 inches apart.

Culture.—Seeds may be planted in the open ground in the autumn if the young plants can be protected during the winter. If started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Dahlia

In the Dahlia are combined more desirable qualities than almost any flower grown in open ground. Produces blossoms of every color and combination from early summer till frosts, and is unsurpassed as a cut flower. Half-hardy perennials growing from 4 to 6 feet.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Datura

Trumpet Flower

Very large, showy, branching plant bearing large trumpet-shaped flowers about the size of a calla lily and having a faint perfume. Grow about 3 feet high. Hardy annual. They need lots of room, at least 2 feet each way.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Dianthus

Or Pinks

A great variety of rich, brilliant colors, shades and markings; plants in bloom constantly from early summer till after severe frosts. Twelve to 18 inches high. Annual.

Culture.—Sow seed out of doors after danger from frost is past. For early flowering seedlings can be started in-doors; young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Double Daisy

Bellis Perennis

Charming little plants for pots, borders and edgings. The flowers are abundant during the spring and continue blossoming all summer. Height about 6 inches. Keep about 6 inches apart. Perennial.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Eschscholtzia

California Poppy

A most popular garden flower, very attractive as an edging because of its bluish foliage. It stands considerable cold and blooms after the first frosts, but does not bear transplanting well. Height 10 to 20 inches. Hardy annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Forget-Me-Not

Myosotis Alpestris

The forget-me-not is an old favorite plant, bearing clusters of star-shaped, delicate blue flowers. Plants 3 to 8 inches high. Hardy perennial.

How Grow One Hundred Varieties of Favorite Flowers

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Four O'Clock

Mirabilis Jalapa

A very handsome, erect, bushy, quick-growing herb, bearing very profusely in late summer and fall. The flowers open in cloudy weather or late afternoon and close in the morning. Two feet high. Annual.

Culture.—The seeds should be planted in May where they are to grow. Or if started under glass they may be transplanted out of doors in May along with dahlias. In the late fall their tuberous roots should be taken up for planting the next year.

Fox Glove

Digitalis

A very beautiful and interesting old-fashioned plant whose culture is very simple. The bell-shaped flowers borne on long spikes make an exceedingly handsome and stately border. Keep plants 2 feet apart. Height 3 to 5 feet. Hardy biennial.

Culture.—The seed should be planted early in spring, in open ground, and will blossom before fall. The plants will bloom again the following year, but the young plants bloom best and seed should be sown every spring.

Fuchsia

Well-known plants of easy culture in pots for parlor or conservatory decoration, or in the open border; easily grown from seed. The seed is very fine and needs careful handling. Sow in finely prepared soil and transplant afterwards.

Gaillardia

The flowers are some 2 or 3 inches across, semi-globe-shaped, dense, and therefore very showy. It is a valuable and beautiful addition to the hardy border flowers. Good bedding annuals. Constant bloomers. Set plants 12 to 18 inches apart.

Geranium

Pelargonium

These universally admired plants are easily grown from seeds and bloom the first season. Their brilliancy and succession of bloom, together with their marking, make them invaluable for either beds or pot culture. Half hardy perennial, 1 to 2 feet high. Will not winter out of doors in the northern states.

Culture.—Easily grown from slips but seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Gladiolus

Gladiolus, Different Sorts

For best results they should have a sunny position, a loam suits them best, but they do equally as well in clay if there is perfect drainage. Well-rotted stable manure is a good fertilizer, and where convenient it should be spread over them in the fall, and dug in the following spring. Sheep manure is an excellent substitute, and can be applied in the spring. The time to plant is about the first of May, putting in the small bulbs first, and reserving the larger bulbs for later planting. A succession of bloom may be had from July to October by having plantings two weeks apart up to the end of June. To have a good show they should be planted from three to four feet apart each way. The depth to plant is regulated by the size of the bulb, the large bulbs being covered about six inches, the smaller ones from three to four inches.

After they have flowered and the foliage begins to turn yellow, which is usually along about the beginning of October, lift the bulbs, cutting off the stems, placing them in trays or shelves in an airy cellar or some such place, where the temperature will not fall below 45 degrees, or rise over 60 degrees. In such a position they will keep perfectly until time for resetting the following season.

They are very effective in lines or beds or when planted among Roses, Peonies, Shrubbery, etc.

Globe Amaranth

Gomphrena Globosa

Everlasting Flower

An excellent everlasting, or immortelle; flowers globe shape, purple, orange, and variegated. Retain their shape and color when dried; are also good for cutting as fresh flowers. Height, 18 inches.

Culture.—Sow in boxes, in a warm place; soak the seed in warm water a few hours before sowing; transplant to one foot apart.

The flowers should not be picked for drying until they are fully matured the last of summer.

Godetia

A beautiful new variety; the plant of neat, dwarf, compact habit, with a profusion of rich

carmine-crimson flowers, produced in a succession of bloom through the summer, until frost.

Culture.—Sow in finely prepared soil, in the garden, late in spring; transplant into good soil, about eight inches apart.

Gypsophila

Height one foot

Small, white, fragrant flowers, borne on long, feathery stems. No flower adds more of light and grace to a bouquet than this, and when once grown, will be found indispensable. In bloom through the summer from the first of July till frost. Although not belonging to the Immortelle class, the flowers dry finely, and are very desirable for winter bouquets.

Culture.—Sow in open ground, early, and transplant to six or eight inches apart, in common soil.

Helichrysum

Ornamental in the garden and desirable for winter bouquets.

Heliotrope

A well-known and popular plant, fine for bedding, vases and baskets, and exquisite for pot culture in winter. Flowers borne in trusses and exceedingly fragrant. 6 to 18 inches high. Half-hardy perennial.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Hibiscus

Tall growing branching plant of the easiest culture with handsome foliage and large bell-shaped flowers, measuring from 5 to 7 inches across. Blossoms all season. Height 4 to 5 feet. Keep a foot apart. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started indoors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Hollyhock

Althea Rosea

The hollyhock is an old garden favorite. The tall stately spikes bear immense quantities of blooms of the most brilliant colors and, in the double variety, they are as double as a rose. Plant 3 feet apart and water freely. Height 5 to 6 feet. Hardy perennial. A row of hollyhocks makes an attractive screen to shut off an undesirable view or along a fence.

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Honeysuckle

French

A beautiful hardy perennial plant, grown in borders about 3 feet in height. The flowers are red and white.

Hyacinth Bean

Dolichos Lab-lab

A splendid climber, with hyacinth-like clusters of flowers which are followed by exceedingly ornamental seed pods. Is of rapid growth and stands heat well, but not the cold. Half-hardy annual, 10 to 20 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Ice Plant

Mesembryanthemum Crystallinum

A very pretty trailing plant that has fleshy, wax-like leaves which have the appearance of being covered with ice crystals. Start in-doors. Annual. 6 inches high.

Culture.—Sow in a light soil in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

English Ivy

Hedera Canariensis

An old popular and excellent variety for cultivation in the house, being a free grower and very beautiful; broad, glossy green leaves. For indoor winter decoration the Ivy is unequalled, as it can be trained in any desired form, and will bear any amount of hardship and bad usage. The Ivy is not quite hardy for the North, but plants that have done service in the garden all summer can be taken up in the autumn and potted for the house. In the spring the plants can be transferred to the garden by just sinking the pots in the earth. In the autumn they are ready for service in the house again, and better than ever.

Japanese Hop

Humulus Japonicus

An unusual beautiful variety of rapid-growing climbing vine. Leaves deep green, beautifully

striped with silvery white. Reaches a height of 15 to 20 feet in remarkable short time. Annual.

Culture.—Seeds should be planted out of doors only after all danger of frost is over, or if started in green-house, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Lantana

Popular and rapid growing plants with large heads of variously colored, and perfumed flowers. The bushy plants are completely loaded with blossoms which are succeeded by green berries which turn to a deep blue when ripe. Half hardy perennial. 2 feet high.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Larkspur

Delphinium or Hardy

A most deservedly popular plant in the hardy border and garden. The bold attractive spikes make a splendid appearance. There is no hardy perennial more easily raised and grown.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Lilies

Lilies thrive best in a dry, rich soil. They should be planted deep, 4 to 6 inches, as they form two sets of roots, one below, the other above the bulb. It is well to protect them with a covering or litter of straw.

Lily of the Valley

The well known and beautiful white sweet scented flower. Hardy.

Linum

Linum grandiflorum rubrum.

Distinguished for their brilliant-colored flowers, which are deep crimson with black center, saucer-shaped, and very conspicuous in beds and border. The foliage of the plant is slender and delicate, and the flowers produce very little seed. If the seed be sown in hot-bed and the plants transplanted into good rich soil, one foot apart, the period of flowering will be much advanced, but the seed can be sown in open ground after the weather is warm. Hardy annual, 1½ feet high.

Lobelia

Exceedingly pretty, profuse blooming plants, useful both in the garden and for hanging baskets, window boxes and vases, or edgings and beds. About 6 inches high. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Lupin

Perennials

Very desirable garden plants, showy and excellent for cutting. Graceful spikes 2 feet high in various colors. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Lychnis

Lychnis Chalcedonica

Few plants produce as bright flowers and bloom as continuously as Lychnis. For massing in beds and borders it has no equal. Hardy perennial. In transplanting keep 1 foot apart. 2 feet high.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Marigold

Tagetes Erecta, African

These old fashioned favorites are hardy annuals of the easiest culture. A beautiful plant forming a globular compact bush covered with rich, golden, double flowers. Especially fine in mixed borders. Height 3 feet. When transplanting keep 6 inches apart.

Culture.—Seeds should be planted in the open ground after all danger of frost is over; if desired early, start in window-box; plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Maurandia

Barclayana

Height Five to Eight Feet

An elegant climbing, greenhouse perennial, but can be grown from seed, and brought forward so as to branch and flower profusely from middle of summer till frost, the first season, in the garden. One of the most popular climbers for piazza decoration.

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

ABRONIA

ACROCLINIUM

ADONIS

AGERATUM

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HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

ALYSSUM

AMARANTHIUS

AMPELOPSIS

ANTIRRHINUM

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Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

ASTER

BACHELOR'S BUTTON

BALSAM

BALSAM PEAR

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

BARTONIA

BEGONIA

BROWALLIA

CACALIA

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Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

CALENDULA

CALLIOPSIS

CANARY VINE

CANNA

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CANDY TUFT

CANTERBURY BELL

CARNATION

CATCHFLY

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CELOSIA

CENTRANTHUS

CHRYSANTHEMUM

CLARKIA

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CLEMATIS

CLIMBERS

CLINTONIA

COBOEA

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COCKSCORN

COLEUS

COLUMBINE

GOMPHRENA

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CONVOLVULUS MINOR

COSMOS

DAHLIA

DATURA

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Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

DIANTHUS

DOUBLE DAISY

ESCHSCHOLTZIA

FORGET-ME-NOT

How Grow One Hundred Varieties of Favorite Flowers

Culture.—Sow early, in-doors; transplant to open air late in spring. The plants produce a profusion of rich purple, rose, etc., fox-glove-shaped flowers, with abundant foliage, through the season till frost.

Mignonette

The mignonette is a universal favorite and no other flower is so generally known for fragrance. The dense semi-globular heads of flowers are borne on stalks about six inches high making the whole plant reach 1 to 1½ feet. Hardy annual.

Culture.—Seeds may be sown out of doors at any time after danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Ipomoea (Moon Flower)

Tall-growing annual climbers, related to the family of Morning Glories. As Moonflower plants have dense foliage, they are useful to cover trellis work, verandas, etc. Plant seed out-of-doors when warm weather sets in. Soak them first.

Morning Glory

Convolvulus Major

One of the most free flowering and rapid growing annual climbers thriving in almost any situation. Its delicate flowers are very brilliant and beautiful with a wide range of tints and markings. Annual. Supply a support early, use either wire, cord, or trellis. Height 10 to 15 feet.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or for early blooming plants may be started in-doors and transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure, is best.

Soak seed in warm water for an hour or two to hasten germination.

Mourning Bride

Scabiosa

One of our handsomest summer border plants, producing in great profusion very double flowers in a great variety of shades and colors. Excellent subjects for cut flowers, lasting nearly a week after being cut. Thin to 6 inches apart. Hardy annual, 1 to 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. The soil should be rich and well pulverized.

Musk Plant

Mimulus Moschatus

The musk plant is grown for its scented foliage and pale yellow flowers; is of trailing habit and makes a fine showing in hanging baskets. Plenty of moisture and a shaded position is important. Perennial with trailers about 9 inches long.

Culture.—Seeds may be sown very early in spring, so plants will blossom in fall, or started in late summer, so that good, healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Nasturtium

Tropaeolum Minus

The Dwarf or Tom Thumb Nasturtiums grow about 1 foot in height and very compactly and are used for beds, borders, and massing. They thrive under all conditions and always make fine displays of rich brilliant flowers. Annual.

Culture.—Sow in drills about an inch deep, in light rich soil, when all danger of frost is over, and train the Tall on trellises or over fences, and the Dwarf in beds or to make borders for the beds.

Nicotiana

A most striking, bushy, much branched plant, literally ablaze with blossoms from base to summit; deliciously sweet fragrance. Thrive in a hot sunny position. 2 to 4 feet high. Half hardy annual.

Culture.—Seeds should be planted in shallow boxes of light soil in-doors, young plants can be transplanted to the open as soon as warm weather appears; they may also be sown out of doors after danger from frost is over.

Nigella

Love-in-a-Mist

Nigella Damascena

A popular old fashioned flower, with finely-cut foliage surrounding the curious looking flowers and seed pods. Makes pretty edgings for walks or borders. Hardy annual, 1 foot high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Pansy

These lovely flowers are favorites with all, not only for the brilliancy and variety of their colors, but for the durability of their bloom. Seed may be sown in open ground in spring or summer, or in hot-bed early in spring.

Young plants produce the largest and best flowers. The plants should always occupy a cool, partially shaded situation, and the ground cannot be too rich; coolness and moisture are necessary. Transplant when an inch high. Seed sown in early summer will blossom late in autumn; if sown in fall will blossom the following spring. Hardy biennial; 4 inches high.

Passion Flower

Hardy Passion Vine

A beautiful climbing vine producing peculiar shaped flowers. Perennial.

Peonies

There is no hardy perennial which equals the Peony in beauty and usefulness. Once planted, the plants and flowers increase in size and beauty with age. They are as hardy as oaks and as handsome (many as fragrant) as roses. When the plants are through blooming they are as handsome and ornamental as most of the hardy shrubs. The plants are practically immune from insects. We would advise our readers to beware of "cheap" Peonies. An inferior variety will take as much care and space as a choice one, and the first cost of a Peony is nothing compared to the disappointment after years of waiting.

Planting.—An important point to observe is not to plant too deeply. The roots should be placed so that the crowns (or eyes) are covered with two or three inches of soil. Planting too deep is often the cause of shy blooming.

Plant with southwest or west exposure, as early as possible in the spring as they sprout very quickly.

Small—divided roots, 3-5 eyes. Medium—1 and 2 years from division.

Large—4 and 5 year old clumps.

Petunia

Petunias are unsurpassed if indeed equalled for massing in beds. Their richness of color, duration of bloom and easy culture will always make them welcome and popular. 1½ feet high. Hardy annual. Transplant 18 inches apart.

Culture.—Seeds should be planted in the open ground only after danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Phlox

Star Shaped

For a splendid mass of color and a constant display, the Phlox is unequalled. These flowers differ from the Phlox drummondii in their long pointed petals, giving

How Grow One Hundred Varieties of Favorite Flowers

a star like appearance. Plant, compact and dwarf. 6 inches high. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Pink

Hardy Annual

Some of the colors are various tints of rose, maroon and purple, richest velvety crimson, beautifully fringed varieties, vivid crimson lake, etc., etc.

The Pinks belong to the same class as Carnation, Sweet William, etc., but, unlike them, bloom the first season; very effective in beds or borders; flowers very double, of remarkably rich colors and markings.

Culture.—Sow seed in garden in spring, when the ground has become warm; thin, or transplant when 2 inches high to 4 inches apart.

Poppy

Papaver

The marvelous development of these old-fashioned flowers has made them deservedly popular. The individual flowers are large and elegant, with crinkled petals which appear in the sun like crumpled satin. Grow $\frac{1}{2}$ foot in height. Annual.

Culture.—Seeds should be sown in the open ground as early in the season as practicable, in beds of well pulverized soil. The plants should remain where sown, as they do not easily stand transplanting. Thin out carefully so as to disturb the remaining plants as little as possible.

Portulaca

Double rose-flowered, seven different colors, crimson, rosy purple, white rose, striped with carmine, orange, yellow. The double varieties of this charming plant are most beautiful and should be in every flower garden. The blossoms are perfectly double, about the size of a silver dollar, and the colors are white, yellow, scarlet pink striped, etc.; a bed of them in bloom presents a gay appearance. Select a light and sandy soil, with a full exposure to the sun; they will stand any amount of dry, hot weather. Sow, after the ground is warm, in beds or masses. Tender annual; 9 inches high.

Evening Primrose

Oenothera Biennis

Beautiful low growing plant producing numberless blossoms borne in spikes. The flowers are fully expanded only towards and during the evening. Annual 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Primula

Japonica

A beautiful and profuse flowering plant of free, vigorous growth with dark green foliage, and large flowers in a variety of color. Blooms early in summer. Plenty of moisture is needed. 1 to 2 feet tall. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich friable loam is preferable.

Pyrethrum

Feverfew

Parthenium

A very fine hardy plant with stems about 2 feet high, surmounted with handsome flowers in the brightest shades. In bloom a long time and are splendid as cut flowers. Hardy perennial.

Culture.—Seed may be sown very early in spring so plants will blossom in fall or started in late summer so that good healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Ricinus

Castor Oil Bean

Mixed Colors

Grown as single specimens and on lawns and pleasure grounds, they form a striking feature.

Tall, majestic plants with leaves of glossy green, brown or bronzed-metallic hue, and long spikes of prickly capsules of scarlet and green. An elegant plant for a lawn, and of very quick growth in rich soil. Plant in hot-bed, and transplant when three leaves have formed, or plant where they are required. Tender annual; 8 to 10 feet high.

Roses

More than two hundred varieties of Hybrid Perpetual Roses are listed by one of the largest nurseries in the United States, and the number is constantly being increased. Many well-known favorite Roses of this class safely endure the winter south of Philadelphia, but are not sufficiently hardy for the western and north-western latitudes.

Roses should be planted in the spring just as soon as the ground can be worked, and carefully handled as they are plants that need

attention when planted. Select a good sunny location where the soil is well drained, and should the soil be heavy or clayey, some sand should be put with it. A good plan is to take out the soil from 18 inches to 2 feet deep, and in the bottom place from 10 to 12 inches of well-rotted cow manure and sod, then place the black earth that was taken out, on top of this.

Culture.—In planting Dormant Roses (nearly all of which are grafted plants) care should be taken to have the budded part set two or three inches below the surface of the ground, and the soil pressed firmly about the stem. Dormant plants produce better flowers and make stronger plants than those grown from cuttings. Plant fifteen to eighteen inches apart.

Before winter sets in the bushes should be covered, and the best method is to dig a small trench close to the plant, by setting a spade 6 to 8 inches back of the plant and pushing it into the ground about 10 inches, cutting off the roots, then push the plant bodily into the trench and cover same with building paper three or four thicknesses, using earth to hold it in place.

Salpiglossis

A very showy bedding or border plant, flowering from July to early autumn. The exquisite beauty of the flowers with their rare combination of color is a revelation. Transplant to a foot apart. Half hardy annual. $1\frac{1}{2}$ to 2 feet high.

Culture.—Sow seed in shallow boxes of light soil in a temperature of from 60 to 70 degrees in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Salvia

One of the handsomest flowering plants we have for garden decoration blooming in spikes from mid-summer until killed by frosts. Their compact bushes literally ablaze with brilliant flowers really have no rivals. About 3 feet high. Half-hardy perennial.

Culture.—Seeds may be sown very early in spring so plants will blossom in fall or started in late summer so that good healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Saponaria

Multiflora Calibrica

Mixed Colors

Height Six Inches

An admirable dwarf bedding plant, with neat foliage, and small, cross-shaped blossoms, of delicate tints of rose and pink. Adapted for vases and hanging baskets; make a fine display grown in a circular bed; quite hardy, blooming till after severe frosts.

How Grow One Hundred Varieties of Favorite Flowers

Culture.—Sow in-doors, early, or later in open ground; transplant to about one foot apart; they will spread and cover the ground as with a mat, compact and dense dotted with the small flowers.

Scarlet Runner

Will grow to the height of 12 or 15 feet and produce a profusion of scarlet flowers. Needs strings or some support to climb on. Sow in spring when ground is warm where they are to remain. Plant about three inches deep.

Schizanthus

Butterfly Flower

A beautiful species of plants for out of door decoration. Easily cultivated, of bright colors and splendid for bouquets; do well in any garden and may be removed to the house in autumn. Give plenty of room. Half-hardy annual, 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. The soil should be well pulverized and enriched with fertilizer.

Sensitive Plant

Mimosa Pudica

An interesting and curious plant with globular heads of pink flowers; well known for the extreme irritability of its leaves, which if touched drop, touching the lower ones and the whole plant will appear as if wilted and dying. Keep six inches apart. Half hardy annual. 1 to 2 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Stock

The stock is one of the most popular garden flowers either for bedding or pot culture. For brilliancy of color, fragrance, profusion and duration of bloom it is unsurpassed. Hardy annual one foot high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Sunflower

Helianthus Double

An exceedingly double variety of this well-known plant adapted by its stately growth for a background

to the lawn appearing to advantage in masses. Thin to 4 feet apart. Hardy annual, 5 feet high.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Sweet Peas

Lathyrus Odoratus

For its beauty and fragrance the sweet pea is the queen. Within recent years it has been brought to a high degree of development and is now one of the most popular garden favorites. Their chief use is for cut flowers, although their value in the garden is not to be ignored. Sow early. About 4 feet high. Hardy annual.

Culture.—Sow in the spring in the open ground where they are to grow; the sooner the seeds can be got in the better. They delight in a moist, loamy soil; should be sown two inches deep. If not allowed to go to seed they will flower much longer.

Sweet Rocket

Hesperis Matronalis

One of the old fashioned garden plants, also known as Dames Rocket and Dames Violet. A most desirable hardy flower; bearing spikes of brilliant, fragrant blossoms. Very excellent among shrubbery or in borders. Grows 2 to 3 feet high. Perennial.

Culture.—Seeds may be sown very early in spring so plants will blossom in fall or started in later summer so that good healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Sweet William

Dianthus Barbatius

A well known, attractive, free flowering plant producing a splendid effect in bed and borders with rich attractive flowers borne in heads or clusters; about 18 inches high. Hardy perennial.

Culture.—Seeds may be sown very early in spring so plants will blossom in fall or started in later summer so that good healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Thunbergia Alata

Black Eyed Susan

Beautiful, rapid-growing climber, preferring a warm sunny situation; very fine for hanging baskets, vases, low fences, etc. Height 4 feet. Annual.

Culture.—Sow out of doors when danger from frost is over, cover-

ing the seed to a depth of about four times its size; when planted in-doors, young plants can be transplanted to the open as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

Verbena

Hybrida

Verbenas are becoming more popular every year, and scarcely need a description. For garden beds or effective massing the Verbena is unequalled. Height, 1 to 1½ feet. Annual. Keep 12 or 18 inches apart.

Culture.—Seed should be sown four months before the plants are wanted, as it is often slow in germinating. Seedling plants are more vigorous than those from cuttings, but if a special color is wanted seedlings are not to be depended upon.

Violets

Viola Odorata

The violet should be in every garden on account of its fragrance and early appearance. They are well adapted for border or rock work and commence putting forth their flowers all through spring. Hardy perennial. 4 inches high.

Culture.—Seeds may be sown very early in spring so plants will blossom in fall or started in late summer so that good healthy plants and a profusion of flowers will be had the following year. A light mulch of manure is desirable for winter protection.

Wall Flower

Cheiranthus Cheiri

An old garden favorite, well known, deliciously fragrant, blooming early in spring with spikes of beautiful flowers, and dark green foliage. 1 to 3 feet. Biennial.

Culture.—The seed should be planted early in spring in open ground, and will blossom before fall. The plants will bloom again the following year but the young plants bloom best and seed should be sown every spring.

Zinnia

Elegans

Youth and Old Age

This plant is one of the most brilliant and showy of annuals. It bears large double flowers from early summer till frost with very little attention. Provide plenty of room; at least 18 inches. Height 2 feet. Annual.

Culture.—Seeds should be planted in the open ground after all danger of frost is over, or if started in-doors, young plants can be set out in the garden beds as soon as warm weather appears. A rich garden soil, deeply dug and liberally enriched with manure is best.

BEAUTIFUL HOMES

How to Give Added Charm by the Use of Trees, Shrubs and Flowers.

The happier the home, the greater is the desire of the family, as a rule, to embellish it by all the means within the reach of the family purse. And there is no embellishment more gratifying to the eye and none that pays better in the long run, than the improvement of the lot or the surrounding grounds by an artistic arrangement of ornamental trees, shrubs and flowering plants.

To have a beautiful home, to sit down under the vine that elings upon its walls, to rest in the shadow of the tree that grows beside it, to eat of the fruits that ripen on its soil—this is the realization of many a pleasant dream, the result of many a worthy ambition. To fail to possess a home in which one can take both comfort and pride is to largely miss life's purpose.

Consider the joy and the privilege of bestowing on childhood the pleasure and the blessing of a charming home!

No attraction can be devised that should more surely hold the child to the fireside than attractive home surroundings. It is one of the greatest joys of youth to welcome the visitor to an attractive city residence. The admiration and praise bestowed upon the home are a constant source of pride and delight to the children of such a household.

Thousands of people in the cities can bear testimony to the fact that they left

their country homes because of shabby surroundings which, as they grew up, gradually became to them a constant source of annoyance and shame.

On their visits to the city they had seen delightful parks and the beautiful grounds of city residences; and then to come back to an old, unpainted, dilapidated house, with a shambling barn and a few straggling swine and fowls, amid weeds growing where there might have been beautiful lawns, ornamental trees, and flowers, caused a feeling of depression that made them resolve to quit the wretched old premises as soon as they possibly could.

It is not only the city or the suburban home that can be made a thing of beauty and a joy forever by landscape gardening. Every farmhouse, every country school-house, every building in fact that stands in its own grounds, can be immensely improved in appearance by the aid of trees, shrubbery and plants. In the pages immediately following a number of examples are shown, and there is also a list of ornamental trees adapted to various regions, with cultural directions and suggestions of value to the home builder. An outline map of the United States divided into districts, each plainly numbered, will facilitate the choice of trees suited for planting in each district.

Beautiful Homes—Continued

There is no easier way to enhance the value of detached residence property than to give it an ornamental setting of lawns, trees and shrubbery, with flower-beds blooming in season. A home so embellished is like a gem in a fine setting. The gem itself, like the home, is the principal thing, but an appropriate setting enhances its beauty, and in the case of the home an attractive setting enhances its value as real estate.

In every neighborhood one sees residences that stand out prominently among their neighbors by reason of their beautiful and well-kept surroundings. The owner of such a place gives tangible evidence of good citizenship. While his home delights the eye, benefits and gives a tone to the whole neighborhood, he has his reward in the gratification of the artistic sense—the sense of the beautiful, in the greater pleasure and satisfaction of his family, and in a material addition to the value of the property, which he promptly discovers should he desire to sell.

It can be safely said therefore, as the result of experience in every section of the country, that it is not only desirable to embellish home surroundings from the standpoint of family comfort and personal pleasure, but also from the financial standpoint as well. Small expenditures for landscape gardening, ornamental trees and shrubbery, flowering plants and other outdoor ornamentation

of the home, will usually pay the owner in increased market value of the property.

In another direction, too, the improvement of residence property by the cultivation of lawns and gardens is of advantage to the owner, if resident on the place, or to the tenant if the property be leased. The care and up-keep of a garden of any size will afford both recreation and exercise, with great benefit to the health of those who otherwise lead a sedentary or indoor life. And if the garden does nothing else but develop a desire for life in the open air, it is well worth while, for that desire is a natural one, prompted by healthy instincts. To the women of a household gardening is usually a great delight, while educators are all agreed that it is most desirable to give growing children individual pieces of ground to cultivate. Therefore, there are many good and sufficient reasons why the surroundings of the home should be embellished by cultivation, by the planting of trees and shrubs, and by the encouragement of the gardening instinct which the great majority of men, women and children possess in a marked degree.

In planning the improvement of the home lot or grounds the information contained in the preceding pages, regarding the cultivation of many varieties of favorite flowers, will be found extremely useful, as well as the pages that follow, on the use of ornamental trees.

Two Plans, each for Laying Out One Acre.—From "Woodward's Country Homes."

Plan for Two Acres.

Explanation.

- S Stable and Barn
- A Greenhouse and Grapery
- O Double Hennerly.
- H Hen Yard, set with fruit trees.
- D Grape Arbor, fruit trees.
- I Dwarf and Standard fruit trees.
- F Fountain
- J Flowers
- O Lavatory and Garden Tool-house in rear.
- E Dwarf fruit trees.

Locations

- A Dwelling. B Piazza C Passage.
- D Greenhouse E Grapery (house)
- F Flower Beds. H Kitchen Garden
- K Trellis of Grapevines. L Yard.
- M Gate. N Gate O Stable, Barn.

Locations.

- A. House. E. Entrance
- B. Stables and Carriage House.
- D. Greenhouse and Grapery I. Hennerly, with double yard.

Plans—Two Lots, each 50x200 feet in size. Dotted line shows open views across the lawn Lower lot shows too many trees. In a short time the view of roadway in front will be completely cut off

Ornamental Trees.—For Residence and Public Grounds.

- Fig. 1. Japanese Weeping Sophora. Fig. 5. Cut-leaved Weeping Birch.
 " 2. Snowdrop Tree. " 6. Adromoda Tree.
 " 3. Broad Apple Tree. " 7. Scarlet Oak.
 " 4. Honey Locust. " 8. Golden Arbor Vitae and Yews.

Fig. 9. Balsam Fir.

Trees Adapted to Various Regions, with Cultural Directions

The beauty of a shade tree depends upon its normal and symmetrical growth. In order to insure this, before planting cut off the ends of all broken or mutilated roots; remove all side branches except upon evergreens, so that a straight, whip-like stalk alone remains. Dig holes at least 2 feet in diameter and 1 foot deep in good soil, and make them 4 feet across in poor soil. The sides of holes should be perpendicular and the bottom flat. Break up soil in the bottom of the hole to the depth of the length of a spade blade. Place 2 or 3 inches of fine top soil, free from sods or other decomposing organic matter, in the bottom of the hole. On top of this place the roots of the tree, spread them as evenly as possible over the bottom of the hole, and cover with 2 or 3 inches of fine top soil as before. Tramp firmly with the feet and fill the hole with good earth, leaving the surface loose and a little higher than the surface of the surrounding soil. When the work of planting is completed, the tree should stand about 2 inches deeper than it stood in the nursery.

In order to insure symmetry of growth, trees must

be allowed unrestricted area for development. At least 40 feet should be allowed between trees intended to occupy the ground permanently. Quick-growing nurse or temporary trees may be planted between the long-lived ones to produce immediate results, but these should be removed as soon as they interfere with the development of the permanent plantations.

The lists of trees and shrubs contained in this publication are merely suggestive, but in all cases they include such sorts as are well adapted to the particular locality for which they are recommended. Because of the great differences existing in the soil and climatic conditions of the several parts of the United States, the country has been partitioned into five sections, and a list of trees and shrubs suitable for park grounds or for home adornment is enumerated for each section. The section in which any particular park is located can be determined by a glance at the map, and reference to the list of trees and shrubs will assist in selecting suitable decorative material for the grounds.

Ornamental Trees.—For Public Grounds and Homes.

- Fig. 10. Hawthorn Archway. Fig. 15. Whitewood Tulip Tree.
 " 11. Oblate Dwarf Silver Fir. " 16. Crab Apple Tree.
 " 12. Mossy Cupped Turkey Oak. " 17. Swedish Juniper.
 " 13. Flowering Currant. " 18. Orange Quince Tree.
 " 14. Chinese White Magnolia. " 19. Canoe Birch Tree.

District Adapted to the Following Trees

District 1.

Deciduous trees.—Sugar maple, Norway maple, silver maple, green ash, white ash, American white elm, red oak, white oak, pin oak, American linden.

Evergreen trees.—Norway spruce, white spruce, Colorado blue spruce, white pine, Scotch pine, balsam fir.

Shrubs.—Lilac, golden bell, exochorda, snowball, mock orange, hydrangea, Japan quince, flowering currant, calycanthus, cornus, deutzia, spiraea, weigela.

District 2.

Deciduous trees.—Tulip, sycamore, pin oak, white oak, black oak, live oak, red oak, white ash, bald cypress, Norway maple, silver maple, red elm, American white elm, Kentucky coffee, American linden, catalpa, liquid-amber, Carolina poplar, hackberry, sour gum.

Evergreen trees.—White pine, long-leaf pine, magnolia, live oak, cedar of Lebanon.

Shrubs.—Golden bell, hydrangea, lilac, lonicera, hibiscus, hardy roses, Japan quince, calycanthus, smoke tree.

South of Charleston, S. C.—Camellia japonica.

Southern Florida and Texas.—Oleander, privet.

District 3.

Deciduous trees.—Burr oak, linden, silver maple, Norway maple, cottonwood, green ash, box elder, wild cherry, larch, American elm, black walnut, hackberry.

Evergreen trees.—Scotch pine, Austrian pine, white pine, Norway spruce, Colorado blue spruce, white spruce, red cedar, arbor vite.

Shrubs.—Lilac, barberry, cornus, Japan quince, crataegus or hawthorn, snowdrop.

District 4.

Deciduous trees.—Valley cottonwood, mountain cottonwood, mountain ash, box elder.

Evergreen trees.—Arbor vitae, box, euonymus.

Shrubs.—Althea, snowball, mock orange, wild rose, crape myrtle, spiraea, flowering currant, elder lilac.

District 5.

Deciduous trees (Coast region).—Large-leaved maple, tulip tree, mountain ash, European linden, sycamore, weeping willow.

Shrubs (Coast region).—Roses, weigela, European holly, lilac, laburnum, deutzia, hydrangea, mock orange, Japan quince.

Trees (Columbia Basin).—Scotch elm, American elm, Norway maple, European linden, sycamore, green ash, silver poplar, Russian poplar, white willow.

Shrubs (Columbia Basin).—Lilac, hardy roses, Philadelphus, laburnum, spiraea, barberry.

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Ornamental Trees.—For Public and Private Grounds.

- Fig. 20. Stake Support for Tree.
 " 21. Willow-leaved Thorn.
 " 22. Oblate Dwarf Evergreen.
 " 23. Old Apple Tree.
 " 24. Old White Oak.

- Fig. 25. English Elm.
 " 26. Oval Flattened Elm.
 " 27. Irish Juniper.
 " 28. Golden-barked Linden.
 " 29. Weeping Elm.

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One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

FOUR O'CLOCK

FOX GLOVE

FUCHSIAS

GAILLARDIA

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

GERANIUM

GLADIOLUS

CODEIA

GYPSOPHILA

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

HELICHRYSUM

HELIOTROPE

HIBISCUS

HOLLYHOCK

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

HONEYSUCKLE

HYACINTH BEAN

ICE PLANT

IVY

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

JAPANESE HOP

LANTANA

LARKSPUR

LILIES

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

LILY OF THE VALLEY

LINUM

LOBELIA

LUPIN

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

LYCHNIS

MARIGOLD

MAURANDIA

MIGNONETTE

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

MOON FLOWER

MORNING GLORY

MOURNING BRIDE

MUSK PLANT

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

NASTURTIIUM

NICOTIANA

NIGELLA

PANSY

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

PASSION FLOWER

PEONY

PETUNIA

PHLOX

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

PINKS

PRIMULA

POPPY

PORTULACA

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

PRIMROSE

PYRETHRUM

RICINUS

ROSE

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

SALPIGLOSSIS

SALVIA

SAPONARIA

SCARLET RUNNER

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

SENSITIVE PLANT

SCHIZANTHUS

STOCK

SUNFLOWER

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

SWEET PEAS

SWEET ROCKET

SWEET WILLIAM

THUNBERGIA

One Hundred Varieties of Favorite Flowers

Directions

HOW TO PLANT AND CULTIVATE GIVEN ELSEWHERE IN THIS VOLUME

VERBENA

VIOLETS

WALL FLOWER

ZINNIA

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Ornamental Trees—For Parks and Residences.

- Fig. 30. Shell Bark Hickory.
 " 31. Sassafras Tree.
 " 32. Pin Oak Tree.
 " 33. Oblate Form Apple Tree.
 " 34. Burr Oak.
 " 35. Young White Oak.
 " 36. Virginia Fringe Tree

- Fig. 37. Japan Podocarpus Tree.
 " 38. Althaea Tree.
 " 39. Pear Tree.
 " 40. Swiss Pine.
 " 41. Swedish Juniper.
 " 42. Umbrella Magnolia.
 " 43. Beech Tree

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Boston Public Gardens.

The above park shows superior artistic arrangement in lawn, shrubs, flowers and pathways.

Home in Quiet Repose.

View No. 1 shows plain house and rockery. No. 2, ornamented with vines. No. 3, house in distance and beautiful lawn in front.

No. 3 view taken from "Delineator," New York.

Landscape Views.

View 1. Shows possibilities on one acre. 2. Opportunity on five acres. 3. How a little stream may be made a feature of beauty. 4. How a neighborhood may have a park; neighbors each contributing conjointly to keep it up. 5, 6. Designs for rustic bridges.

Views Taken from Henderson's Picturesque Gardens

FRENCH CANNAS FOR LAWN BEDDING

The illustration to the right gives a good idea of the value and beauty of the dwarf large-flow-ering French Cannas as lawn bedders. These Cannas are perfectly at home in the American climate, and when grown in rich deep soil and not allowed to suffer for lack of moisture, they are gorgeously effective, particularly so when massed one sort only in one bed. Their luxuriant dwarf growth, immense Gladiolus-like flowers of most brilliant colors, and their profusion and continuity of bloom until frost render them easily the most satisfactory and popular bedding and garden plants grown.

Improvement of Steep Hillside.—The above illustrations represent as follows: No. 1. Plant House, Botanical Gardens, St. Louis. No. 2. Flora Culture, White House Grounds, Washington, D. C. No. 3. Possibilities of terracing and ornamenting a hillside. No. 3. View taken from "Country Life in America."

A Rockery.

The left side picture gives a park scene containing a winding path bordering a lake. The right side view shows a pile of rocks intermixed with rich earth, from which come vines, shrubs, ferns and flowers, the whole illustrating possibilities with a collection of stone.

Improvement of a Rear Yard.

The above view, developed through the efforts and taste of the National Cash Register Company, at Dayton, O., shows one of the many beautiful rear yards in that enterprising city.

Rustic Bridge.—Two views of bridge, and one showing scene in rear of a railroad depot, roof so extended as to permit passage of carriages underneath, protecting people from down-pour of rain, when alighting from and entering carriages. Suitable arrangement also for park pavilion.

CYCLAMEN

BRYOPHYLLUM.

MAMMOTH BROWALLIA.

BLUE

GRASS

Thomas Circle, Washington, D. C.

Shows how a public square in the center of a city may be improved.

FANCY LEAVED CALADIUMS

CROWN OF THORNS.

CALADIUM ESCULENTUM.

Lawns Kept in Order by Neighbors Conjointly.

Fences Removed.

A fence is a disfigurement to any property. It shuts off view, makes the house seem lower and narrows the appearance of the lot. This illustration, taken from "Hill's Manual," represents all division enclosures and front fences removed. This gives every resident of the neighborhood the advantage of living in a beautiful park.

A serious hindrance to improvement is that individual who will persist in keeping up a front fence.

View of Residence and Summer House.—This illustration from "Parson's Landscape Gardening," presents good arrangement for ornamenting the front of small home grounds. The view from the bay window is not obscured, while the dotted lines, in the diagram, show open vistas over all the lawn. The curving pathway adds to the apparent size of grounds.

BRYANOPSIS

ADLUMIA

JOHNSON'S AMARYLLIS

Show Grounds, Botanical Gardens, St. Louis.

To enable visitors to see different plants grown here, a display is made, as shown above.

Park View in Washington, D. C.—Among the many beautiful park scenes in Washington is the Mall, shown above in the neighborhood of the Agricultural building.

Wilderness Reclaimed.—Pictures show how rough, wild forest may be made pleasure resort.

DOMESTIC ANIMALS

Breeding and Care of Horses, Cattle, Sheep, Swine, Etc.

The dependence of man upon the lower animals, for service and support, is realized upon the farm as nowhere else. Horses, cattle, sheep and swine are all found on the well-stocked farms, each playing an important part in the general scheme of agriculture and contributing in no small degree to the welfare and success of the farmer.

In the following sections each kind of livestock raised or used upon the farm is taken up and the reader is informed as to the different breeds, methods of breeding, care and uses of the various animals. Thus, the different breeds of horses are described and illustrated and directions are given how to breed, train, feed and produce the best. On the largest farms gas tractors and motor vehicles of various kinds have partially superseded the horse for some purposes, but the noble quadruped is still the farmer's best friend in the great majority of cases.

The section devoted to the important subject of cattle-raising describes the different breeds of cattle raised in North America, as well as the European breeds that are freely imported for the improvement of American herds. The characteristics of each of these breeds and the points in which they excel are all clearly shown, as well as the best methods of feeding and care.

Sheep are used in many parts of the county to aid in clearing land for culti-

vation, after the timber is cut off, while sheep-raising for the wool and for food is an important industry, occupying many thousands of acres in the western states. The methods of breeding and management of sheep, with illustrations and descriptions of the various breeds and much miscellaneous information regarding them, will be found in the following pages.

Hogs are so useful and profitable an adjunct of the farm or market garden that few tillers of the soil fail to establish a hog pen or hog pasture. The information given in the section on swine includes a full description of the breeds that can be most profitably raised, as well as how to raise them.

Considerable space is devoted to the raising of poultry because of the general public interest in the subject. As a business it is one of the most generally profitable in the United States and in the aggregate it is one of the most important. It requires but little capital and little land to start in this business, but the novice should equip himself in advance with the practical information to be found in the pages that follow, which deal with the raising of chickens, ducks, geese, turkeys and squabs. There is also plenty of good advice for those who contemplate going back to the land with the idea of making a livelihood and winning independence with the willing assistance of the American hen.

HORSES; DIFFERENT BREEDS IN THE UNITED STATES:

American Running-Horse.

The American Running Horse, a fine descendant of the English Thoroughbred, dates back nearly 200 years.

English Thoroughbred.

The English Thoroughbred is undoubtedly of Arabian origin, but has been improved by crossing with other breeds.

Mule.

The Mule is a hybrid offspring of the ass and horse, and combines good traits of both.

Ass.

The Ass comes from the East and dates back to a very early period in the world's history.

Cleveland Bay Horse.

The Cleveland Bay is a mixture of English draft horse and varied stocks imported from Europe.

Percheron Horse.

The Percheron, a valuable draft horse, originated in La Perche, a former section of France, near Normandy.

Mustang Pony.

The Mustang is a native of the Southwestern Wilds of North America.

Morgan Horse.

The Morgan, it is claimed, comes from a horse formerly owned by Justin Morgan, of Randolph, Vt.

Hambletonian Horse.

The Hamiltonian, originated in Orange Co., N.Y. Stallion, owned by Mr. Hysdyk, lived 27 years; had 1,324 colts.

Shetland Pony.

The Shetland grows in a wild state on the Shetland Islands, where it is caught and exported.

Arabian Horse.

The Arabian is known to have existed before the Christian era. Origin uncertain. Some claim Egypt, others Arabia.

Clydesdale Horse.

The Clydesdale, celebrated as a draft horse, originated in the valley of the River Clyde, Scotland.

DIFFERENT BREEDS

HORSES

DESCRIPTION OF VARIOUS KINDS

How to Breed, Train, Feed and Produce the Best

The nativity of the horse has been ascribed to Central Africa, whence he was introduced into Egypt and thence through Persia into Greece, Western Europe and to Great Britain.

Origin of the Mustang

In 1535 a few horses were imported into South America and from these have come the immense herds that have spread over the southern part of our continent.

Thence they came north, passed the Isthmus of Panama into Mexico and scattered northward into California and along the Pacific Coast, their scanty food and wild life resulting in a distinct breed known as Mustang, weighing from 450 to 500 pounds. They reach maturity at the age of three years and are quite extensively used in Mexico and Texas.

The American Running Horse

The American Running Horse is a descendant from the English thoroughbred. The existence of this species of turf heroes dates back over 200 years, and when crossed with any other good breed improves it for speed and road service.

The Mule

The mule is the hybrid offspring of the ass and horse and combines many of the better traits of both. The union of the male ass and the mare produces the most serviceable and valuable mule, which often is superior in intelligence to both of his progenitors. His weight is about 1,000 pounds; his height, 15 hands; his constitution, hardy in the extreme; his disposition, docile; his head is large, as are his ears. His coarse hair is mostly dark. His average value is from \$15 to \$250.

The Ass

The Ass dates back to a very early period in the world's history, and is among the first of the domestic animals mentioned in the Scriptures.

In the East, where he originated, he is used under the saddle or for carrying burdens. His average weight is from 500 to 600 pounds.

With a large and clumsy head, he combines enormous ears, small eyes, a long back, short legs, hard, serviceable hoofs, and coarse hair.

The "burro," common in Texas, Central America, and at pleasure resorts for children's use, is a smaller animal of the same species, with similar characteristics and usefulness.

The Cleveland Bay Horse

The Cleveland Bay, lighter in weight than the heavy draft horse, has plenty of carriage and action for the road, making a fine, stylish carriage horse.

The Cleveland Bay is a mixture of English draft horse and various breeds imported from Europe.

The Percheron Horse

The Percheron is one of the most useful animals for heavy hauling and general work.

The Percheron-Norman has an average weight of about 1,650 pounds, is 16½ hands high, has a hardy constitution, small head and ears, heavy quarters, large bones, medium neck and shoulders, wide chest, a short back, medium legs, fine hair, broad hoofs, grayish color, fine action, and a kind disposition.

The Morgan Horse

The celebrated "Morgan Horse," foaled in 1793, was probably a grandson of imported Wildair, out of a Canada mare. His progeny are stout and enduring, with good action, great hardness of constitution and some of them distinguished as fast trotters.

"Columbus," "Grand Bashaw," "Andrew Jackson" and the Morse horses have all founded families of trotters.

Hambletonian Horse

The Hambletonian is the name of a breed of horses originating in Orange county, New York, in 1849. From the Hambletonian stallion came several distinguished horses. Among them were Dexter, Bruno, Goldsmith Maid, Belmont and others widely known at that time as standing high in the first rank of fast trotters.

The average Hambletonian weighs about 1,100 pounds, stands 15½ hands high; matures at 5 years; has a hardy constitution; has fine hair of a bay color, and is one of the highest-priced horses in the market.

The Shetland Pony

Shetland Ponies are bred, captured wild and exported from a region covering 450 square miles, comprising about 100 islands lying north of Scotland, known as the Shetland Islands. All horses there are diminutive in size; even people are small in stature, active and hardy.

The Arabian Horse

The Arabian is known to have existed sometime before the Christian era. His origin is uncertain, some attributing it to Egypt, others to Arabia.

His form is compact and muscular, with graceful outlines. His coat is smooth, his size is medium, his height averaging about 14½ hands, his motions are agile, his speed, per mile, ranging from three to four minutes. He is considered better for riding or driving than for heavy work. In India his value formerly ranged from \$750 to \$1,000.

The Clydesdale Horse

The Clydesdale, or Scotch, are a larger and showier horse than the heavy French breeds; have strong constitution, are docile, easily kept, and liable to take on fat. All colors, generally have white feet.

HOW GET THE BEST HORSES

HOW BREED AND TRAIN THEM

THE FUTURE OF THE HORSE

It is difficult to determine what the future of the horse is to be. Contrary to expectations, the price of horses has continued to advance, notwithstanding the automobile has come in great numbers. Today horses command higher prices than for twenty years. The principal effect of the auto, thus far, on the horse, has been to relieve the animal of long and heavy traffic.

In the meantime, the horse is here to be taken care of and utilized for his commercial value.

How Get the Best Horses

If the horse is to be kept as a matter of profit it should be developed physically and intellectually as much as possible. This includes breeding, feeding, and training of the animal.

How to Breed

Like begets like in breeding horses. The stallion kept for service should possess the qualities which it is desired should be transmitted to his progeny.

Both dam and sire should have all the good qualities desired in the colt.

Particularly should it be understood that the colt will inherit the **breed** and no stallion should be kept for breeding purposes unless he can show a long line of desirable ancestry. The accidentally superior mongrels do not reproduce their superior qualities, but transmit back to an inferior ancestry.

But aside from pedigree, various conditions may affect disposition, health, endurance, style, and ambition of the immediate parents.

The stallion should not have his temper spoiled by dark stable loneliness, from being shut in a close box stall away from sight of other horses. He should not be exhausted by overwork, nor be subjected to annoyance whereby he cultivates ill temper. On the contrary, he should have some regular exercise in riding or double harness driving and should be so situated that he can see and have the company of other horses.

Particular attention should be kindly given to the mare as she nears foaling time. She should not have to endure overwork at that period nor should she hear any harsh words, and her large, roomy box-stall should be thickly laid with soft straw.

Weaning and Training

At the age of four or five months the colt should be gently handled. At the age of five or seven months, having been petted, caressed, and taught to eat and drink; it has also been taught to be led by the halter or foretop.

At this period the colt may be weaned and educated to the having of its feet handled; may learn to be harnessed; may be hitched to some light vehicle and taught to draw light loads.

Importance of Being Gentle

In all the treatment of breaking and training the colt no loud or harsh words should be used. Only gentle voice and patience are necessary.

If the colt shies at anything, allow him to come to it, smell and examine it until satisfied that it will do him no harm; thus, in a short time, the colt may be broken to driving and trained to the saddle.

To Break the Wild Horse

To bring a wild or vicious horse that has never had any training under subjection, it is only necessary to use a straight bit, two leg-straps, and a surcingle. The left leg is buckled up with strap No. 1 and the noose of No. 2 slipped around the off fetlock and the other end passed through the surcingle under the belly.

The horse, indignant at being so hampered, hops for a time on three legs around his stall, which

should be thickly laid with tanbark or straw. When he finally stops, a draw on strap No. 2 brings him down upon his knees. Nothing else is attempted until the horse has completely exhausted his energies. Soon a profuse perspiration breaks out all over the animal; he drops upon his side, and, after becoming quiet, the operator gently strokes the tired animal's head, and when all the muscles are relaxed, removes the strap, and the horse is so mastered and broken as to be ridden or driven as the operator desires from that time forward.

Training, Feeding and Care

The weanling should not be turned back to the pasture. It should have from two to four quarts of bruised oats and all the hay it can eat. The yearling may have more.

It is not wise to feed the colt so much as to cause it to be very fat. Much injury may result from feeding too much. It is better to feed lightly and often. Many diseases result from bad food or good food badly administered.

Regularity in feeding and watering is very essential. Added to that should be variety. Corn, oats, and hay may be alternated.

Never feed new hay, corn, or oats where old can be obtained. All hay should be cut and it is best to mix with ground corn and oats and moisten with hot water. The moisture prevents the dust from entering the lungs. A horse heavily worked when stuffed full of loose, dry hay is liable to have the heavens. When hard at work increase the ground grain feed but not the hay.

A Good Feed

An excellent feed is made by mixing coarse meal, ground and bruised oats, and bran in the proportion of one-half bushel of the latter to a bushel each of the meal and oats, adding a handful of salt and mixing with water—hot is best—when fed.

A warm mash is a great invigorator to a horse tired out with a long, hard day's work. A handful of salt and clean wood ashes mixed makes a good appetizer and preventative of disease. Carrots, turnips, or mangelwurzel beets, cooked or chopped fine, make a good, occasional addition to the diet and tend to correct costiveness.

Temperate Use of Water

Water moderately three times a day. In hot weather, oftener, using a clean pail, as horses often are very particular about the apparent cleanliness of an article they drink from.

Importance of Stable Cleanliness

Next to proper feeding in the barn is cleanliness. The horse should be removed from his stall on the arrival of the groom in the morning, taken into the open, fresh air, and there have his skin thoroughly scratched with a curry comb. Following next in order, a small brush broom should sweep out the dust loosened by the comb. This will be succeeded by a card with wire teeth or comb with wooden teeth, which will comb and carefully separate all hairs in mane and tail. The finishing touch will now be put on by a large, woolen cloth, which rubbed all over the animal will make hair shine and give it a varnished appearance.

Cleanliness in the Stable

Before returning the horse to the stable its stall should be thoroughly cleaned, made dry and no odor left.

To compel a horse to stand in a stable in a bed of manure, breathing the pungent odor arising from lack of cleanliness, is a cruelty which will result in injury to the animal.

The General Care and Cost of Keeping Horses

A Space for Rolling

A large, roomy space, with sanded dirt floor, should be assigned to the horse in which to roll. This may be in the barn or in a nearby yard outside. Improvement in health results from the horse rolling. Examine the horse's feet to see that no mud or gravel is allowed to accumulate there. Wash feet and legs occasionally and wipe dry. The horse should never be compelled to stand in a wet stall or in a mud-puddle by the roadside.

Do Not Blanket in Stable

Except in exceedingly cold weather, in which there is a good deal of wind in the stable, the horse should not be blanketed in the barn, but care should be used in protecting the animal from severe wind or storms on the outside of the stable.

It is particularly bad to drive the horse into a perspiration, then hitch and leave the animal to endure a cold wind without thick blanket protection at such time.

It is well to be provided with waterproof covering in case of storms. Blankets should be well supplied with buckles and straps to shut out wind, wet and snow.

The Stable Floor

The stable floor, preferably made of plank, should be well covered with tanbark, sawdust, shavings, or fine straw. Colts should have abundance of straw to lie on, should be also curried and cleaned, becoming thus accustomed to being handled.

Cost of Keeping Horses and Automobiles

As horses are yet before us to be fed and cared for, and as the mechanical horse is crowding into the barn and onto the premises, it is a live question as to the expense of maintaining the horse in comparison with the automobile.

Cost of Keeping the Horse

The average active period of horse usefulness is from five up to twenty years, depending upon the care which is given to the animal. Much can be said about the horse which needs to be said to those who are going into the business of rearing horses.

Information at the Livery Stable

For facts concerning the expense of keeping the horse, the reader will go to the livery stable, where they know the exact ration which the horse should be fed. There, also, will be learned about age, employment, and weight of the animal, the amount and kind of food required, how often administered, cost of shoeing, medical attendance, earning capacity, etc.

Necessary Veterinary Knowledge

Investigation concerning keeping the horse will lead to the conclusion that the horseman should obtain a complete volume on veterinary management to do justice to the subject of caring for domestic animals. We close this chapter on the horse with brief attention to cruelties liable to be practiced on the horse.

THE VARIOUS POINTS OF THE HORSE

Names and location of points used in referring to the external conformation of the horse. 1, muzzle; 2, face; 3, forehead; 4, poll; 5, crest; 6, cheek; 7, lower jaw; 8, throat; 9, neck; 10, withers; 11, point of shoulder; 12, breast; 13, elbow; 14, forearm; 15, knee; 16, cannon or shank; 17, fetlock; 18, pastern; 19, coronet; 20, foot; 21, girth; 22, belly; 23, flank; 24, back; 25, loin; 26, haunch or hip; 27, croup; 28, dock; 29, thigh or quarter; 30, lower thigh or gaskin; 31, hock; 32, heel. (Mumford.)

CRUEL TREATMENT OF HORSES

Kindness Pays a Dividend in Increased Service and Value.

It is a strange fact that many people think that the ownership of a horse or cow or other animal carries with it the right to abuse one's property. Only a few years ago a man felt he had the right to beat his horse—to death if he wished—with the same liberty as he mowed or left uncut his own weeds. But the spirit of co-operation has prompted farmers to demand laws compelling everyone to keep down noxious weeds; it is realized that this is not a matter for private preference or personal convenience, but a question of general welfare. But since one farmer does not suffer when another overworks his own horse or starves it or clubs it, and one liveryman does not lose when his rival allows patrons to abuse his teams, so for a long time the public interest in the welfare of private livestock was not considered.

Then came the S. P. C. A., the *Society for the Prevention of Cruelty to Animals*, and it was not long before laws and ordinances were drafted to prevent mistreatment. As a result, we see little of the beating and starving of defenseless horses that was common even fifteen or twenty years ago. But the change has not been entirely due to the activities of the Society. Horses are daily increasing in value, and the owners of livestock realize that it does not pay to take any chance of injuring valuable property. A man doesn't take a sledge hammer to a twenty-one jewel, solid gold watch just because it won't run. People have been learning how to take care of animals. Aside from the fact that they often make the best of friends, they represent the investment of so much capital, an investment which ought to pay as large a dividend as possible. Ill treatment reduces the dividend. The most practical kind of experience tells that kindness will get more work from a horse than will the use of the whip. And any child knows that a horse gets his strength from the food he eats, and a starved horse cannot give effective service any more than can a stove without fuel. It's like trying to run a gasoline engine on water—it can't be done.

When a man underfeeds his stock we call him selfish, stingy. He isn't. He's merely showing poor business judgment and is cheating himself. The horse shows a profit on the food he eats. The less food he gets, the less work he is able to do, and the less profit he pays.

Farmers are being educated every day in the business of agriculture, and they are learning to take care of their stock; so there is much

less abuse of dumb animals. Bad temper rather than bad judgment is coming to be the only cause of cruelty.

The owner of a horse realizes that the animal repays in increased value and increased work all the time and care and money that is invested in him. In the summer he must be protected from flies, from overwork or over-driving in the extreme heat; in the winter he must be blanketed against inclement weather, not for any sentimental reason, but because a horse is "animated money."

The only abuses practiced to-day by intelligent owners are inspired by "style." Over-checking is the commonest form. To some tastes a driving horse may present a fine appearance if the head be pulled high and back, and the consequent restless tossing of the head may give a spirited appearance, but the custom is a silly one after all. Over-checking pulls the horse's head into a strained, unnatural position which is far from beautiful. There is nothing more attractive than the dignified arch of a spirited horse's neck, nor the proud way in which he carries his head. The man who over-checks his carriage horse thinks he is helping it to keep to this graceful position—which is just what he is not. A single glance in comparison ought to be enough to convince anyone.

Moreover, pulling the head back in this unnatural way takes away much of the steed's pulling power; try it on yourself and see how it works.

If a horse does not naturally hold his head high it is because he is underfed, overworked, or in bad health. The assistance of the veterinary is needed and not that of the check rein.

Docking the horse's tail needs little comment. The operation required for a real dock is painful, and, in any case, the shortening of this natural protection against flies is an unnecessary sacrifice to a mistaken idea of good looks. The fly-net does away with the annoyance to the horse, but it does not remove the lack of symmetry. Certainly a long silky tail is much more graceful than a stub, no matter how "natty" it may look.

Many drivers are too careless of the horse's welfare to see the needless cruelty of the tight nosebag. There is no economy in this, even if the extra large nosebag spills a few oat grains. Less food, eaten in comfort, will do more good than a generous feed which causes the horse to gasp and choke.

Devon Cow.

The Devon comes from Devonshire, England. Its value rests less upon quantity of milk it yields than upon its superior quality.

Model Horned Cow.

The Model Horned Cow stands high among dairymen as a good breeder and as a continuous and large milk producer.

Jersey Cow.

The Jersey, coming from Jersey, England, a small-sized animal, stands pre-eminent for richness of milk and the butter which it produces.

Texan Steer.

The Texas Steer descends from cattle imported into Mexico from Spain in the 16th Century. A prolific inferior breed on Southwestern plains.

CATTLE

DIFFERENT
BREEDS

BEST FOR MILK
AND BUTTER

Records of the Best Milk and Butter Production

Cattle and their uses are mentioned in the oldest books of the Bible. It is probable that the domestic ox is a native of Europe, Asia and possibly of Africa.

There are many breeds of cattle in England and in the United States. Each has its admirers. We mention here twelve of the well known and popular breeds.

Devon Cattle

The Devon is one of the original breeds of English cattle. They are red in color, symmetrical in form, and distinguished for beauty. They are superior milkers, have a fine flesh, make excellent oxen, and are recommended to farmers as an all around breed highly valued for milk, beef, and for work, as oxen, on the farm.

The Model Horned Cattle

The Model Horned Milk Cow is not supposed to belong to any special breed, but illustrates in her make-up and appearance, a mixture of good blood and excellent traits. One, described as half Short-horn and half Devon, gave milk twelve years in succession and bred many calves.

Jersey Cattle

The Jersey Cow. This prime animal, for dairy purposes, was first reared in Normandy, in France, but was carried to the islands of Alderney and Guernsey, in the British Channel, and there reached its present position, as a distinct and valuable breed. Its popularity may be judged by the fact that more than 4,000 head are annually exported from the islands to this and other countries.

In appearance and in those traits which make up a genuine and attractive dairy cow, the Jersey is rather below the medium size, yet pleasing and satisfactory. No excellence is claimed for it beyond the richness of its milk, and the butter which it produces; but in these it stands pre-eminent, and as a household pet is not surpassed for gentleness.

Texan Cattle

The Texan Steer is a descendant of cattle imported into Mexico from Spain in the 16th century. It is prolific and numerous, and is kept in enormous herds on the plains where it is caught and shipped.

As a whole it is an inferior breed of cattle, raw boned and shambling in appearance, with long and slender horn curving backward over the head which is of medium size.

Holstein Cattle

The Holsteins. This breed, introduced into this country from Holland, has been a favorite in the dairies of that country for hundreds of years. They are large in size, black and white in color, and are great milkers in quantity and quality.

Originally this breed was white in color. About the year 200 B. C., a tribe of people, called the Batavians, brought into Germany a breed of black cattle and settled along the Rhine. The combination of these two breeds produced the black and white breed of Europe.

These cattle were imported into this country, about the year 1625, by the early Dutch settlers. The first cow, supposed to be a pure blood of this breed, was imported into the United States in 1852. This breed is noted for marvelous milk production, powerful digestion and perfect assimilation of food.

There are numerous records of cows of this breed producing 20,000 pounds of milk a year; and instances have been recorded where a cow of this breed has produced, in one year, as much as 30,000 pounds of milk. They are large in size and, next to the Jerseys, the Holsteins are greatest in numbers in the United States.

Ayrshire Cattle

The Ayrshire, though coming from Scotland, its origin is not certainly known. It is a superior animal of strong constitution, highly prized for the excellence and amount of its milk. It excels, also, as a yielder of good butter.

Wedge-Shaped Dairy Breeds and Rectangular Beef Cattle

Holstein Cow.

The Holstein, a native of Holland, is highly esteemed for dairy uses and for market purposes. Large in frame but compact in structure.

Ayrshire Cow.

The Ayrshire, a native of Scotland, is highly prized for amount of milk and as a yielder of good butter.

Holderness Cow.

The Holderness comes from Yorkshire, England. Belongs to the Short-Horn family and is classed among the best of dairy cows.

Model Polled Cow.

The Model Polled, a hornless cow, descends from Norfolk and Suffolk counties, England. Does not fat easily but excels in rich milk.

Holderness Cattle

The **Holderness Cow**, which is classed among the best of dairy cows, came to us from Yorkshire, England, where it has existed for a long period. It was imported into this country about 1818 or sooner.

It belongs to the Short-horn family, is of medium size, color varying from deep red, with white line, back and belly, to a chocolate and black body and black legs.

The breeding-in-and-in system, resorted to in the propagation of this animal, has resulted in an excellent and vigorous progeny.

Model Polled Cattle

The **Model Polled Cow** has been a favorite among citizens of New Jersey, in the vicinity of Philadelphia, on Long Island, N. Y., and in other parts of the United States.

Guernsey Cattle

The **Guernseys**, like the Jerseys, are a channel island breed, having originated on an island in the English Channel.

Both the Jerseys and Guernseys have been developed as dairy cattle. The Guernsey is larger than the Jersey, is coarser in bone and carries more flesh.

Next to the Jersey, the Guernsey produces the richest milk. In quantity the Guernsey yield often exceeds that of the Jersey.

Years ago the Jerseys and Guernseys were classed together and were known by the general name, Alderney. But later they have been recognized as separate breeds.

The Guernsey is an ideal family cow, color light yellow, reddish or fawn, a light feeder, but rich in milk production. The "Dolly Bloom," a Guernsey, cow, has a record of having produced in one year 17,297 pounds of milk.

Hereford Cattle

The **Hereford** takes its name from its native district Herefordshire, England, where it has flourished for the last one hundred years. As a milker it does not excel, but in the market shop it is good beef.

Larger than the Devons, and easily fattened, it is greatly esteemed, either unmixed or for crossing with inferior stock.

Galloway Cattle

The **Galloway**. This animal is noted for a hornless head, the result of cultivation.

Though not a prolific milker its milk is rich in quality and yields a large proportion of butter. In colors, black and brown, it originated in Southwestern Scotland.

Short-horn Cattle

Short-horn Heifer. This is one of the most admired breeds of cattle in the United States.

It is very large in size, weighing from 750 to 2,200 pounds, is principally raised for beef, which is of excellent flavor; fattens easily.

As a milk cow it yields from six to eight gallons a day, and from 12 to 18 pounds of butter weekly.

The principal distinguishing mark is its short horns, which curve forward and slightly downward from the upper level of the head.

The Latest Milk and Butter Production

By Champion (Guernsey) Cow

KIND OF FOOD GIVEN THE COW, AMOUNT OF FOOD, HOW FED, Etc.

Galloway Cow.

The Galloway, originated in Southwestern Scotland, Hornless animal, milk rich in quality and yields a large proportion of butter.

Short-Horn Heifer.

The Short-Horn Heifer, one of the most admired breeds, comes from England, is excellent for beef and is a large butter producer.

Hereford Cow.

The Hereford, from Herefordshire, England, is valued highly for market purposes, fats easily and is of good size.

A few years ago a record of more than a thousand pounds of butterfat in 365 days was thought to be impossible, but a record of 1,059.59 pounds of butterfat produced in a year won the championship, for the Guernsey, May Rilma, a seven-year-old cow, which, in an official test finished in April, 1914, exceeded by 20 ounces the record of the Holstein, Banostine Belle DeKol. The Jersey record of just 14 ounces less than 1,000 pounds is held by Sophie 19th.

It is interesting to note that the record-breaking Guernsey, as well as her sire and dam, are American-bred cattle.

A few other facts with regard to this Pennsylvania-bred cow and her treatment during the test. Her weight is near the 1,300-pound mark; she gained flesh during the trial.

Rations during the test: She was given practically the same ration during every month of her high production. She received eighteen pounds of the following grain mixture daily:

250 pounds of bran	50 pounds of hominy feed
100 pounds of gluten feed	50 pounds of oil meal
	50 pounds of cottonseed meal.

In addition to this she had three pounds of molasses and three pounds of dried beet pulp daily. The ration was divided into three feeds. For roughage she had all the alfalfa, clover hay, and corn silage that she cared to eat. The usual consumption of silage was thirty pounds a day. To make up for the rather small amount of silage she got away with a daily allowance of sixteen pounds of carrots.

This Guernsey was fastidious. She ate only those feeds that particularly pleased her—which helps to account for the good results. She refused to eat home-grown alfalfa, preferring the clover hay and Iowa alfalfa.

Another feed that she would not have on her menu was beets, carrots suiting her much better. When silage was put in the feed-box she picked out the tenderest parts and left the rest. She drank, it is estimated, about twelve twelve-quart pailfuls every twenty-four hours (about 300 pounds) of water.

The herdsman who milked the cow lived in a little cell right alongside the big box-stall, alert to the slightest change. By the use of a small stove and window ventilators he kept the temperature nearly uniform—from sixty to sixty-five degrees. Every day from April seventh to April seventh he milked the cow at four in the morning, at noon, and at eight o'clock at night.

Perhaps with similar care and considerate treatment, the yield of the average cow would be brought up to something over half of this champion's record.

May Rilma was sold at Edward B. Cassett's sale of blooded Guernseys, at Devon, Pa., Aug. 28, 1914, to John P. Crozer of Upland, Pa., for \$5,010.

The World's Record

June, 1914.

Guernsey, May Rilma:	Pounds.
Milk produced in 365 days.....	19,639.50
Butterfat produced in 365 days.....	1,059.59
Butter (85 per cent fat) produced in 365 days	1,364.00
Milk produced in best month.....	1,839.90
Butterfat produced in best month.....	103.03
Average test.....	5.4 per cent fat
Highest test, one milking.....	6.9 per cent fat

Other Records

	Pounds.
Previous 365-day butterfat record—Banostine Belle De Kol (Holstein).....	1,058.34
Previous Guernsey butterfat record—Daisy Pearl	957.38
The Jersey yearly butterfat record—Sophie 19th	999.14
The Ayrshire yearly butterfat record—Auchenbrain Brown Kate, 4th.....	917.60
Present World's butterfat record for seven days—K. P. Pontiac Lass (Holstein) ..	35.32
Present World's record for milk production in 365 days—Creamelle Vale (Holstein) ..	29,591.40

Guernsey Cow

The Guernsey, from the Island of Guernsey, England, like the Jersey, is noted for its rich milk and excellent butter.

Sterilized milk or cream, properly speaking, is that in which all the germs have been destroyed (usually by repeated heating to 212° F.—boiling point), but in dairy practice the term is applied to milk or cream which has been heated once to a temperature of about 212° F.

Butter.—An oily substance obtained from cream or milk by churning. Agitation separates the fat or oily part of milk from the thin and curdy part, called buttermilk. The word comes originally from the Greek "bous," ox, cow, and "tyros," cheese.

Wide ration is one in which the ratio of protein to other constituents is wide, i. e., comparatively poor in protein.

Tuberculin is a liquid in which the germs of tuberculosis have been grown but from which all live germs of the disease have been carefully removed. It is administered by hypodermic injection as a test for tuberculosis in animals, a rise of temperature after injection indicating the presence of the disease.

Bedding. Material used for stock to sleep on in the stable, both to keep the animal clean and to save valuable fertilizing ingredients from being lost. Cut corn-stalks are best; sawdust and shavings make more valuable bedding than straw, since they absorb water better and there is apt to be less waste of liquid manure.

Names of Points Describing Cattle

Names and location of points of external conformation of beef cattle. 1, muzzle; 2, face; 3, forehead; 4, poll; 5, crest; 6, throat; 7, dewlap; 8, brisket; 9, neck; 10, crops; 11, back; 12, loin; 13, rump; 14, thigh; 15, flank; 16, fore ribs; 17, fore flank; 18, setting on of tail; 19, twist; 20, breast; 21, hip; 22, hock. (Mumford.)

Points and measurements to be observed in judging beef cattle.

NAMES OF POINTS.

1. Mouth..	15. Neck.	26. Arm—portion of leg be-
2. Lips.	16. Neck—lateral view.	tween shoulder and knee.
3. Nostrils—airpassages.	17. Breast or bosom—front of	27. Knee.
4. Muzzle—bare.	chest.	28. Cannon or shank—bone be-
5. Face—from muzzle to poll.	18. Fore flank—rear of arm.	tween knee and ankle in
6. Forehead—from eyes to	19. Dewlap—loose skin under-	fore or hind leg.
poll.	neath the throat.	29. Hoof.
7. Eye.	20. Brisket—point of chest.	30. Spinal column—backbone.
8. Cheek—side of head below	21. Withers—top of shoulders.	31. Barrel or coupling—middle
eye.	22. Shoulder point.	piece.
9. Jaw.	23. Neck or collar—depression	32. Loin—muscle covering the
10. Throat.	in front.	short ribs.
11. Brains.	24. Elbow.	33. Hooks or hips.
12. Ear.	25. Chest—cavity inclosing vi-	34. Crops—depression behind
13. Poll—top of head.	tal organs.	shoulder.
14. Horns.		

Points in Judging Dairy Cattle

TO ALL PEOPLE DEALING EXTENSIVELY IN CATTLE

To Know the Points Is Very Important

Points and measurements to be observed in judging dairy cattle.

NAMES OF POINTS—continued.

35. Girth at heart.	43. Mid ribs.	51. Brush.
36. Girth at flank.	44. Abdominal depth, indicating digestion and constitution.	52. Thigh.
37. Fore ribs.	45. Tail head.	53. Stifle.
38. Chine—between withers and loin.	46. Pin bones.	54. Flank.
39. False or floating ribs.	47. Buttocks.	55. Udder.
40. Belly.	48. Escutcheon—covered with fine hair.	56. Teats.
41. Milk veins—branched and tortuous ducts running forward beneath the barrel.	49. Twist—where hair turns on thigh.	57. Hock.
42. Orifices through which the milk veins enter the abdominal walls.	50. Gaskin or lower thigh.	58. Navel or umbilicus.
		59. Dish.
		60. Pelvic arch or sacrum—the arch bone between the loin and crupper.

ANIMAL MEASUREMENTS.

A. Width of forehead.	E. Height at withers and hooks.	G. Length of barrel depression.
B. Length of neck.	F. Girth at gore, flank, and navel.	H. Width of hooks.
C. Width of breast.		K. Length of hind quarters.
D. Length from pin bones to shoulder point.		L. Circumference of udder.

General Outline Description of Cow

NAMES OF THE DIFFERENT POINTS OF THE BULL

—Names of points.

1. Forehead and face.	9. Shoulders.	17. Hooks.	25. Flanks.
2. Muzzle.	10. Chest.	18. Rumps.	26. Legs and bone.
3. Nostrils.	11. Brisket.	19. Hindquarters.	27. Hocks.
4. Eyes.	12. Fore ribs.	20. Thighs.	28. Forearms.
5. Ears.	13. Back ribs.	21. Twist.	29. Neck vein.
6. Poll.	14. Crops.	22. Base of tail.	30. Bush of tail.
7. Jaws.	15. Loins.	23. Cod purse.	31. Heart girth.
8. Throat.	16. Back.	24. Underline.	32. Pin bones.

Names and location of points in external conformation of the cow,

1, muzzle; 2, face; 3, forehead; 4, poll; 5, lower jaw; 6, cheek; 7, neck; 8, back; 9, loin; 10, hip or hook; 11, rump; 12, pelvic arch; 13, switch; 14, thigh; 15, flank; 16, udder; 17, barrel or belly; 18, fore flank; 19, brisket; 20, dewlap; 21, heart girth; 22, loin girth. (Mumford.)

CRUELITIES INFLICTED UPON CATTLE

Good Treatment Means Better Stock and More Milk and Butter.

Because a cow does not appear in public quite as much as a horse, the abuses it has to endure have not received as much attention. Fortunately, of late years the government and the various agricultural colleges have been educating the farmer to see the business value of right treatment for stock. Cleanliness, protection from inclement weather, sufficient food and water, and kindly treatment have been demonstrated to have a direct bearing on the commercial value and productivity of stock.

In the case of milch-cows it goes without saying that the amount of milk, as well as its richness, is directly proportionate to the attention given to the animal. Every farmer realizes that his herd must be given milk-producing food of the right quality and quantity. He knows that the animal must be kept clean in order that it may be healthy and the milk free from disease. He knows that extreme cold and exposure cut down the yield of milk at once, and—if he is observing—he quickly realizes that mistreatment impairs both the quality and the quantity of the milking.

Most of the ill-usage of cattle is due to carelessness or shiftlessness. Nine times out of ten the prosperity of the farmer can be judged by the appearance of his cattle—and justly, for his herd may be made a big source of profit. Filthy barns, drafty and leaky, boggy barnyards, tainted water supply, have no place on the up-to-date dairy farm. Good clean bedding, well kept mangers, right kind of ventilation, coupled with protection from the weather, mean increased milk of superior quality. The farmer's pocketbook, as well as his heart, should prompt considerate treatment of his stock.

Cattle raised for market are commonly subjected to cruelties while in transportation. Legislation has remedied many of the abuses practiced in earlier days, and watering and feeding en route is compulsory at proper intervals. Overcrowding, especially where cattle are not dehorned, often results in injured stock, and always in loss of weight. The loss of weight on a long journey is almost unbelievable, and no stock raiser of good judgment increases this purposely by wanton cruelty. An animal less in the car at the beginning of the shipment is better than two or three less at delivery. The common custom of shipping calves by wagon, with feet bound together and heads hanging over the side is too inhuman to need more than mention. "How would you like it yourself?" ought to be the question every shipper asks himself. It would do away with much barbarity.

LARGE SHEEP FOR MUTTON

SHEEP

FINE WOOL SHEEP FOR FINE CLOTHING

THE DIFFERENT BREEDS OF SHEEP

The sheep was doubtless the first animal domesticated by man. It is frequently alluded to in the Bible. Abraham and his descendants were shepherds.

Wild sheep are found in the mountainous regions of various parts of the world. The Big Horn is found in the rocky regions of North America.

The original wild sheep is said to be a native of Asia and from that country came to this, possibly, by way of ice across Behring strait.

The wild sheep is clothed with short wool, having an outer covering of long hair. The effect of domestication has been the disappearance of the outer hair and an increase in the length of wool.

Today the domesticated sheep are found wherever we find man. The various breeds are numerous and

the manufacture of wool into the different kinds of cloth and the changing of the cloth into various articles of wearing apparel are among the largest industries on earth.

Sheep raising is one of the important departments of agriculture, claiming attention in all the mountainous regions of the United States. It is a very profitable feature of farming, sheep being valuable for food, while being sure to yield a valuable fleece necessary in the manufacture of clothing.

As one of the prime necessities wool is always in demand. To make sheep raising highly profitable it is only necessary to provide the flock with fair pasture, with shelter against inclement weather, protection against wolves and sheep-killing dogs.

Success in Sheep Raising

Having determined to go into sheep raising the immediate rule to adopt is to get the best of the breed selected.

Much will depend on the ram. He should be a thoroughbred. Common sheep bred to him will be greatly improved in their progeny. He should be kept apart from the ewes, stabled at night and well fed with grain. The ewes should be admitted

to him singly and but once each. Carefully treated thus a ram will be able to serve fifty or sixty ewes in a season.

Ewes should not be bred from until two years old. If spring lambs are being raised for early market the time for lambing must be arranged accordingly. The period of gestation with sheep is five months.

Feeding and Care of Sheep

From the illustrations we have given and description of the different breeds the farmer will determine for himself whether sheep raising for wool or for mutton is the most profitable.

If near a large city with the advantage of a close-by market he may find it most profitable to raise sheep and lambs for market. If located many miles from a market place, with a hilly, mountainous region favorable for pasturage, he may find it best to devote all his energies toward raising sheep

solely for wool. In that event, whether it shall be a fine or a coarse wool, he must determine by market conditions, and his facilities for caring for a large flock.

If intending to go extensively into sheep raising it will be well to make careful study of the subject, procuring the best books treating on sheep husbandry, in the meantime visiting large sheep owners and studying their methods of management to acquire knowledge of successful sheep farming.

Effect of Crossing Breeds

The Farm and Home Cyclopaedia, under the editorship of H. R. Allen, gives the following concerning sheep raising. "The following crosses upon common sheep have been recommended for several purposes indicated. A cross of Cotswold will increase the length and quality of the fleece and largely increase the weight of carcass over that of the common ewe.

A cross of Southdown will greatly improve the quality of the mutton, increase the quantity, thicken the fleece somewhat, and give it some additional weight.

A cross of the American Merino will materially increase the weight and quality of the fleece. The size of carcass will not be much increased, though improved in symmetry.

The Ewe During Pregnancy.—During pregnancy the ewes should be well cared for, and those expected to drop their lambs early in the spring closely watched. As the time approaches for parturition the ewe should be separated from the flock and placed in comfortable quarters. Ewes should be well fed during their entire pregnancy, but not kept fat. They should also have exercise.

Protection of Ewe and Lamb.—The ewe should have a dry, warm place, where she and her newly-born lamb can be protected from wet and cold. A shed enclosed so as to shut off the wind will answer. If the weather is very cold protection should be something warmer. If the lambs come later in the season—and for the general flock about the first of

May is the best time—less shelter and less care generally will be required. The main thing at any time is, to prevent either the ewe or the young lamb from becoming chilled.

The Young Lamb.—After the lamb is dropped the ewe will generally lick it dry. If, however, she refuses to do this, it should be carefully wiped dry. The lamb will soon attempt to suckle; if it does not, it should be assisted. If the ewe refuses to own the lamb, she should be held while it suckles. If this is repeated a few days she will own it.

If the lamb is intended for early market it should be taught to eat when quite young. Feeding may begin at about three weeks of age. Indian meal or oatmeal gruel may be given it. The ewe, at the same time, should be fed bran, oil cake or oat meal. Heating food like corn should not be given her. The lamb in a very short time may be given oats and hay.

Weaning.—Lambs should be weaned when about four months old. They may be left in the pasture where they have been running with the ewes, and the ewes removed to some other place and be put upon dry food to stop the flow of milk. Their udders should be watched and if they become distended, should be relieved by milking. If at all feverish they should be bathed with tepid water.

Treatment of Lambs.—In addition to pasturage the lambs should be fed daily a little oats.

General Directions in Care of Sheep

MANAGEMENT OF SHEEP

On Prairie Farms

On prairie farms, or where lumber is high, good shelters may be made by the use of poles and straw, or dry grass. These shelters should open to the south and be made with poles and grass, and should be from six to eight feet high; if from lumber, they may be made as high as the fancy of the farmer or his purse may dictate. They should always have good ventilation. Fresh air is as necessary as warmth. Shelterless flocks may live during the winter, but they will require double the feeding of those kept dry and warm.

Racks or mangers should be placed in the sheds, in which the sheep should be fed. The feed should never be given them on the ground. Where racks are used there should be a tight trough beneath to catch such particles of hay as fall through.

Food and Fattening

Food and Fattening.—Sheep should not be suddenly brought from grass to hay. Feeding should begin on the pastures before the sheep are finally removed to winter quarters.

Hay and small quantities of grain should be given them, the quantity being increased gradually until they are transferred to winter quarters. They should not be permitted to fall off in condition when the change is made and they should be kept in good condition during the winter. Good feeding and care during the winter will add to the weight of the next year's fleece. The best food for sheep during the winter is good hay and corn, with straw and roots occasionally.

Sheep Thrive the Best

Sheep thrive the best on a variety of food. Oil meal makes an excellent food during the winter. Clover hay is regarded by many as much superior to any other kind. Wheat bran is also esteemed by many as a desirable food, to be given with corn. Sheep intended to be fattened for spring market, when mutton is generally scarce and high, should be kept in good condition during the winter. As spring approaches, their food should be increased. Sheep should be bedded with straw. This is the best way of saving the manure. The bedding should be renewed every day, as cleanliness is essential to the health of sheep. When the weather is very cold the daily average of food should be increased, a larger amount of grain being given.

Salt should be given at least twice a week. Or, what is better still, keep it in the bottom of the rack all the time, so they can get it when they want it.

Summer Management

Summer Management.—As soon as spring opens and the grass begins to appear the sheep will manifest their impatience for the pasture by restlessness and bleating. When the pastures are large and naturally dry they may be turned out as soon as they can find grass enough for a bite if the weather is fine. They should not be permitted to eat too freely of the green food, however, at first, as there is danger of purging them excessively.

If roots be given them for a few days before turning them on pasture it will, in a measure, prepare their systems for the change and the grass will not affect them so seriously. It is also a good plan to bring them into the yards every night and feed them with hay for a week or ten days. After this time the management of sheep is simple and easy during the summer and until the grass begins to shorten in the fall.

Pasturage

With sheep, good pasturage with plenty of water and shade and frequent saltings is all that is necessary. A range of woods in addition to open pasture is desirable, as sheep consume a great variety of weeds and shrubs and will thrive on a diversity of foods. Some farmers anticipate the drying up of pastures during summer and provide green food by sowing rye or corn broadcast, on which the sheep are turned when the grass becomes short. White mustard has also been used with advantage for this purpose.

The sheep is naturally a shy animal, but is exceedingly docile, and if kindly treated will learn to entertain an affection for its keeper. This will render the management of the flock, under all circumstances, much easier and more satisfactory than when the sheep are wild. Lambs should be castrated when about four weeks old.

Winter Care

Winter Care.—When winter approaches and the severe frosts of late autumn have diminished the quantity and quality of food found in the pasture, sheep should be brought into winter quarters. They should be removed from the grass before the fall rains set in, as often the ground becomes softened and their continuance on the pasture will injure the health of the sheep and ruin the sod.

Dry Yards

Dry yards and comfortable sheds should be provided for winter. The larger the yards, if dry, the better for the sheep, as they require a good deal of exercise during the winter months. The yards should be made absolutely dog-proof, and in a region infested by wolves, foxes, or other sheep-destroying animals, the fences should be such as to keep them out.

When Large Flocks of Sheep

When large flocks of sheep are raised and they are seen by their keepers during the day it will be necessary to have them protected from dogs and other animals at night. When brought from pasture to the yards, it is a good plan to separate the young and feeble sheep from the stronger ones and keep them in separate yards. This will enable the farmer to bestow special care where it is most needed. Every sheep yard should be supplied with plenty of fresh water. The sheds or shelters attached to each yard should be dry and made with reference to the climate.

Sheep Should Have Shelter

Sheep should have shelter in all climates, but in northern latitudes, where the winters are severe, their shelter should be more than an open shed. They should not only be kept dry, but warm. The shelters should be so constructed that the sheep may come in and go out at will. In regions where timber is plenty and cheap, of course sheds or stalls regularly constructed of lumber are the most desirable.

No domestic animal is more readily affected by adverse circumstances than the sheep, and none has less power to resist them. Therefore, it is urged upon farmers, if they wish to raise sheep with profit, to give them the most careful attention.

Profits of Sheep Raising

When intelligently followed, the breeding and raising of sheep is one of the most profitable and pleasant branches of general farming. But to make it profitable the farmer must give it the most

vigilant attention. The idea that sheep can take care of themselves better than almost any other domestic animal is erroneous and fatal in its practical workings.

The Different Breeds of Sheep

THE FINE WOOLS AND THE COARSE WOOLS

Cotswold Sheep.

The Cotswold yields, generally, a fourteen-pound fleece

Leicester Sheep.

The Leicester gives a coarse long wool.

Cheviot Sheep.

The Cheviot yields a fine wool

Oxfordshire Down Sheep.

The Oxfordshire Down gives fleece of long wool.

Cotswold Sheep

Valued for its mutton and for its annual 14-pound fleece of wool.

This sheep takes its name from the Cotswold hill district of England. It was at first bred upon the hills and fattened in the valleys of the Thames and Severn rivers.

The modern Cotswold is a cross between the original stock and the Leicester. It is valued both for its mutton and wool, the first of which is considered, and the latter yields 14 pounds per head per annum. The weight of the animal varies from 200 to 300 lbs.; it has a hardy constitution, thrives well in pasture, has an average increase of 500 per cent. in five years, valued at \$200; is docile in disposition: its cost of keeping is about \$2.25 per head yearly; and prices for bucks and ewes of the best grades range from \$40 to \$60 each. This is the highest price asked for any breed of sheep in this country.

Leicester Sheep

Noted for a 6-inch-long wool which is admirable in the manufacture of knit goods.

The Leicester was formerly an inferior breed existing in mid-England, heavy, large and coarse in wool; but after years of improvement instituted by Robert Bakewell in the 18th century its quality changed for the better.

General Washington introduced the Leicester into this country, and today it ranks nearly equal to the Cotswold.

Its weight ranges from 150 to 200 lbs. The flesh is palatable and nourishing. The yield of wool at a clip is 8 pounds. Its constitution is hardy, its disposition is docile and it is a fair forager. Its average of increase is 500 per cent. in 5 years, valued at \$100. Annual cost of keeping, \$2.25.

The wool is long, averaging at the second shearing, and afterward, six inches. Its coarseness and length prevent its extensive use in the manufacture of woven cloth, but for knit goods it is excellent.

Cheviot Sheep

The Cheviot is a native of Scotland, bred among the Cheviot hills, and ranks well as a middle-wooled sheep.

In its home it is much inferior to the improved American breeds, somewhat resembling a cross between the Leicester and a common sheep. It is by nature hardy, thriving on poor food and bravely enduring winter storms, fattening under indifferent treatment, and is described by Mr. Spooner as having a white face and legs, an open countenance, lively eyes, large ears, a long carcass, circular ribs, good quarters, legs and body covered with wool which is fine, and yields a fleece averaging 3½ lbs.

Formerly the wool was extensively used for making Cheviot cloths.

Oxford Down Sheep

The Oxford Down is a recent breed established in England from a series of cross breeding and received its name in 1857.

The only claim it has to Down is its color, while its size and wool class it among the long-wooled sheep.

Partaking originally of Hampshire, Cotswold and some Southdown blood its patrons, by interbreeding, have produced this animal, which possesses the advantages of uniform excellence, a hardy constitution, a large frame and a good fleece; fattens easily and yields mutton of superior quality.

A gentleman who first imported it into the United States speaks highly of it, the unwashed fleece weighing 8½ lbs., and the yield of lambs 275 per cent. on the number of breeding ewes. It has an admirable form.

The Different Breeds of Sheep

FINE WOOLS AND COARSE WOOLS

Merino Sheep

Highly valued for its 10 to 20-pound finest white wool.

The Merino of today is a descendant of either the ancient Spanish or the Saxon animal. The American Merino, now a distinct breed, is of Spanish origin, and was introduced into the United States about the beginning of this century.

Of medium size but well proportioned, it has a well rounded and full body; weighs from 130 to 150 lbs.; is heavily covered with rolls or folds of the finest white wool of which it yields a clip of from 10 to 20 lbs. and for which it is most greatly valued, its flesh being considered only fair mutton.

It has a hardy constitution; is of the best of foraging sheep; its forehead and cheeks are thickly covered with wool; its legs are short and strong and encased in wool, and like all other sheep it manifests a gentle disposition. Crossing it with inferior stock improves it.

Merino Sheep.

The Merino bears a fine white wool, the fleece weighing from 10 to 20 pounds.

Lincoln Sheep

The Lincoln is another English sheep classed as a long-wool which has been imported into this country and here crossed and recrossed with Leicester and Cotswold breeds until it partakes largely of their respective characteristics.

A ram and ewe of the Lincoln were imported in 1835 from Yorkshire, England. The flock formed of their progeny was generally regarded as very valuable, being hardy in constitution, hearty feeders, and very prolific.

The present animal ranges in weight from 200 to 300 lbs.; matures at 2 years; has a hardy constitution; gains an average increase of 500 per cent., yields 11 lbs. of wool annually; is raised both for wool and mutton, the latter of which is good.

Lincoln Sheep.

The Lincoln yields a fleece of long wool.

Fat-tailed Sheep

The fat-tailed sheep demands attention on account of its remarkable peculiarities.

It is undoubtedly derived from Syria, where the early shepherds dwelt with their flocks, but it is now found scattered over a large extent of country.

One of these sheep of the weight of 50 or 60 lbs. will carry a tail weighing 15 or 16 lbs. In cases where it has been carefully fattened until it turned the scale at 150 lbs. the tail has weighed fully one-third that amount.

The tail is broad and rather flat, mostly covered with long wool, as shown in the engraving, and entirely formed of a substance between marrow and tallow; and this, it is said, is used in households instead of butter.

Fat-Tailed Sheep.

The Fat-Tailed has a tail weighing 15 to 16 pounds.

Dorset Sheep

The Dorset sheep is a valuable breed peculiar to Dorsetshire, England, but bearing some resemblance to that of Devonshire.

Most of them, especially of native purity, are entirely white, with a long and broad face, having a tuft of wool on the forehead; the shoulders are low but broad, the back straight, the chest deep, the loins broad, the legs rather long, and the bones small.

They are, as the form of the ewe in the illustration indicates, a hardy and useful animal, furnishing a profitable fleece and well flavored mutton.

The wool is not as good in quality as that of the Southdown, but is intermediate, between the short-wooled Down and the Devon.

Dorset Sheep.

The Dorset is a valuable breed.

The Different Breeds of Sheep

FINE WOOLS AND COARSE WOOLS

Black-Faced Sheep.

The Black-Faced has a long open wool.

Black-faced Sheep

Whatever its origin, has been for centuries bred in Scotland, and it is related that one of the Scottish kings kept 5,000 of them for use of the royal household.

The modern specimens have mostly horns with more or less spiral twist, but the ewes are frequently without horns. The faces and legs are either black or mottled; the eyes are wild and fierce. They are covered with wool about the forehead and lower jaw, and the wool generally is somewhat open and long, and coarse and shaggy—not so long, however, but the sheep may be properly classed among the middle-wooled breeds.

They are active and hardy, and endure cold weather better than any other sorts of sheep, except the Cheviot.

Southdown Sheep

The Southdown originated in the southern part of England; is one of the oldest breeds now known and has attained a wide popularity both on account of its excellent mutton and the good quality of its wool.

It belongs to the hornless class of sheep, is of medium size, weighs at 2 years old from 140 to 200 lbs.

Its constitution is hardy; it thrives well in pasture; is docile in disposition and yields 9 lbs. of wool at a clipping.

The wool, which is coarse and light colored, is used in the manufacture of flannel goods. The sheep itself has a good shape, is well proportioned and presents a fine appearance. Crossing with other breeds always improves the stock.

South-Down Sheep.

The South-Down yields a wool used in the manufacture of flannel goods.

Angora Goat

The Angora goat takes its name from the capital of the Turkish province of Angora in Asia Minor, the mild climate of which has been instrumental in producing the valuable products of this animal—a beautiful, silky, white hair, 8 inches long, and a skin from which fine Oriental morocco is manufactured.

The hair is made into what is known as Turkish yarn, or mohair, and then wrought into shawls and camelot cloths. Importations of this goat into Europe deteriorate the quality of its hair.

At home it is sheared twice a year. It is estimated that in 1909 the province of Angora contained a million of these goats, from which the annual yield was 2,700,000 lbs.

Angora Goat.

The Angora Goat, named from the province of Angora in Asia Minor, yields a silky white hair, 8 inches long, from which the mohair shawl is made.

Shropshire Sheep

The Shropshire, as its name indicates, is a native of the county of Salop, northwesterly from London, England, and was originally, but is not now, a horned sheep.

Its weight varies from 140 to 200 lbs.; it yields 6 lbs. of wool at the clip; is more esteemed for its flesh than for quantity or quality of its wool and is considered fair eating.

Having a hardy constitution and thriving in pasture, it is an economical sheep.

It was distinguished about a century ago, aside from its horns, by the color of its face, which was either black or brown or spotted. The present breed is more or less mixed with the Leicester, Cotswold or Southdown, and to its native excellence are added many of the good qualities of the sheep named.

The Morfe is a favorite variety of the Shropshire, which is very numerously bred.

Shropshire Sheep.

The Shropshire is esteemed for mutton.

SWINE

Chester White Hog.

The Chester White, a white swine of Chester Co., Pa., weighs, when 18 months old, from 350 to 400 pounds.

Essex Hog.

The Essex, which originated in England, is excellent for bacon, lard and hams, weighs at 18 months, from 300 to 350 pounds.

Berkshire Hog.

The Berkshire, originally from England, weighs at 18 months from 325 to 375 pounds.

Whether or not one goes into the raising of swine on a large scale, it is profitable to keep a few hogs either in small towns or villages, on suburban grounds, or on a farm, since they will eat up the garbage and dispose of the by-products of the dairy, the skim-milk and the surplus buttermilk, in a profitable way.

The hog is normally omnivorous—eats everything. Nature fitted him for using the bread of the forest—roots, herbs, acorns, and natural grasses. But the food should be in good condition.

Innumerable wastes and unused chances to economize let the profit leak away from the average farm. One of the basic principles of profitable pork production is that the hog shall carry to market, in addition to corn, some cheap material, such as clover. The too exclusive use of corn in swine feeding causes a great annual loss to the Middle West.

In addition to the feed supplied, there are other benefits from pasturing. Grass is flesh, but the pasture is much more. The hog obtains from the soil and from the pasture things that cannot be

attributed to protein, fat, or carbohydrate eaten. Minerals from the soil and the exercise required as part of the price of the day's provisions are two of these benefits. On the other hand, the fields are enriched as the hogs are fattened.

No matter to what extent breeding has adapted the hog to concentrates, he still thrives best with some coarse forage. Enough nourishment is obtained from grass, rich in bone and muscle-forming elements, to maintain his body, and the grain given is converted into gain. Nitrogenous concentrates are needed in dry-lot feeding, but grass reduces this need.

Gains on pasture are made from 20 to 30 per cent cheaper than in the pen, which means usually that they are twice as profitable. Corn worth a dollar fed to hogs in dry lots may readily produce pork to the value of \$1.25, while if fed to hogs on pasture it could as easily be expected to produce gains in weight worth \$1.50, even after making allowance for the value of the pasture.

Weight of Different Breeds of Hogs

Suffolk Hog.

The Suffolk, imported from England, matures at two years and weighs from 300 to 350 pounds.

Poland-China Hog.

The Poland China originated in Southwestern Ohio by crossing native stock with Chinese. Average weight at 20 months 316 pounds.

Jersey Red Hog.

The Jersey Red was first raised in New Jersey. Matures early and weighs from 400 to 450 pounds.

Pastures Are Safer Than Pens

The parasite enemies of swine are most apt to infest small yards and pens. The ravages of cholera, swine plague, and other sicknesses are most readily escaped in the open field. The intestinal tract, distended with grass, is in a more healthful condition, and the heating and fever-starting effects of corn are offset.

Alfalfa makes an excellent hog pasture. It comes early, is abundant, rich, palatable. Everyone cannot produce it, so here is the opportunity for red clover, which ranks a close second, especially during its head-forming period. Alfalfa is more permanent, but both go well in the rotation. Clover should maintain 800 pounds and alfalfa 1200 pounds of

growing hogs per acre, beginning in April, and yet allow for clipping a small yield of hay from one to three times during the season. The money returns are increased thereby, while the tough old stalks are removed and the hog's appetite is stimulated by a tender new growth.

Rape stands highest of the spring-sown forages. Even with abundant clover and alfalfa, rape sown in the small yards and pens used by the hogs in winter will add spice to the ration. This crop is more appreciated with every new trial. Formerly rated as a carbohydrate, it is now known as a liberal provider of protein.

Hogs: Weight at Maturity

Chester White

The Chester White is an American breed, supposed to have originated from the crossing of the Bedford hog with the native white swine of Chester County, Pennsylvania—hence the name. They have been known nearly a hundred years, since 1818, in which year the Bedfords were imported from England. The present excellence of the breed is traced to the careful selection and crossing by the stock-owners of its native county, and it is now considered a well-built and easily fattened animal. Its weight when a year and a half old ranges from 350 to 400 pounds and its price from \$10 to \$25.

Essex

The Essex, now a prime favorite, originated in England, and until improved by crossing it with the Neapolitan hog—about eighty years ago—was a coarse black and white animal, large in frame and a slow eater. The result of crossing and breeding in-and-in is a hog of small or medium size, rivaling the Berkshire in feeding and fattening, and in the excellent quality of its lard, bacon, and hams. When a year and a half old its weight ranges from 300 to 350 pounds, and its value from \$10 to \$25. Its fattening qualities are equal to the best of any other breed, and, being a fair forager when at large, it is as economical as any.

Berkshire

The Berkshire was originally, in its English home, of a reddish color spotted with black, and the breed is known to have existed hundreds of years ago. The modern Berkshire is the result of crossing with Siamese, Chinese, and Neapolitan stocks, and it ranks high as a handsome and profitable hog. At eighteen months old its weight ranges from 325 to 375 pounds; its fattening qualities are of the best; its disposition is gentle; its prevailing color is black; its neck short; its back broad and slightly curved; its body of medium length. It is greatly esteemed in England and America.

Cheshire Hog.

Cheshire

The Cheshire, one of the old English breeds, has been superseded in this country by another of more modern origin, established in Jefferson County, New York, and possessing greatly improved qualities. From that locality it has been widely distributed throughout other portions of the United States, having a good reputation as a stock hog. It has a long body; a long, slender, well-shaped head, with full cheeks; fine, erect, and thin ears; full hams; wide shoulders; a thin, pink skin; hair, thin and pure white; fine-grained flesh, and is greatly valued for the amount of clean mess pork it yields in proportion to its offal. The old Cheshire hog is from 3½ to 4½ feet high.

Chinese Hog.

Chinese

The Chinese, unless mixed with better and more profitable breeds, can hardly prove a satisfactory investment for a progressive pork raiser. Crossed with the Polish hog or the Berkshire, great improvement and consequent increased value are attained. There are two varieties, one white and the other black, which differ little in their characteristics. Both fatten easily, and while in most other hogs this is an excellent trait, it adds nothing to the worth of this animal, its meat becoming too greasy for pork and unfit for good bacon. Its appearance is not prepossessing.

Suffolk

The Suffolk, imported from England many years ago, has become a great favorite in this country, but has undergone certain changes. The original breed was long-bodied, with a narrow back, a wide head, small hams, and white hair. The modern Suffolk matures before it is two years old and weighs from 300 to 350 pounds. It fattens fairly in pasture or pen; has a hardy constitution, small bones, broad shoulders, a short body, short nose, moderately long hair of a white color, and possesses a docile disposition. The best breed is that produced by crossing with the Chinese or Lincoln.

Poland-China

The Poland-China originated in southwestern Ohio and is the progeny of the native Ohio stock united with the Chinese, Poland, and other swine, between 1815 and 1825. By careful selection and cultivation the value and excellence of the breed were maintained and improved by crossing it with the Berkshire and the Irish Grazer, until a very perfect stock has been established. At twenty months old the average weight is about 416 pounds, and for fattening purposes it is reckoned among the best. It thrives well in the fields, having a hardy constitution, is a hearty feeder, and has a docile disposition.

Jersey Red

The Jersey Red, first raised in New Jersey, is supposed to be a descendant of the original Polish hog. It reaches maturity early, weighs 400 or 450 pounds, is a good feeder and fattens readily; has a hardy constitution, a long nose, lop ears, a long body, long legs, large bones, long red hair, a heavy tail, coarse, inclining bristles; is sluggish in action, docile in disposition, a prolific breeder, and a fair nurse. The Duroc hog, first well known in Saratoga County, New York, is of finer bone and carcass than the Red, which it resembles in color, while its shape is very similar to that of the Poland-China. It grows to a large size and is very hardy.

Large Yorkshire Hog.

Yorkshire

The large Yorkshire hog, essentially English in origin, has become an American representative of the mammoth race of swine. The unimproved animal was hardy and quite a prolific breeder, but seldom exceeded 800 pounds in weight. Experiments in crossing it with the Berkshire succeeded in producing a hardy, useful hog that fattened too slowly to be profitable. Crossing it with the White Leicester resulted in a large animal with a smaller head than the Yorkshire, specimens of which have weighed from 1,100 to 1,200 pounds.

Small White Yorkshire Hog.

The small White Yorkshire, a native strain of the English Yorkshire hog, is little known to American farmers. The official report of one of the swine breeders' conventions says: "The Yorkshires are the most valuable swine to breed from or to cross with that are obtainable. Size, shape, and flesh are desirable for family or for packers' use, as they have hardy, vigorous constitutions, a good coat of hair, are very quiet, and good grazers, feed well, fatten quickly at any age, and are very prolific."

SEVENTY DIFFERENT BREEDS

POULTRY RAISING

BEST FOR LAYING AND MARKET

Kind of Food, How Feed and Successfully Raise Poultry

Poultry and eggs constitute in the aggregate one of the most important and valuable products of American agriculture. The general consumption of poultry and poultry products by nearly all classes of people furnishes home markets in almost every city and town in the United States, at prices that will return a good profit to those who exercise good judgment in the management of the business.

If you intend to make a business of poultry raising, remember that, like any other business, it will require work as well as good judgment. Not much hard labor will be required after the poultry plant is once established and houses and runways built, but some exertion will be found necessary and the successful operator must also possess ambition and patience.

There is no industry more widely distributed in the United States, nor more generally profitable. The demand for poultry products is almost unlimited. Thousands of farmers' wives clothe the family from the profits of the henry; large poultry plants in countless number pay good dividends, and on every hand, in city and village, are backyard poultry raisers who keep their tables well supplied with eggs and chickens, besides adding to their savings from the profits of the poultry yard. As an American industry it ranks next to corn when its products are figured in dollars and cents.

The poultry business offers large opportunities to the man of small capital and plays an important part in attracting city-dwellers back to the land.

HENS THAT HAVE LAID 217 EGGS AND MORE IN ONE YEAR

ILLUSTRATION FROM MRS. BERRY'S "PROFITABLE POULTRY"

Name of Breed,
Town, Where Laid,
Exhibitor and
Number of Eggs

Silver Wyandotte
Eggs laid, one year, 217
Missouri

White Wyandotte
Eggs laid, one year, 217
Exhibitor, S. L. Todd
Green Forest, Ark.

Single Comb Buff
Leghorn
Eggs laid, one year, 218
Exhibitor,
E. D. Sheldon
Afton, N. Y.

Single Comb White
Leghorn
Eggs laid, one year, 219
Exhibitor, Tom Barron
Catforth, England

Buff Wyandotte
Eggs laid, one year, 220
Exhibitor, C. H. Rogers
Eagleville, Mo.

Silver Wyandotte
Eggs laid, one year, 220
Exhibitor,
V. G. Warner
Bloomfield, Iowa

Black Langshan
Eggs laid, one year, 221
Exhibitor, Ed Floyd
Mt. Grove, Mo.

Buff Wyandotte
Eggs laid, one year, 222
Exhibitor, C. H. Rogers
Eagleville, Mo.

Name of Breed,
Town, Where Laid,
Exhibitor and
Number of Eggs

Single Comb White
Leghorn
Eggs laid, one year, 233
Missouri

Rose Comb Red
Eggs laid, one year, 235
Exhibitor,
M. L. Puckett
Puxico, Mo.

Ancona
Eggs laid, one year, 236
Exhibitor,
Mrs. Daisy Rose
Bois d'Arc, Mo.

Buff Wyandotte
Eggs laid, one year, 253
Exhibitor,
Crawford & Saylor
Maryville, Mo.

Buff Wyandotte
Eggs laid, one year, 255
Exhibitor, J. H. Clark
West Pawlett, Vt.

Single Comb White
Leghorn
Eggs laid, one year, 258
Exhibitor, Tom Barron
Catforth, Eng.

Rose Comb White
Leghorn
Eggs laid, one year, 260
Exhibitor,
Jno. S. Gross
Maryville, Mo.

SILVER SPANGLED HAMBURG

Black Minorca
Eggs laid, one year, 224
Iowa

Leghorn
Eggs laid, one year, 225
Exhibitor,
Walter Hogan
Petaluma, Cal.

Single Comb White
Single Comb Red
Eggs laid, one year, 228
Exhibitor, Lakemont
Poultry Farm
Winter Park, Fla.

Silver Wyandotte
Eggs laid, one year, 220
Exhibitor,
V. G. Warner
Bloomfield, Iowa

White Orpington
Eggs laid, one year, 232
Kentucky

Silver Wyandotte
Eggs laid, one year, 232
Exhibitor,
V. G. Warner
Bloomfield, Iowa

Buildings and Yards

The location and construction of the poultry house are of prime importance, especially on the farm or where the plant is large. Poultry keeping is wholly a business of details and buildings not conveniently located and arranged become expensive on account of unnecessary labor.

As it is necessary to visit poultry houses several times each day in the year, convenience is of more importance than in the case of almost any other farm building.

A dry, porous soil is always to be preferred as a site for buildings and yards. Cleanliness and freedom from moisture must be secured if the greatest success is to be attained. Without doubt, filth and

moisture are the causes, either directly or indirectly, of the majority of poultry diseases, and frequently of failure in the business.

Poultry houses are likely to be more or less infested with rats and mice, unless some means are provided to exclude them, and this should be taken into account in selecting a location. It is generally best to locate the poultry house at some distance from other farm buildings, especially if grain is kept in the latter. Convenience of access and freedom from vermin are the two desirable points to be secured, and they depend largely upon the location. Everything considered, it is safest to have the house quite isolated.

Raising Poultry for Profit. Poultry Houses

The material to be used in the construction and the manner of building will necessarily be governed largely by the climatic conditions. In general, it may be said that the house should provide warm, dry, well-lighted and well-ventilated quarters for the fowls. In order to meet these requirements it will be necessary to provide a good roof with side walls more or less impervious to moisture and cold, suitable arrangements for lighting and ventilating, and some means for excluding the moisture from beneath.

Where permanent buildings are to be erected, some provision should be made to exclude rats and mice, and for this reason, if for no other, the structure should be placed on cement walls with foundation below the frost line.

It is essential to have the different pens or divisions in the house so arranged that each one will receive as much sunlight as possible. Each pen in the building should have a separate yard or run, and a pen should not be made to accommodate more than 50 fowls, or, better still, from 30 to 40.

In all poultry houses in cold latitudes the windows should be placed in such a position that they will give the most sunshine on the floor during the severe winter months. A very common mistake is to put in too many windows. The windows should not be large nor more than one to every 8 or 10 feet in length for a house 12 feet wide, and set about 17 inches from the floor, or at such height as to throw the greatest amount of sunshine on the floor. Sunshine is required both to keep the house dry and to destroy various forms of infection.

FROM MRS. BERRY IN "PROFITABLE POULTRY"

BUILDINGS AND NECESSARY EQUIPMENT.

You must provide good shelter—not necessarily costly or luxurious, but good warm houses of some kind. They can be made of straw, slough hay or sod, and many a thoroughbred chicken has been reared in quarters made of this material and brought their owners good profit. But it is not necessary to use cheap building material or temporary arrangements long, as poultry will soon pay for good substantial houses. We think the most economical kind of a house to build is one that is similar to several we have built on the Golden Rule Poultry Farm. We have examined lots of plans and have seen lots of different styles of houses and have also studied the matter quite a bit. And, from a practical

standpoint. You can have them any length you wish, making them 16 feet wide, which we have found to be the best. We show an illustration of one of these houses on this page.

These are the dimensions and kind of lumber to use: Height of front, 4 ft.; back, 6 ft.; highest point in center, 10 ft.; from highest point to where the roof joins the building, 3 ft.; studding and rafters every 2 ft. apart; sill, 2x6, laid flat on foundation. Spike stud-

ding to sill. Make window size to suit yourselves. Often they may be procured cheaply from some one taking out of their dwelling and putting in larger ones or replacing the old fashioned small lights with the modern larger ones. Yellow pine is cheaper for dimensions lumber; fir or white pine for siding.

POULTRY HOUSE USED BY EXPERIENCED POULTRY KEEPER

Some means of ventilating the building should be provided, preferably a ventilator that can be opened and closed at the will of the attendant. This can be located in the highest part of the roof and operated by means of cords or chains.

Perches and Nests

Perches should be not more than 2½ feet from the floor, all of the same height and set firmly but movable. A 2 by 3 scantling set edgewise with the upper corners rounded makes a satisfactory perch.

Underneath the perches should always be placed a smooth platform to catch the droppings. This is necessary for two reasons: The droppings are valuable for fertilizing purposes and ought not to be mixed with the litter on the floor; then, too, if the

droppings are kept separate and in a convenient place to remove, it is much easier to keep the house clean than when they are allowed to become more or less scattered by the tramping and scratching of fowls.

In constructing nest boxes three points should be kept constantly in mind: (1) The box should be of such a nature that it can be readily cleaned and thoroughly disinfected; if it is removable so that it can be taken out of doors, so much the better; (2) it should be placed in the dark, or where there is only just sufficient light for the fowl to distinguish the nest and nest egg; (3) there should be plenty of room on two or three sides of the nest.

Nests for Leghorns or Hamburgs may be made of 6-inch fence boards nailed together so as to form boxes 8 by 10 inches and 6 inches deep. Where perches are arranged with the platform underneath to catch the droppings, as previously described, the

Raising Poultry—Natural and Artificial Hatching

**FIRST
EXPERIENCE**

Young Fowls, Lately Arrived.

**BEGINNING
ACTIVITY**

nests may be placed on the floor underneath this platform, the opening in front closed with a door which either lets down from the top or lifts from the bottom.

Selection of Breeds

A mistake is often made in selecting fowls of a breed that is not suited for the purposes for which they are to be kept. If egg production is the all-important point, it is a most serious mistake to select a breed of fowls that is not noted for this product. If, on the other hand, meat is the chief object, an expensive mistake will be made if any but the heavy-bodied fowls are chosen. The small, active, nervous egg-producing breeds can not compete with the larger phlegmatic Asiatics for meat production.

Then, too, if fowls are kept for both eggs and meat production, some breed of the middle class should be chosen. These, while they do not attain the great size of the Asiatics, are sufficiently large to be reared profitably to supply the table with meat and, at the same time, have the tendency for egg production developed sufficiently to produce a goodly number of eggs during the year. The Wyandottes and Plymouth Rocks are good illustrations of this class of fowls. While individuals of these breeds have made excellent records in egg production, the records of large numbers do not compare favorably with the egg production of the Mediterranean fowls. All of the so-called Mediterranean fowls have a great tendency toward egg production and require only the proper food and care to produce eggs in abundance.

Feeding of Fowls

In feeding for egg production a valuable lesson may be learned from nature. It will be observed that our domestic fowls that receive the least care and attention, or, in other words, whose conditions approach more nearly the natural conditions, lay most of their eggs in the springtime. It is our duty, then, as feeders, to note the conditions surrounding these fowls at that time. The weather is warm, they have an abundance of green food, more or less grain, many insects, and plenty of exercise and fresh air.

Then, if we are to feed for egg production, we will endeavor to make it springtime all the year round; not only to provide a warm place for our fowls and give them a proper proportion of green food, grain, and meat, but also to provide pure air and plenty of exercise.

Persons who keep only a small flock of hens, chiefly to provide eggs for the family, frequently make a mistake in feeding too much corn. It has been clearly proven by experiment that corn should not form a very large proportion of the grain ration for laying hens; it is too fattening, especially for hens kept in close confinement.

When comfortable quarters are provided for the fowls, the nutritive ratio of the food should be about 1 to 4; that is, one part of protein or muscle-producing compounds to four parts of carbohydrates or heat and fat producing compounds. Wheat is to be preferred to corn. Oats make an excellent food and, perhaps, come nearer the ideal than most any other single grain, particularly if the hull can be removed.

Ground or soft food should form part of the daily ration; also some kind of green food, especially clover in season; and when the fowls are closely confined, some meat food, like finely-cut fresh bone from the meat markets. But tainted bones should be rejected as unfit for poultry food.

If grain food is fed in any considerable quantities the fowls must also have access to some kind of grit, especially in the winter months when they have no regular access to gravel or other coarse

gritty substances. Crushed oyster shells supply not only the grit, but also lime for the production of egg shells.

Incubation

The theory of incubation, or hatching, is based upon the fact that if a fertile egg is kept for a sufficient period of time under certain conditions of heat, moisture, and position, it will be transformed into a healthy fowl.

Natural incubation is dependent upon the instinct of the mother hen. Artificial incubation, or hatching by machinery, is a very old idea. Eggs were hatched by artificial means centuries ago. Machines were used successfully for this purpose by the Egyptians long before the Christian era, and some of these ancient hatching ovens that have been brought to light in recent years by explorers used lamps to provide the necessary heat.

The period of incubation varies with different species of fowls. The average period of natural incubation is a little over twenty or about twenty-one days for the egg of the common hen. This period may be somewhat shortened or prolonged

Hatching Chickens by Hen.

by variations in the conduct of the mother hen, and possibly by changes in the weather.

Should the weather be moderate and the hen quiet and faithful, we need not be surprised if the eggs are all hatched by the close of the twentieth or even the nineteenth day. Again, if the weather be extreme or the hen restless and neglectful, we need not look for all the eggs to hatch until the close of the twenty-first or the beginning of the twenty-second day.

The same applies to eggs from other fowls, except, of course, that each has its own period of incubation, subject to the same variations.

Most poultry men agree upon the following number of days as the correct period of incubation for the fowls named: Common hen, 21 days; pheasant, 25; common duck, 28; peafowl, 28; guinea fowl, 25; goose, 30; partridge, 24; Barbary duck, 30; turkey, 28.

In spite of all notions to the contrary, the process of hatching can be suspended and held in check for several days without total destruction of the germ. This fact is of practical importance and, if remembered, may save the breeder a good hatch when, because of some accident or oversight, a lot of eggs has been left without outside heat

Hatching Chickens by Aid of the Hen—Old Style

MOTHER HENS

CHICKENS WITH NATURAL MOTHERS

and allowed to cool. Such eggs, if placed at a proper temperature, may hatch fairly well, provided this temperature is maintained a few days longer than the usual period of incubation.

A small incubator may therefore sometimes save a hatch when the nest has been deserted by an unfaithful hen.

Hatching Chickens by Hen

In raising poultry on a small scale, it is often unprofitable to operate incubators, and the old, time-honored way of hatching by hens must be used. This is the case where there is no suitable place to set up an incubator so as to preserve a regular temperature; or where it is desired to raise only a dozen or two dozen chicks at a time.

Sometimes the kitchen is the only place available for setting up a machine, and no poultry raiser can expect good results from an incubator set up in a kitchen of the ordinary kind. The changes in temperature are too great to permit of keeping the egg chamber of the incubator at anything like a uniform degree of heat, even with the aid of a regulator. So when the kitchen must be used, poor hatches may be expected from machines and it will be better to hatch by hen.

Considerable care must be exercised in the selection of the hens for this work. Some are unreliable and soon desert the nest, some are clumsy and break eggs; others are born setters and secure good results. As a rule Plymouth Rocks, Rhode Island Reds, Wyandottes, and Orpingtons make good setters, also other varieties of medium size, but unreliable hens are found in every breed and should be kept off the nests.

A good plan is to set several hens at one time, if the size of your plant permits. You can then turn over the chicks from three or four hatches, say, to two of the hens to brood. The other good setters can be reset and you will have a number of chicks of the same size and age, which is an advantage you will soon learn to appreciate.

The setters should be separated from the rest of the flock and should be kept perfectly clean and free from lice. The nest and all surroundings should also be kept clean during the entire period of incubation. Setting hens require grain food, charcoal, grit, and clean, fresh water, into which a little rusty iron may be dropped to furnish a tonic.

A good broody variety of hen should always be selected. Those mentioned above will, as a rule, show good results as setters. The non-setting varieties, like Leghorns, Minorcas, etc., sometimes show signs of being "clucky" but cannot be depended upon in incubation. Heavy, feather-legged varieties, like the Cochins and Brahmans, should not be used on the nests. They are too clumsy for incubation purposes and are apt to break eggs or trample chicks.

Selection of Eggs

Eggs selected for incubation must be fertile, or hatchable. It is well understood that an egg receives its fertility from the male bird, but the condition of the female at the time of laying has much to do with the hatching quality of the egg. The laying hen must be healthy and properly fed or she cannot produce an egg capable of carrying the germ to a successful hatch. Hens kept in unhealthy quarters or too closely confined are not likely to lay eggs that will produce strong, healthy chickens, if indeed they produce any at all. Hens suffering from disease or infested with vermin may lay, but eggs from such hens will rarely hatch, and even if they do hatch, the chicks will not be likely to mature into vigorous or growthy fowls.

Hence in order to secure hatchable eggs the hens must be healthy, have plenty of outdoor exercise, and be fed upon an assorted or balanced ration. An exclusive corn diet will not promote fertility. Fowls in confinement must have a mixed diet and plenty of grit and bone, with meats, clovers, or other substances in the line of nitrogenous food. They must be kept free from lice and must have plenty of litter, straw, hay, chaff, or leaves in

which to scratch. Fowls having free runs need less attention to diet and are more apt to lay fertile eggs than fowls closely imprisoned.

The number of hens to the male in the breeding pen is a subject of much dispute. With most breeds, however, the largest percentage of fertile eggs is secured by the mating of from ten to twelve hens to one good, vigorous, young male bird.

Even under the most favorable circumstances the eggs will vary and give room for selection. Let the selection be influenced by the average product of the hen or breed. An even, uniform lot, assorted as to size, color and shape, will be apt to give the best results.

Freshness is a prime necessity. While an egg six weeks old may hatch, the chick will be weak and hard to raise. Fresh eggs hatch earlier and the chicks from them are stronger than those from older eggs. As a rule eggs more than 12 days old should not be placed under a hen or in an incubator.

Eggs for hatching should be clean; if not clean they should be washed in tepid water and carefully dried with a clean, soft cloth. It is good practice to stand the eggs in a cool, quiet place, each with the large end uppermost, for a period of twelve hours before placing for incubation. This balances the yolk in the center and locates the air cell.

During storage, eggs for incubation should be partly turned every day. A little attention to these simple directions will make quite a difference in the possibilities of fertile eggs and will greatly augment the percentage of chicks.

It is poor practice to set eggs of more than one kind or breed together, for eggs of different kinds vary in thickness and strength of shell and in the amount of heat and moisture required.

The Nesting Box

A suitable nesting box must be prepared for the setting hen. This should be roomy, so that the hen may be able to change her position on the eggs without breaking any of them; and also deep enough to retain the nesting material. The box should be whitewashed or treated with a disinfectant before use. It is important to keep out lice, mites, etc.

The nest itself may be made of a few inches of damp soil or sod cut three inches thick, placed in the bottom of the box and covered with a good thick layer of sweet hay or clean straw.

Now place the nest box in a quiet or secluded place, away from the rest of the flock, so that the hen will not be disturbed in any way. Probably the best plan is to have a small building set apart for the purpose and capable of accommodating several setting hens at the same time. This system possesses many advantages, as it is very advisable to have several broods of the same size and age.

A medium-sized hen can cover from nine to fifteen hen eggs, six or seven turkey eggs, nine to eleven duck eggs, or four to five goose eggs. Bantams can cover on the average eight or nine of their own eggs.

Nest boxes should be made so as to open or close readily. Both the box and nest material, as well as the hen, should be thoroughly sprinkled with insect powder before setting the hen and at intervals of eight days during the period of incubation. The hen should be kept shut up as a rule, and allowed to leave the nest only for feed, water, and the dust bath. The latter should be provided within easy reach of every broody hen. The best form of dust bath is a small box kept well filled with loose fine earth. There is no better way to combat the attacks of lice; in fact, during the winter months the dust box is a prime necessity in every poultry plant.

When the hen leaves the nest for her daily feed, the eggs should be carefully inspected, and broken or soiled ones removed, as foul eggs will seriously affect the hatch.

The setting hen must be fed on clean hard grain and kept supplied with fresh water in a clean vessel. The work of the most faithful setter can be spoiled by neglect or carelessness on the part of the operator. Grit and charcoal, as well as the feed

Artificial Incubation

and water, should be placed near to the nest, so that the "cluck" may find them promptly on leaving the nest.

It is a good idea to test out a clucky hen on dummy eggs before setting her upon the selected eggs. If she returns to the nest and sets closely after being taken off a few times, it will be safe to put in the good eggs.

Reliable setters should be marked so that they may be recognized when they again become "clucky." It pays to keep good setters, sometimes for several years. As a rule, old hens make better setters than pullets. Wild or excitable hens break eggs and make poor setters.

Artificial Incubation

The incubator is an important factor in poultry raising. It may be described as a simple and practical machine, easily operated by any member of the household. But there are so many different kinds or makes of this useful machine that it is impossible to do more than describe the general features common to all. At the present time they are all constructed upon similar principles and along the same lines, and nearly all of them derive their heat from lamps that burn kerosene. In some of the hot-air machines the heat is applied through the medium of heated air, while in others—the hot-water machines—the eggs are supplied with heat from pipes filled with hot water.

In the hot-air incubator a common kerosene lamp is used to furnish the current of hot air which passes over and around the egg chamber and which keeps the eggs at the proper temperature for hatching. Like the hot-water machine, it is supplied with a regulator, which, acting upon a valve or damper, regulates the admission of heat to the egg chamber.

In the hot-water incubator, water is heated and forced through metal tubes over the eggs, thus distributing heat throughout the egg chamber. It is supplied with a regulator which works upon the same principle as does that of the hot-air machine.

The important parts of an incubator are the lamp, including oil reservoir, burner, wick, and chimney; the regulator, egg chamber, with extra tray for turning eggs, nursery tray, and thermometer. Good material, good workmanship and efficient arrangement of parts are all desirable features. Two dead-air spaces, good strong legs, plenty of space in the egg chamber, good windows properly placed, a good thermometer located where it can be read without disturbing the machine—these are all necessary and among the strong points of a good incubator. This machine operates upon living products and it must bring forth living creatures, else it is useless.

Novices may be cautioned against buying an incubator of large size for experimental or farm work. The so-called 100-egg size is large enough for the beginner. One tray and one egg chamber are enough.

The Lamp and Burner

All poultry raisers should beware of buying a poor lamp. Manufacturers, as well as purchasers, should remember that while the lamp is half the incubator the burner is half the lamp.

Many kinds of lamps have been tried and many patents have been granted upon lamps and parts thereof for incubator use, but the tendency is to discard all that are in any manner complicated and to return to the plain, old-fashioned burner and chimney. The oil reservoir should be made of

metal, either copper or galvanized iron, as those made of glass are too liable to break and are too heavy to handle conveniently. This reservoir should have a flat bottom and a flat top. It should have a capacity exceeding the twenty-four hours' demand of the machine. This is very important, for sometimes it happens that the operator is detained for some reason and cannot reach his machine at the proper hour, and in such a case the lamp must contain oil enough for a few hours' overtime. This reservoir should be plain and smooth outside and inside. It should be well made and well finished.

The burner is the most important part of an incubator lamp. It should be made with the greatest regard to stability and accuracy. The flat wick tube is the most common. The burner should be made of good material, such as brass or copper, and never of poor material, such as iron or plated tin. If the wheel or lever turns hard, or does not turn to the thirty-second of an inch, it is useless and will cause trouble.

The Regulator

Many methods have been tried for automatically regulating the temperature of the egg chamber. So far all of them depend upon the principle of contraction and expansion. The demand is for some simple device that will allow the temperature to

rise so high and no higher, and that will maintain the temperature at that degree regardless of the weather or external influences. Most regulators act upon a damper over the top of the lamp, and, by opening or closing the same, regulate the amount of heat that passes into the incubator.

Incubators a Necessity

The modern improvement in incubators has made the rearing of fowls solely for egg production quite out of the question unless these machines are used. No experienced poultry man at the present time will undertake to rear fowls in large numbers

for the production of eggs and depend on the hens that lay the eggs for incubation. The so-called Mediterranean fowls cannot be depended upon for natural incubation. Artificial incubation must be resorted to if these fowls are to be reared in considerable numbers.

Choice of a Machine

There are many kinds of excellent incubators on the market. As with many kinds of farm machinery, it is impossible to say that one particular kind is better than all others. Then, too, an incubator that would give very satisfactory results with one individual might prove to be quite inferior in the hands of another person. What is best for one is not necessarily best for another.

It is advisable, before investing extensively in any make of incubator, thoroughly to understand the machine. If good results are obtained, then additional machines of the same kind may be purchased. Failures are recorded simply because the individual fails thoroughly to understand the machine he is trying to operate, or, in other words, fails to learn how to operate that particular machine to the best advantage.

A successful poultry man must necessarily pay close attention to petty details. Not only is this necessary in caring for little chickens and mature fowls, but also in the care and management of incubators and brooders. The whole business is one of details.

Hatching Chickens by Incubator.

Incubator.

Chicken.

Fowls.

Points of a Good Machine

While incubators may vary considerably one from another, yet there are certain points to which all should conform. Some of these points are summed up in the following:

1. They should be well made of well-seasoned lumber. The effort of manufacturers to meet a popular demand for cheap machines has heretofore placed on the market incubators that are not only cheaply made, but made of cheap and not thoroughly seasoned material.

2. The incubator should be easy of operation. All its adjustments should be easily made and so arranged that the more delicate machinery is in plain view of the operator.

3. The machine should be automatic in operation. When supplied with the necessary heat, it should control perfectly within certain limits the temperature of the egg chamber.

This result is accomplished in various ways. The regulating force, whatever it may be, should be placed within the egg chamber, so that the regulator may vary as the temperature in the egg chamber varies, irrespective of the changes of temperature of the room in which the incubator is placed.

4. The regulator must be sensitive. The change of temperature which is necessary for the complete working of the regulator ought not to be more than 1 degree; that is, 1 degree above or below the desired temperature. It is better if the range of temperature can be reduced to one-half of 1 degree, thus making a total variation of 1 degree instead of 2 degrees.

5. In addition to the foregoing requisites, a convenient appliance for turning the eggs, positive in its action, should accompany each incubator. This may be an extra tray that is to be placed bottom side up over the tray of eggs and held firmly in this position while both trays are turned, thus completely transferring the eggs from one tray to another without jar. The different machines have very different appliances for accomplishing this result.

Excellent results are obtained by the use of many machines now on the market when the operator of these various machines is thoroughly interested. Poultry men have, for a number of years, hatched in incubators 80 per cent. of all eggs put in the machine. It must not be inferred, however, that this is an easy thing to do. A record of this kind is attained only by close observation and good judgment, not only in running the machine, but also in the breeding and care of the fowls to produce fertile eggs.

Artificial Brooding

If the poultry raiser resorts to artificial incubation, it will be necessary to provide an artificial brooder of some kind. This may be simple and quite inexpensive, or complex and costly.

It is not necessary to expend very much money in the construction of an efficient brooder. It is necessary, however, to see that the brooder is capable of doing certain things. Some of these requisites are as follows:

What the Brooder Must Be

1. The brooder must be warm. The little chickens require a temperature of 90 degrees to 100 degrees the first few days, and at all times they should find it so warm in the brooder that they are not inclined to huddle together to keep warm.

2. If the brooder is automatic, then the temperature may be kept quite even throughout the whole floor space. If, on the other hand, the brooder is heated from one side or from the top and is not automatic, it will be best to construct it so that certain parts of the machine will be very warm; in fact, a little warmer than is necessary for the chickens, and some other part somewhat too cool. It does not take them long to

learn just where the most comfortable position is.

3. The chicks may be trusted to select the proper temperature if the brooder is of sufficient size so that it is never crowded.

A brooder constructed on this plan will require less attention than almost any other. It may undergo a considerable variation in temperature without overheating or chilling the chickens.

4. The brooder should be easily cleaned and so constructed that all of the floor space can readily be seen. Inconvenient corners are objectionable in brooders; in fact, any corner is objectionable; but if brooders are to be constructed cheaply it is almost necessary to make corners. If constructed of wood, circular ones are somewhat more expensive than square or rectangular ones.

5. The floor must not only be kept clean, but dry. Top or side heat is to be preferred to bottom heat, but there must be sufficient bottom heat to keep the floor dry.

6. As the chickens get a few days old, plenty of exercise must be provided. One objection to many brooders offered for sale has been that the chickens are kept too closely confined and not allowed sufficient exercise. It is a matter of surprise to many to learn how much exercise the smallest chicks require. With the young chicken, as with the athlete, strength is acquired by exercise, and above all other conditions of growth strength is the one thing necessary to the young chicken.

At the very first appearance of crowding in a brooder, as the chicks increase in size, the flock should be divided and some of the little fellows put into another brooder. Overcrowding is most dangerous to the brood, and the novice will do well to guard against it with the greatest care, remembering that it is easier to hatch the chicks than to rear them.

The brooder should be cleaned, set up and heated a few hours before the chicks are released from the incubator nursery. The brooder should be regulated as to heat so that it will show a temperature of about 98 degrees when the chicks are put in. Then it should be gradually lowered at the rate of 1 degree a week, according to the weather and the experience and judgment of the poultry man.

Feeding the Chicks

The chicks should not be fed until they are thoroughly dried and have been out of the incubator at least twenty-four hours. The first feed should be fine sharp grit or sand, upon which is sprinkled a very little hard-boiled egg chopped fine. After this they should be fed every three hours a little broken grain or, better yet, some of the excellent prepared dry chick food upon the market. Clean, fresh water should be supplied from the start. Wet, sloppy food should be avoided. If none of the manufactured chick foods are at hand, a substitute can be made by cracking a mixture of wheat, corn, and egg shells. Any good poultry journal will give valuable hints upon the subject of raising chickens in brooders.

Disease and Lice in Fowls

Disease and lice are the great obstacles to be overcome in poultry raising. The houses may be kept free from lice by a liberal use of kerosene emulsion and by whitewashing. Whitewash serves a double purpose, that of ridding the house of lice and making the interior much lighter. A small window, with the interior of the house whitewashed, will make the building as light as a much larger window without the whitewash. If the poultry houses are kept free from lice, the fowls can usually be depended upon to keep themselves free by a liberal use of the dust bath. If, however, body lice are found, they may be successfully treated by dusting insect powder under the feathers in the evening and allowing the fowls to remain undisturbed on the perches after the treatment.

Technical Terms Relating to Domestic Fowls

LEARN THE POINTS.

(A)—Comb; (B)—Face; (C)—Wattles; (D)—Ear Lobes; (E)—Hackle; (F)—Breast; (G)—Back; (H)—Saddle; (I)—Saddle Feathers; (J)—Sickles; (K)—Tail Coverts; (L)—Main Tail Feathers; (M)—Wing Bow; (N)—Wing Bar; (O)—Wing Bay; (P)—Wing Butts; (Q)—Breast Bone; (R)—Thighs; (S)—Hocks; (T)—Shanks; (U)—Spurs; (V)—Toes.

GLOSSARY OF TECHNICAL TERMS

Barred, Barring.—Alternate stripes of light and dark across a feather.

Beard.—A bunch of feathers under the throat of some breeds, as Houdans or Polish.

Breast.—In a live fowl, the front of the body above the point of the breastbone, up to the throat. In a table fowl (dead) the breast is below this, and would be called the under part of the body in the live bird.

Breed.—Any variety of fowl in all its distinct characteristics. The breed includes all the varieties of color which are found in it.

Brood.—The family of chickens under one hen or brooder.

Broody.—Desiring to sit or incubate.

Cape.—The feathers under the base of the back hackles between the shoulders.

Carriage.—The bearing, attitude, or "style" of a bird.

Caruncles.—Fleshy protuberances, as on the neck of a turkey-cock.

Cockerel.—A young cock under one year old.

Comb.—The red protuberance on the top of a fowl's head.

Condition.—The state of the fowl as regards health and beauty of plumage—the latter especially.

Crest.—A crown or tuft of feathers on the head. The same as Top-knot.

Crop.—The bag or receptacle in which food is stored before digestion. Can be easily felt in any fowl after feeding.

Cushion.—The mass of feathers over the tail-end of a hen's back, covering the tail; chiefly developed in Cochins.

Dubbing.—Cutting off the comb, wattles, etc., so as to leave the head smooth and clean.

Ear-lobes.—The folds of skin hanging below the ears. They

vary in color in different breeds, between red, white, blue, and cream, and also greatly in size.

Face.—The bare skin around the eye.

Furnished.—Assumed the full characters. When a cockerel has obtained his full tail, hackles, etc., as if adult, he is said to be "furnished."

Gills.—The term is often applied to the wattles, and sometimes more indefinitely to the whole region of the throat.

Hackles.—The peculiar narrow feathers on the neck of fowls, also found in the saddle of the cock. In the latter case they are called "saddle" hackles or feathers; hackles alone always referring to the neck-feathers.

Hen-feathered, or Henny.—Resembling a hen in the absence of sickles or hackle-feathers, and in plumage generally.

Laced, Lacing.—A stripe of edging all round a feather, of some color different from its ground color, as in Sebrights and Wyandottes.

Leg-feathers.—The feathers projecting from the outer side of the shanks in some breeds, as Cochins.

Mossy.—Confused or indistinct in marking.

Pea-comb.—A triple comb, resembling three small combs in one, the middle being the highest.

Pencilling.—Small markings or stripes over a feather. These may run either straight across, as in Hamburgs, or in a crescentic form, as in Partridge Cochins.

Poult.—A young turkey.

Rose-comb.—A broad solid comb, the top of which is nearly level and covered with small points. It becomes broader as it recedes from the front, ending with a spike or "leader" at the back.

Saddle.—The posterior part of the back, reaching to the tail, in

a cock, answering to the cushion in a hen.

Shaft.—The stem or quill of a feather.

Sickles.—The top curved feathers of a cock's tail. Properly only applied to the top pair, but sometimes used for one or two pairs below which can hardly be called tail-coverts.

Spangling.—The marking produced by each feather having one large spot or splash of some color different from the ground-color. When applied to a laced breed, as in Polish, the word is explained by the much broader lacing at the tip of each feather.

Spur.—The sharp offensive weapon near the heel of a cock or hen.

Squirrel-tailed.—The tail projecting in front of a perpendicular line, over the back.

Stag.—Another term for a young cock, chiefly used by Game breeders.

Station.—Another term for symmetry, but rather markedly in connection with height or reach.

Strain.—A race of fowls which, having been carefully bred by one breeder or his successors, for years, has acquired an individual character of its own which can be more or less relied upon.

Surface-color.—That portion of the feathers exposed to view.

Symmetry.—Perfection of proportion.

Tail-coverts.—The soft, glossy, curved feathers at the sides of the bottom of the tail. Usually the same color as the sickles.

Tail-feathers.—The straight and stiff feathers of the tail only.

The top pair are sometimes slightly curved, but they are always nearly if not quite straight, and are contained inside the sickles and tail-coverts.

Thighs.—The joint above the shanks; the first joint clothed all over with feathers. The same as the drumstick in dressed fowls.

Top-knot.—Same as Crest.

Tri-colored.—A term often applied to cockerels which should be of one uniform color, when their hackles and saddles and tails are much darker, and the wing-bow darker still. Chiefly in buff varieties.

Trio.—A cock or cockerel, and two hens or pullets.

Under-color.—That portion of the feathers under the surface, only seen when the plumage is opened or separated. That of the fluff of the feather. It often differs greatly from the surface-color, and is of great importance in breeding.

Variety.—Some definite division of a breed known by its color or marking. Thus the breed includes all the varieties.

Vulture-hock.—Stiff projecting quill-feathers at the hock-joint. The feathers must be both stiff and projecting to be thus truly called and condemned.

Wattles.—The red depending structures at each side of the base of the beak. Chiefly developed in the male sex.

Web.—This term is indefinite, expressing a flat and thin structure. The web of a feather is the flat or plume portion; the web of the foot, the flat skin between the toes; of the wing, the triangular skin seen when the member is extended.

Web-bar.—Any line of dark color across the middle of the wing, caused by the color or marking of the feathers known as the lower wing-coverts.

SEVENTY DIFFERENT BREEDS OF DOMESTIC FOWLS

Dark Brahma,

The Dark Brahma is like light Brahma in form, but opposite in color.

Black Spanish

The Black Spanish lays six months from time of hatching five or six eggs per week.

La Fleche,

The La Fleche, French fowl, black plumage, a good layer in winter

The Light Brahma

The Light Brahma has white plumage on the surface with a bluish-gray beneath.

Andalusians

The Blue Andalusian is an English breed of fowls, dating back 50 years, when they had been bred quite extensively in Andalusia, Spain, from whence they derive the name. They belong to the non-setting class. As layers they have no superiors, laying the whole year round, both summer and winter. In color, the eggs are white and of medium size. They are very hardy, chicks growing very fast, pullets often laying at the age of four months; color is slaty blue, have red wattles, face and comb, and white earlobes; are fine in appearance, gay, stylish, commanding the admiration of all who see them. They are about the same size as the Minorca. However, they are no without a fault; they do not breed as true to color as most other varieties do, and throw off a larger per cent. of off-colored chicks than any other variety. However, their other good qualities make up for this weak point.

Anconas

Mottled Anconas are considered by many to be the most beautiful of all the Mediterranean varieties. They are similar to the Leghorns in shape and size, have a yellow skin and the plumage is black, evenly mottled all over with white. They are wonderful layers of large white eggs and are fast coming into general favor, since they combine great beauty with the best practical qualities.

Bantams

The Buff Cochins, or Pekin Bantam.—In color they are a golden buff, same as the Buff Cochins, except the cock is usually dark, almost chestnut. They are very quiet, tame and docile, making the finest pets. In size they are just a little larger than the Golden Sebright Bantam, being a little broader and heavier set. All who see them admire them for their exquisite unique appearance and beauty. They are quite good layers of rather small eggs, light in color, are good setters and good mothers. Chicks are easily raised, are hardy both as fowls and chicks. They bear confinement well, thrive just as well in small enclosures as running at large, are fine pets to have on a nice green lawn, where they command the admiration of all who see them.

Golden Sebright Bantams are one of the most attractive breeds of all Bantams. No breed among the beautiful pigmies excel the Sebrights in beauty of penciling and none are prettier pets. In color they are rich, golden yellow, laced with black markings, being very distinct and clear. They have proven very hardy both as chicks and fowls, breeding very true to color. They are both useful and a true fancy fowl, excellent layers of small eggs, good setters and mothers. They are quite small, standard weight of cock, 26 ounces; hens, 22 ounces. They are stylish, active, and no lover of the beautiful can afford to be without them, as they are the attraction and admiration of all who see them.

Brahmas

The Brahmas are the heaviest of our domestic fowls. Though classed as an Asiatic breed, and descended from Oriental parentage, this breed in its present form is really an American production. Standard weights: cock, 12 pounds; cockerel, 10 pounds; hen, 9½ pounds; pullet, 8 pounds. These weights are often exceeded. Though large, the birds are stately, with fine carriage. "The lordly Brahma" well expresses it.

Light Brahmas.—Almost without exception the Light Brahma is a favorite with poultrymen, even with those who do not breed them. They are often referred to as "the aristocrats of the poultry yard." In size they are the largest of our domestic fowls. This, combined with their proud and stately carriage, makes a flock of them attractive, no matter where they are seen. They have pea combs and heavily feathered legs and toes. The color is white with black tail, black and white hackle, wing flights and tail coverts. The hens lay brown eggs. Light Brahmas are not remarkably early in maturing; but they are very hardy, and in the markets of this country this variety is a great favorite as "soft roasters," and as mature fowls they very often are chosen for the family dinner in preference to the more costly but not more palatable turkey. Light Brahma hens have made high records as layers, under good care. Their eggs are very large, weighing from 28 to 32 ounces to the dozen, and are in great demand in some of our markets. The Light Brahma has a firm hold on the affections of our people, and the poultry breeder who has good ones need never lack for buyers, who will pay good prices.

The Dark Brahmas are one of the most prominent members of the great Asiatic family. They are very beautiful, especially the female. The plumage of the female is a steel gray, with delicate pencillings, except on hackle, where the pencillings are quite prominent, making them a very desirable fowl for the city and town, as the dust and soot will not soil their plumage. The plumage of the cock, although quite different from that of the hen, commands admiration of those who have a taste for the beautiful in nature. No breed is more hardy from the time it picks the shell until ripe in old age than the Dark Brahma. As egg producers they are second to none of the Asiatics. With their great vigor of constitution when young, they feather rapidly and are ready early for the market as spring chickens and broilers. In weight they are about the same as the Light Brahma, cocks weighing at maturity, when in good condition, from 10 to 12 pounds, and hens, when in good condition, 8 to 10 pounds.

Seventy Different Breeds of Domestic Fowls

Buckeyes

The Buckeye.—Originated by a woman in Ohio, from which state it takes its name. Mrs. Frank Metcalf produced this breed from a cross of Asiatics, Cornish Indian, and some of the game fowls. Primarily the Buckeyes were bred for egg production and market poultry, but perfect specimens are beautiful birds.

Buttercups

This new variety has come to the front rapidly in the last three years. They were originally brought over from Sicily and have won a name for their persistent laying. They are just a little larger than Leghorns and are very gentle and tame. They stand confinement well, and the hens are regular egg machines. Their comb is different from any other variety, being cup shaped, and their plumage is very striking. The males are a rich brilliant red top color and the hens are beautifully marked throughout.

Campines

Silver Campines have spread over the country like wildfire and are sure to remain one of the most popular of the smaller varieties. They compare in size with the Leghorns and their supporters claim they will outlay the Leghorns every time. Their color is very striking, being a black and white, very narrowly barred or penciled and they are very active and great foragers.

Cochins

The Buff Cochin of today is the most popular of the Cochin family. It is descended from the Shanghai fowl of sixty years ago, which started the greatest "boom" for improved poultry this country has ever experienced. From the ungainly, loose-jointed, awkward Shanghai fowls of sixty years ago, American breeders have produced the compact, full-feathered, thick-meated Buff Cochin of today, which is distinctively the most perfect representative member of the Asiatic class. Cochins are very hardy, enduring severe weather easily. The hens are fairly good layers, the best of mothers, and very domestic. As a market fowl, the Buff Cochin is very profitable, putting on weight with a smaller quantity of feed than almost any other variety. The poultry breeder who has a flock of good Buff Cochins has something of which he may well be proud.

Partridge Cochins are very gentle and stand confinement better than other varieties. They are very large and fine winter layers, and their color is as handsome as any variety when stock has been carefully selected from the famous strains.

Crevecoeurs

This is a breed but little known. Black in plumage with a crest on the head so full as to almost obscure the eyes.

Dominiques

The Dominiques resemble the Plymouth Rocks. They bear confinement well and do not appear to deteriorate from inbreeding to the extent observed in some of the other breeds. They mature early, are hardy, make good mothers, and are valuable as a farm variety. Weight: Cock, $8\frac{1}{2}$ pounds; hen, $6\frac{1}{2}$ pounds.

Dorkings

Colored Dorking.—Same shape and general type of body, but much darker in color, and a little heavier in weight than the Silver-Grays. Standard weights: Cock, 9 pounds; cockerel, 8 pounds; hen, 7 pounds; pullet, 6 pounds.

Silver Gray Dorking.—The Dorking is probably the oldest breed of domestic fowls. It belongs to the English class, and in England has been brought to a high state of perfection.

Ducks

Where large numbers of ducks are kept for supplying eggs for incubators the Pekin variety is usually preferred and can be kept without ponds if an abundance of drinking water is provided. When laying they should be fed twice a day as much as they will eat.

Faverolle

A general purpose breed of increasing popularity. Densely whiskered; five toes. The varieties: English and French Salmon, English Ermine, French Black and Blue.

The Cochin Bantam, from Pekin, China.

The Red Pile Game lays on the average, 170 eggs a year

The White Leghorn lays four and five months after hatching 200 eggs a year.

The Game Bantam.

The Game Bantam, a profitable variety for raising on farms.

Seventy Different Breeds of Domestic Fowls

The Dorking, admired for beauty, and as a table bird.

The Sebright Bantam has proudest carriage to be imagined in a bird so small.

White Cochín Fowl.

The White Cochín, a large fowl, esteemed for prolific production of eggs.

The White Crested Poland has rich, black plumage with pure white crest.

Frizzles

The Frizzle fowl is valued largely because of its oddity in feathers, which have a tendency to turn backwards and upwards.

Games

The Black Sumatra Game is not as well known in the poultry circle as many other varieties of the Game. They do not resemble the Game family to a very great extent, being more heavily feathered than most Games. In color they are a solid black throughout, shading being a lustrous green, which makes them very rich and handsome in color. They are very good layers of medium sized eggs, ranging in color from white to a darker shade. They make exceptionally good mothers, and will take care of a brood of chicks as well as one might wish. Chicks are hardy and grow fast. They are a splendid table fowl, as all Games are. Cocks weigh, when in good flesh, from 6 to 8 pounds, and hens from 5 to 7 pounds.

Brown Red Games are second to none in this country, fine specimens with great vitality and hardness of constitution. To say they are good layers will not do them justice, as they have proven themselves in laying almost equal to any fowl, and are surpassed by few. They are very handsome, the color of male, neck, back and saddle lemon, with narrow stripe of black in the middle of the feathers; breast, ground color black, laced some with lemon; wing bow lemon, wing coverts glossy black, primaries and secondaries black, and tail glossy black. The female, neck lemon with a narrow stripe of black in middle feathers; breast, ground color black, evenly-laced with lemon, otherwise the plumage is black throughout. They bear confinement remarkably well, are hardy both as chicks and fowls. Chicks grow very fast, and mature quite early. The hens make splendid mothers, taking the best of care of their young. Cocks weigh from 6 to 8 pounds; hens from 5 to 7 pounds. They are a fine table fowl, and dress very nice and presentable.

Cornish Indian Games have gained public favor very rapidly. It is a breed for general utility, having the laying qualities of a market fowl, i. e., compactness, yellow legs, heavy weight, the flesh put on at the right place, from which there is but little waste in dressing, and being of quick-growing habits they produce a fine broiler in a short time because they have short feathers, the nutriment required to put feathers on other breeds goes to flesh, which is more juicy and tender in this breed than in a young turkey. The Indian Game hens are good setters and mothers, and the chicks are very hardy. In color the fowls are quite pretty; the bright brown shafts and the glossy green lacing making a beautiful contrast. Here we have a fowl for the market poultryman, the farmer, the broiler-raiser, the egg producer and the fancier. The general appearance is that of a powerful bird. Body very broad, thick and compact; flesh firm and solid. In the male the plumage of the breast and underbody is a green glossy black, neck-hackle same color, with brown crimson shafts to feathers; back and saddle a mixture of green glossy black and brown crimson. Wings chestnut brown, with metallic green glossy black wing bar. In the hen the ground color is chestnut brown, with beautiful lacings of metallic green glossy black. The skin in both sexes is a very rich, bright, deep orange yellow, and their legs are yellow or a dusky yellow, which makes them very desirable for market. Face, wattles and comb are a rich red.

The Pit Games are in various colors, such as Black Red, Brown Red, Blue Red, White, and Black, and the stock should be thoroughly tested and proven absolutely dead game. Birds should be sure cutters, aggressive, and warranted never to quit.

The Red Pyle Game is in general make-up and quality the same as the Brown Red or E. B. R. Game, only differing in color. They are very courageous and hardy, and to most people not lacking in beauty. Color of cock, hackle and saddle, orange, light red or chestnut; breast, shaft and margin of feathers chestnut red, wings white and red, tail white, body white. The hens are mostly white to a creamy white, running darker on breast and wings.

Geese

Geese require almost no care, but should have dry quarters. They prefer grass on the pasture and on this they will thrive. In winter one good meal a day, as much as they will eat, of cooked potatoes or turnips with cut clover, ground oats, and ground meat added will be sufficient. The same food is excellent for goslings, which should be fed three times a day.

Guineas

The Guinea Fowls are usually recorded with the chickens. They are good layers, poor mothers, being prone to wander and steal their nest. This fowl should not be kept in towns, as their discordant voice in the early morning makes them unpleasant for neighbors.

Seventy Different Breeds of Domestic Fowls

Hamburgs

The **Hamburgs** are small, active, and great fliers; for this latter reason extra precaution must be taken and they really require a wide range to do well. They are among the most persistent layers and when properly kept even equal the Leghorns. The chicks are rather delicate and the adults demand more attention than any of the other egg-producing breeds to be equally profitable.

The **Silver Spangled Hamburgs** are one of the most beautiful varieties that can be found on the poultry list. No one can pass a flock of them without a glance of admiration. For beauty they are unsurpassed and too much could not be said of this beautiful breed. As egg producers they stand in the front rank, laying the year around. In color eggs are white, and medium in size. Chicks grow quite fast and mature very early. Pullets often begin laying at four months old. They are very small feeders, and bear confinement in small enclosures remarkably well. For laying qualities and beauty, they stand on their own merits and cannot be over-estimated. Hens will weigh from 3 to 4½ pounds, cocks from 4 to 5½ pounds.

Houdans

Houdans are a French fowl. It is not known just how long they have been in existence, nor is it known who the originator was. However, they are a very old breed and are deserving of considerable credit. The Houdan hen is a good layer, her eggs are of good size and in color are white. She belongs to the non-setting varieties. After they become several years old some of them will get a little broody but are easily broken. The Houdans have five toes, a crest and beard, are shaped much like a Dorking, hence are considered valuable as a fine table fowl, meat tender, juicy and fine flavored. Color of legs of the young is pink; of the old a light gray with sometimes pink on the side. The chicks are decidedly handsome and grow very fast, weighing 4 or 5 pounds at the age of 4 months, but, of course, the growth depends largely on the food and care they receive. They are remarkably hardy and thrive well under ordinary care. Standard weight for cocks is 7 pounds, hens 6 pounds. They are not a high flyer, will not roam far away, are very tame and docile; one can make fine pets of them and they are well adapted for small runs.

Javas

The **Javas** (Black, Mottled, and White) are an old American class of fowls that for no good reason have lost popularity. They are excellent as egg producers and for market purposes, maturing early and having the yellow shanks and toes, the absence of which constitutes an objection to some of the dark-colored breeds. The hens make good setters and mothers, and the Javas bear confinement well. The Black variety is most commonly kept. Weight: Cock, 9½ pounds; hen, 7½ pounds.

The **Black Java** is an old variety fowl. It is claimed that the Black Javas were bred from the Plymouth Rock. Now, if the Black Java have their origin from the Plymouth Rock, they must of necessity occupy a front rank as an American breed. They will withstand the severest weather in our northern climates. Also are prolific, and thrive just as well in our warmer southern climes. Chicks thrive well from the time they come out of the shell till old age, maturing very early. They are not as apt to take disease as some other varieties, being as near proof against disease as any fowl. They are about the best layers for a large fowl, laying a dark-colored egg, but not strictly one color; some are a little lighter in color than others. The Java hens make excellent mothers, taking the best care of their young. They are good setters, but are not as persistently broody as some of the large varieties of fowls. In color the Black Java is what the name implies, black throughout. The cocks are of a lustrous greenish black, about the same as the Langshans. Cocks will weigh from 8 to 10 pounds; hens from 7 to 9 pounds (in good flesh). They possess rare market qualities, having the best possible make-up for a valuable market fowl.

Lakenvelder

The **Lakenvelder** resembles the Leghorn in form, size, activity and egg laying quality. Color white with black head, hackles, rump, and tail.

Langshans

Black Langshan.—Asiatics, but lighter weight, rangier and longer legged than the other members of that class. Standard weights: Cock, 9½ pounds; cockerel, 8 pounds; hen, 7½ pounds; pullet, 6½ pounds. Skin white with pinkish-white flesh. The tail feathers of the male attain great length. Legs and outer toes feathered. Comb single. Color black and glossy with a greenish sheen on back. The White variety has the same weight and general characteristics as the Black, but the plumage is pure white.

Buff Langshans.—A very fine breed; have been largely imported from England formerly. We have found them among the best breeds for laying and general purposes. The demand for them in this country has been all that could be desired.

The **White Langshans** have given most excellent satisfaction, and are more popular than the Black Langshans. Some who are raising them say that they lay the year around and are a most excellent table fowl.

The **Silky Fowl**, so named because its plumage has a silky, hair-like appearance.

The **American Dominique**. A valuable and popular fowl.

The **Duck-Wing Game** has silver-gray plumage, head and face bright red.

Gold-Spangled Hamburg Fowl.

The **Gold-Spangled Hamburg**, one of six varieties of choice fowl.

Seventy Different Breeds of Domestic Fowls

Langshan Fowl.

The Langshan, large, showy, black plumage, a good layer in winter.

Wyandotte

The Wyandotte, has beautiful plumage and is a good layer of large eggs.

Japanese Bantam

The Japanese Bantam. Bantam, a town on the Island of Java.

Partridge Cochir

The Partridge Cochir, a large and esteemed breed of domestic fowls.

La Fleche

This is a French fowl, both male and female having a rich black glossy plumage. Has a large compact crest which nearly obscures the face.

Leghorns

The **Rose Comb Brown Leghorns** are very popular, being better adapted to our colder climates than the Single Comb varieties. They combine both usefulness and beauty. As egg producers they are simply the same as all other varieties of Leghorns, being first-class in that respect. We have often noticed the statement made about some breeder's favorite variety, as everlasting layers, egg machines, etc. If there are any fowls to which we can justly apply this term, it is to the Leghorn family. They have good style, beautiful plumage, and are, generally speaking, very handsome and attractive. They are hardy, chicks easily raised, and mature quite early. Pullets begin laying quite young if well cared for. In size they rank the same as the Single Comb variety. Cocks weigh about $4\frac{1}{2}$ to 6 pounds, hens $3\frac{1}{2}$ to 5 pounds.

Rose Comb White Leghorns.—This is one of the popular breeds of the heavy laying varieties, and are identical with the Single Comb White Leghorns, except that the comb resembles the combs of the Hamburg, and are sometimes called pea-comb Leghorns. They are much admired by poultry fanciers and those having egg farms, being wonderful egg producers. Their freedom from frozen combs makes them more desirable for our northern climate than the single comb varieties. They are very stylish and make a very attractive appearance. They belong to the non-setting class of fowls, and are unexcelled as layers by any of the Leghorn or other families. The eggs are very white in color and medium size. They are very hardy both as chicks and fowls. Chicks grow very fast. Pullets frequently begin laying at four months old. They are a very fine fowl for the table as far as they go, but being rather small, we could not recommend them as a valuable market fowl, but so far as turning cents into dollars in the production of eggs, they stand in the front rank.

Single Comb Brown Leghorn.—There has been much dispute as to the early history of this variety. Certain it is that the early importations were far different from the graceful active brown beauties of today. In all but color this variety should be the same as the White Leghorn. Body and breast color of male is black. Body color of female light brown, the surface on back finely stippled with a darker brown. The breast is a rich salmon, shading off lighter under the body. Legs clean and yellow; skin yellow. The hens lay white eggs, and are non-setters.

Single Comb Buff Leghorn.—This breed has the same general breed characteristics as the other members of the Leghorn family. The color is an even shade of rich golden buff, free from shafting or mealy appearance. Under color a lighter shade. A mingling of different shades of buff in different sections is a serious defect.

Single Comb White Leghorn.—Originated in Italy, but bred in this country for many years. A usually bred, small in size, having no standard weights. This breed is alert, active, of graceful outlines and very attractive appearance. Large, single comb, that of the female drooping to one side. Plumage pure white. Legs clean, yellow. The hens are prolific layers of white eggs. This breed is the standby of most of the large egg farms where white eggs are desired.

Malays

This is a little known breed of which the American Standard of Perfection says, "the cock has a height of 26 inches and a hen 18 inches," the plumage of the male being red or maroon and the female dark brown.

Minorcas

The **Black Minorca** is a well established breed of English fowls, belonging to the Spanish variety, and wherever bred are considered a valuable breed; are hardy both as fowls and chicks, easily raised, mature early, and pullets commence laying when very young. They are non-setters, small eaters, splendid foragers, and, without doubt, very profitable. Their adaptability to all sorts of places, whether in confinement or allowed unlimited range, makes them very popular, and suitable to the city fancier as well as the farmer. Their plumage is a pure black with green or metallic lustre. Their legs are nice and smooth and medium in length. The chief and striking ornament of the cock is his comb, which is very large, single, straight as an arrow and evenly serrated; has a large flowing tail, carried somewhat high. The comb of the hen lies over on one side of the face, in a peculiar double fold, similar to those of the Leghorn, but much larger. Wattles are in proportion to the combs. The face is red, but the lobes are of pure white, and show up very distinctly. They are very stylish, having a stately, upright carriage, close, compact body, medium low, and are of a stouter and squarer build than the Spanish. Standard weight of cocks 8 pounds, hens $6\frac{1}{2}$ pounds.

The **White Minorcas** originated in Spain and are a very old variety. How they originated is not known; but the supposition is that they are sports from the Black Minorcas, as it is a well known fact that a black fowl will occasionally throw off a white chick.

Seventy Different Breeds of Domestic Fowls

Minorcas—(Continued)

The White Minorcas are similar to the Black in every way with the exception of color, and as many prefer the white chicken they are very popular.

They lay a very large chalk-white egg and are splendid layers; they are larger than the Leghorn family and are a better table fowl, in fact, they rank very high as a table fowl; while great in egg-production, the hens laying from 200 to 250 eggs in a year.

As to vitality and productiveness and quality they equal their cousins, the Black Minorcas.

They are the same build, have coral red faces, white ear lobes and of same size, they are non-setters, great foragers and rustlers.

They have splendid plumage, very gay and attractive in appearance, having the true Minorca shape and good qualities in general.

Orpingtons

The other varieties of Orpingtons were introduced into this country ahead of the Blacks and were so popular from the start that we paid very little attention to the black birds, but the English breeders who originated all the Orpingtons kept insisting that the Blacks had all the good qualities of the others, so American breeders finally took them up. They immediately proved their worth and today the Black Orpington is gaining in popularity faster than any other variety. They have many advantages over the other varieties, and their immense size and wonderful laying qualities make them very profitable. They are very hardy and make the quickest growth of any variety known.

The Single Comb Buff Orpingtons are becoming a very popular breed. They have been a leading breed in England for a number of years; in fact, they are as popular there as the Barred Plymouth Rocks are in America. As a general purpose fowl they are very good. They have a rich buff plumage, and breed as true as any of the buff varieties. They are also good layers. They have nice, well-rounded bodies and white skin, and have all the good market qualities as well as the laying qualities. They are very quiet and tame, and make good mothers.

Diamond Jubilee Orpingtons have been but little bred in this country. The breed was produced by crossing Hamburgs, Cochins and Speckled Dorkings. There are both single and rose comb varieties. The hens are very prolific.

The White Orpingtons are of the same general description as the Buffs, except that they are a pure crystal white and they have all the good points of the Buffs. This variety has been widely advertised during the past few years and a tremendous demand has sprung up for them. They can be developed into excellent winter-layers.

Peacocks

The Peacock is classed among domestic fowls, and is an exceedingly beautiful bird. Native of India. They lay from 25 to 30 eggs and hatch out but one brood a year. Accustomed to roosting very high in a wild state, they desire a high perch where they are kept.

Plymouth Rocks

Barred Plymouth Rocks.—This breed is as solid as its name. They stand unequalled as general purpose fowls. They are quick to mature and make plump, juicy broilers at eight to ten weeks of age. The pullets begin laying early and are persistent layers the whole year around. American in origin and name. Of fine carriage, medium in size. Standard weights: Cock, 9½ pounds; cockerel, 8 pounds; hen, 7½ pounds; pullet, 6 pounds. Hardy. Built for business, both egg and meat production. Single comb. Smooth legs and yellow skin. Lays brown eggs. Plumage hard to describe; grayish white, each feather crossed by narrow bars of darker color extending to the skin. Difficult to breed to standard, but the ideal fanciers' fowl.

Buff Plymouth Rock.—Requirements for this variety same, except plumage, as for other Plymouth Rocks. The variety is said to have been originated in New York State, and to have been exhibited first less than a score of years ago. The color desired is a rich golden buff, the same shade throughout the specimen being desirable. These are excellent utility fowls, as well as desirable for the fancier.

Columbian Plymouth Rock.—This is probably the newest member of the Plymouth Rock family. It was "originated" by several different individuals at about the same time. Some claim its origin as from "sports" of the Columbian Wyandotte, others as from crosses of other Rock varieties with some Light Brahma blood added. In all but plumage it must conform to Rock requirements. The plumage is the same as that of the well-known Light Brahma. Well bred, it is a handsome fowl, in black and white, and its promoters claim that it stands high in utilitarian qualities.

Houdan

The Houdan has black and white feather crest A prolific layer.

Brown Leghorn

The Brown Leghorn has yellow legs, lays early, 200 eggs a year.

Spangled Poland,

The Spangled Poland, like silver spangled, ranks high among ornamental fowls.

Frizzle Fowl.

The Frizzle Fowl is peculiar, every feather curled and turned back from the body.

Seventy Different Breeds of Domestic Fowls

Flavor of Eggs

The flavor of eggs may be affected in two ways, first by the absorption of odors after the eggs have been laid. Eggs should be clean and kept in a clean place where disagreeable odors can not penetrate. Secondly, the flavor of eggs may be affected by the character of the food fed to the laying hens.

Too much ground fish, while being a food which helps to promote laying, will give the eggs an unbearable flavor. Strongly flavored vegetables, such as turnips or onions, if fed freely, will have a like, though perhaps not so marked, effect. Care, therefore, should be taken with eggs intended for consumption to keep them away from bad odors, and discrimination should be exercised in the food given to the hens.

If the eggs are to be hatched, however, the feeding of fish scrap, onions and turnips, and the like, will have no deleterious effect upon the hatching.

Frost Bite

If the comb or wattles of fowls become frozen, and it is discovered before they thaw out, apply snow or cold water to remove the frost, for this gradual thawing will often save them. Then apply vaseline to the affected parts twice a day.

Gapes

Gapes is caused by the presence of small worms, which are attached to the lining of the trachea or windpipe, where they cause much irritation and often death to young chickens.

Gapes usually occur when the chicks are from 2 to 6 weeks old. Separate the well from the sick birds and clean the coops, pens, and feed and water dishes by disinfecting with a 5 per cent solution of carbolic acid. Sometimes the worms can be removed from the trachea by inserting a feather moistened with turpentine or kerosene. The oil will cause the dislodging of the worms, and some will be drawn out with the feather while others will be expelled by coughing or sneezing. Place the chicks on a piece of paper, so that the worms may be caught and burned.

Lime

Ordinarily, the hen does not consume enough lime to form the shells of eggs if she is laying abundantly unless something besides the ordinary grain feeds is accessible to her. Oyster shells are very good for this purpose. A box of crushed shells may be placed before the fowls, allowing them to eat at will.

Plymouth Rocks—(Continued)

Partridge Plymouth Rocks.—This new variety of the Plymouth Rock family has sprung into universal favor because of their beauty and utility qualities. They are very rich and beautiful in color, the male being a rich brilliant red, marked with black, and the female a rich mahogany, beautifully penciled with a darker color. They stand confinement well and are great layers.

Silver Penciled Plymouth Rock.—This is one of the newest varieties of Rocks. There are conflicting claims as to its origin. In shape, size, and other Plymouth Rock characteristics they must conform to the breed requirements. The general color scheme of the plumage is silvery white and black. The beautifully penciled feathers render this a most attractive variety and as it is claimed to possess the practical qualities of the family it should be a good utility fowl as well.

The Pea Comb White Plymouth Rock is what we might call a general utility breed. Like the Single Comb variety, they possess all the desirable qualities of an all purpose breed, and in one point they will surpass them. Having the Pea Comb, they are what may be called frost-proof, which is a very desirable feature in cold climates. They are not bred as extensively as the Single Comb variety, owing to the fact that they are practically a new breed and people have not become acquainted with their qualities as they should. They are simply a grand breed of chickens and are deserving of a foremost position among breeders. They are large, good style, grand, stately carriage, well shaped bodies, have a nice yellow skin, which is so desirable in market poultry. Hens make good setters (but are not persistently broody), good mothers, will care for their young as well as any breed. Their chicks grow very rapidly, feather out early and will round up for market when quite young. Their laying qualities are not to be disputed. They will lay as many eggs as any of the large breeds. Their eggs are the same in color as other Plymouth Rock eggs. This is a noble breed and is destined to become one of the leading varieties when once their merits are better known.

White Plymouth Rock.—In size, carriage, color of legs, skin, face, etc., same as the Barred, but plumage pure white. Some judges say they have more typical shape than the original Barred variety. As table fowls, they lead the other varieties in many localities. Whites are easier to breed to standard than other varieties of Rocks, hence better for the beginner.

Polish

White Crested Black Polish.—This is the most beautiful and ornamental of all the Polish family. Their large white crests and shining black plumage make a very pretty contrast, and they are great layers. The eggs are fine flavored. A small pen of these birds make a very beautiful sight on the green lawn, and they will keep the table supplied with fresh eggs the year around.

Redcaps

The Redcaps are an old, useful variety of good size and development. Weights, 7½, 6, 6, and 5 pounds; very large rose comb; color, in male red and black, in female, brown and black.

Rhode Island Reds

Down in the southern part of the little State of Rhode Island is a district known as Little Compton. It lies on the shore of the Atlantic Ocean, exposed to the raw winds of winter and the scorching suns of summer. The land is poor and rocky, and the soil returns but little when an attempt is made to produce farm crops. The people residing in this district are of a hardy race and thrifty, yet the natural disadvantages of their surroundings would seem to be insurmountable. The men are mostly engaged in fishing along the coast and the women raise poultry for the near-by cities. In such a district, only a very strong, thrifty breed of fowls survives, and it is here that we find the

First Record of Rhode Island Reds

The residents of this little district produced a hardy breed of fowls that were great foragers, quick to mature, and wonderful layers, and yet they started out with no definite idea of the breed they were producing. In fact, the Rhode Island Reds were produced and bred for years before they were known outside of this little district, and it is only in recent years that their fame has spread over the country. At first people were inclined to scoff at them because of their peculiar color, but now their admirers are legion and they have a foremost place with poultrymen, both as a fancier's fowl and for market. A great many claim the Reds originated from importations from Java brought in by the whaling vessels.

These fowls have spread over the country like wildfire, and now the demand for first-class stock and eggs is something enormous.

Only one variety leads them in total sales, and that by a small margin.

Seventy Different Breeds of Domestic Fowls

Hens' Nests.

Every poultry house should be well supplied with nests which are easily accessible and readily removed for cleaning and disinfecting. There are many methods of arranging nests, each method having some particular advantage over all others.

Location of Nests.

The nests may in some instances be placed under the front edge of the dropping board and so arranged that the hens enter from the rear and the attendant gathers the eggs by opening a door or doors on the front side. This is an inexpensive arrangement, as the dropping board forms a cover for the nests. These nests are dark, which is a decided advantage, as hens like to hide, and there is less danger of them learning to eat eggs. It has the decided disadvantage of making the floor under the dropping boards of little use in feeding. It darkens the floor and hens are much more likely to lay in the straw on the floor than in the nests, with the result that many times eggs are lost for several days before being gathered. The careful poultryman who furnishes guaranteed eggs will not sell those which have been laid on the floor. In buildings which have a high rear elevation, some trouble may be obviated by elevating the roosts and dropping board. This can be done, especially with Leghorns or other light breeds that fly well. For the heavier breeds, it will be found necessary to put in a slanting board with cleats to enable the hens to walk to such a height.

Floor Well Bedded.

It will always be found necessary to keep the floor extremely well bedded. Many heavy hens will jump down from the dropping board instead of walking down the inclined perch and if the litter is thin, they may injure their feet.

Another and quite common arrangement is to fasten small open boxes to the walls of the poultry house. These boxes can be fastened with two 6d nails and easily removed for cleaning. Where this system is used, if the boxes should accidentally become badly infested with mites, the entire box being of little value, can be burned and new boxes put in. This method does not allow trap nesting, and the nests are not dark, yet it is used very extensively by poultrymen.

Gather Eggs Twice a Day.

Where hens are confined and allowed to lay in open nests of this type, the eggs should be gathered at least twice each day. This is an extremely good practice and should be followed, especially on farms where a good quality of table eggs is being produced.

Size of Nests.

A nest for a Leghorn or other small hen should be 12 inches square; for the larger varieties, 14 inches square. The nest should give at least 12 inches head room and be about 14 inches high. They should be kept clean and well bedded with fine nesting material, such as straw or hay. Shavings, excelsior, etc., are not satisfactory as a rule, for they may stain the eggs. Coarse straw and other harsh substances do not make satisfactory nesting material. A hen likes a pliable, soft substance in the nest.

First Record of Rhode Island Reds—(Continued)

This breed comes in two distinct varieties, each the counterpart of the other except in the shape of comb. The Rose Comb birds are well fitted to withstand the extreme cold of the northern winters and the Single Comb birds are adapted to the warmer climates and for those who do not fancy a rose comb. The Single Combs will do as well in cold weather as the others but must be kept warmer to prevent their combs from freezing. Many poultry raisers in northern Canada are getting the best results from their Single Comb birds.

The Rose Comb Reds are identical with the Single Combs except that they have a low, close-fitting rose comb not so liable to be frosted.

White Faced Black Spanish

Black Spanish Fowls belong to the Mediterranean class. They are a non-setting breed, and are as hardy as the Asiatics. The Spanish are much larger than Leghorns, being as heavy as Wyandottes. As layers they are not surpassed by the Leghorns. They lay a large, white egg, and lots of them. Their plumage is a rich, glossy black throughout.

Sultans

"The Sultans have," says the Standard, "for their most attractive characteristics, the novel feature of a full crest, muff and beard. Plumage, male and female, pure white."

Turkeys

"Have for turkeys," says "Making the Farm Pay," "an open shed for roosting. Feed them in the same manner as suggested for hens in winter."

Wyandottes

The Black Wyandotte is one of the most valuable breeds, and all because of their good qualities as a general purpose fowl. Their plumage is a beautiful glossy black, which makes them very attractive.

The Buff Color.—Many prefer this color, and with it you get all the quality that is given for any of the other classes of Wyandottes.

In general utility, the size, shape, egg laying qualifications, etc., are practically the same in all the Wyandotte family, of which there are quite a number. You will notice that we list the Buff, Golden, White, Silver Laced, Partridge, and Columbian. Some prefer one, while others choose another. There are so many people who prefer the buff color to any other, and would like to have something in the Wyandotte class, and to lovers of such a fowl we highly recommend the Buff Wyandottes. It is a breed that will not by any means disappoint you. They are all that you can possibly expect of them. The Buff Wyandottes are good layers, and especially if you get a good laying strain introduced.

The Buff Wyandottes make good mothers and are good setters, but they are not persistently broody. The chicks are hardy and grow vigorous, maturing very early. Cock-birds will weigh from 7 pounds to 9 pounds, and hens from 6 pounds to 8 pounds. The standard requirements of the color of this breed calls for a rich golden buff.

The Columbian Wyandottes are a very popular fowl indeed. It is a fowl that is not known by every one, and a fowl that you do not find in every barn yard. It is considered one of the most beautiful fowls.

The Light Brahma is the older of the two fowls, and being very beautiful, it was the desire of breeders to get a bird with the same markings, with smooth shanks. The result was the Columbian Wyandotte. This bird is not as large as the Light Brahma, by any means, and does not have quite the same shape. It has smooth, yellow shanks. The Columbian Wyandottes are not unlike other Wyandottes as far as shape and other utility characteristics are concerned. The Wyandotte family, next to the Rock family, is one of the most widely known of any of the poultry breeds, and is looked upon as having peculiar characteristics of their own that really excel some of the other well-known breeds that are offered. The Columbian is by no means a sport of any of the other Wyandotte varieties, but it is a breed that has been built up by itself, and has been bred up from some of the most noted strains, and has proven to be one of the highest class of the Wyandotte breed.

The Golden Wyandottes were made by crossing the Silver Wyandotte with a breed known, locally, as Winnebagoes—a strong breed of a red color, now extinct. The Golden Wyandotte has a tendency to grow rather larger than the other varieties of this family, which is in its favor as a market fowl. It is often called the "beauty breed," on account of its pleasing combination of color, the males being red and black on back, neck, tail and wings, while the breast feathers of males and the entire body plumage of females is composed of a ground color of a deep rich bay, each feather bordered or laced, with a narrow edging of deep lustrous black. The Golden Wyandotte has all the good qualities of the Wyandotte family.

Seventy Different Breeds of Domestic Fowls

Wyandottes—(Continued)

Partridge Wyandottes.—This excellent variety of fowls is in color the same as the Partridge Cochins, but in all other respects they are much different. We find in them the same excellent qualities that we do in the older Wyandotte families. They are strong and hardy, and as chicks they develop very rapidly. They are splendid layers of eggs the same color and size as the other Wyandottes; have nice yellow skin and legs, which is very desirable in market poultry; make good mothers, but are not inveterate setters; will hatch their own chicks if permitted to do so. In size they are fully as large as the Silver or White Wyandotte; have nice low rose comb, which makes them particularly well adapted to cold climates.

Silver Laced Wyandottes.—This is the original Wyandotte family. Its introduction was hailed with delight, and it at once became very popular. No one knows what mixture of blood was used in making the breed, but there is reason to believe Silver Spangled Hamburg and White Cochins blood were both used. Silver Wyandottes are very hardy; the chicks mature early, and the hens are fine layers. In the great Australian Laying Competition, a pen of Silver Wyandottes won the first prize two years in succession, each pen averaging more than 200 eggs for each hen in it twelve months. In this country a Silver Wyandotte hen has made a record of 804 eggs in four consecutive years. This record has never been beaten. The chicks are ready for market at any time, as they get their plumage at once, and grow up symmetrical and plump. Good Silver Wyandottes are always in demand.

White Wyandottes.—Next to the Barred and White Rocks, probably the White Wyandottes are the most popular breed of chickens and many contend that they are the best all around general purpose fowl. There is no doubt that they are the most popular breed for broilers and are used on the great broiler plants of the country. They are pure white in color, feather out quickly and cover with plumage at a very early age. They have very square, compact, plump bodies. They have a neat, rather small rose comb; wattles are small and ear lobes bright red. They have yellow legs and beak. They excel as layers and especially as winter layers and respond readily to good treatment or do excellent as foragers. For the past few years this breed has crowded all other varieties in numbers shown at the big shows and there is no question of their growing popularity.

Color Produced by Feeding

It has long been known that food has considerable effect upon color. Yellow or red maize will make most white fowls perceptibly more yellow than white maize or other grain, and much hem-seed will darken the ground-color of a moulting Brahma hen.

It has also been known for many years that the constant use of iron, whether in natural chalybeate streams or given artificially, tends generally to intensify color, whether in legs, plumage, or yolks of the eggs. The most definite effect of food upon color generally known is in canaries, in which (or rather in some of which, for the effect varies greatly in individuals) the constant administration of cayenne throughout the whole period during which the feather is growing converts a rich yellow into very deep orange-red. This fact, coupled with the success of some breeders in showing rich, deep buff in the many buff varieties of fowls which have become so popular since 1890, has led many to the conclusion that the best specimens owe their fine buff color and other colors like the bay of Golden Hamburgs, their richness, to special feeding even more than to careful breeding, and "color feed" for poultry is occasionally advertised in the poultry papers.—Wright's Poultry Book.

GEESE AND DUCKS

CONVENIENCES NECESSARY IN THIS DEPARTMENT OF POULTRY

Toulouse goose and gander.

Rouen duck and drake.

MANAGEMENT OF GEESE

The goose cannot profitably be raised in as large numbers as the duck, but still it cannot be termed unprofitable. There are many places on a farm that are worthless for cultivation that could be utilized with excellent results for goose raising. Fields that have streams, branches, or unused springs on them could be turned to good advantage by making them into goose pastures. Many farmers are profiting by this and adding to their incomes annually.

The care and attention necessary for raising geese are very small when compared with the returns, and the cost of food is also proportionately small in comparison with the cost of food used for other birds bred for the market. A goose on range will gather the largest portion of its food, consisting of grasses, insects, and other animal and vegetable matter to be found in the fields and brooks. A free range and access to water are required.

The simplest kinds of houses are used for shelter; these should be built after the plans of those for ducks, but should be proportionately of larger size to accommodate comfortably the number of birds to be kept.

Geese are long-lived birds, some having been known to attain the age of 40 years, while birds 15 and 20 years of age are not uncommon. They retain their laying and hatching qualities through life.

Seven Breeds of Geese—Ponds for Use of Ducks

Ganders should not be kept for breeding after 3 years of age; young ganders are more active and insure greater fertility of the eggs than old ones do; besides, ganders become more quarrelsome as age advances.

Standard Varieties

There are seven standard varieties of geese, as follows: Gray Toulouse, White Embden, Gray African, Brown Chinese, White Chinese, Gray Wild and Colored Egyptian.

All breeds of geese, except perhaps the Egyptian, are to be recommended to farmers who keep a limited number in addition to other poultry and allow them the freedom of the farm; but when goose raising is to be more extensively engaged in, the African goose is to be especially recommended. It is the quickest to mature, most prolific, and the easiest to handle of all varieties. In breeding African geese mate two geese to one gander, and it will be still better if pairs are used to secure better fertility of the eggs.

The most satisfactory results are to be had by breeding pure

standard-bred stock without crossing. But for those who are partial to crosses the following are considered the best to make: (1) Wild gander on African goose; (2) Embden gander on Toulouse goose; (3) Embden gander on African goose, and (4) Embden gander on White China goose. These crosses will give good growth and the young birds will dress well for the market. Crosses should only be made for market purposes, and should always be bred from original stock.

Fattening Young Geese

To fatten young geese, place them in a pen, not too large, so that they will not exercise too much, and feed three times a day all they will eat up clean of the following: Corn meal mixed to a dry, crumbly state, and beef scraps amounting to 20 per cent of the bulk of the corn meal.

While fattening young geese they should be kept as quiet as possible; no excitement whatever should disturb them. When feeding approach them quietly, and do not irritate them in the least or they will not fatten, but will

"throw out" or grow another crop of feathers. At 10 weeks of age, or when the tips of the wings reach the tail, they are ready for market and should weigh between 8 and 10 pounds.

Young geese should be marketed in October. It is best to market all possible before cold weather sets in. It is much harder to dress a gosling in cold weather. The feathers set tighter, and in picking them the flesh is torn.

Good Setters and Mothers

Almost all breeds of geese are good setters and attentive mothers, and if left to themselves will make their nests, much as when wild, and hatch a large percentage of their eggs. But hens are now more frequently used for hatching goose eggs; as by taking the eggs from the goose when laid and giving them to hens to hatch, the goose will lay a greater number of eggs than if she were permitted to set.

The feathers of geese are an important source of revenue and find a ready sale in the markets. A goose will average about 1 pound of feathers a year.

SHOWING HOW STREAM MAY BE USED FOR RAISING DUCKS

House for breeding ducks, showing water runs.

RAISING DUCKS FOR MARKET

Duck raising has been developed into a flourishing industry within the last twenty-five years. Prior to that time the duck was not considered a profitable bird to raise. Its flesh was never esteemed very highly by the general public. Ducks were raised without constraint in waterways, feeding mostly on fish and water insects. This food gave the flesh

a strong fishy flavor; hence it was not particularly sought after, save by the few who were partial to that class of diet. The duck centers of Long Island and New England were then producing a limited number each season, and it was with difficulty that these were sold with any profit.

In recent years, however, artificial incubation and brooding,

combined with judicious feeding, have been instrumental in the development of the industry. Machinery enables the duck raiser to have his stock in the markets when prices are the best, and also to raise large numbers of birds in a limited space of time. The season for raising ducks is about six months—from February to July, inclusive.

The Twelve Standard Breeds of Ducks in This Country

SIX BREEDS AS FOLLOWS:

1. White Pekin
2. White Aylesbury
3. Colored Rouen
4. Black Cayuga
5. Colored Muscovy
6. White Muscovy

The novice will do well to begin by studying the methods employed by successful duck raisers, and to use only the most approved buildings, appliances, and plans of feeding and care.

Duck raising is to be recommended to farmers as a profitable source of revenue. There are numbers of farms in this country today that are devoted exclusively to raising ducks, averaging from 5,000 to 30,000 ducks as an annual output. An idea of the proportions of the business may be had from the fact that as high as three tons of feed are used daily by a single raiser during the busy season. The profits are the very best, and good incomes may be made when once the business is thoroughly mastered. But the reader should not jump to the conclusion that these results can be easily obtained. Duck raising is an arduous task; one that requires an apprenticeship and absolute knowledge of the business before success is reached.

The average farmer has all the facilities for raising a goodly number of ducks, and may with a little outlay add considerably to his income.

It is not at all necessary that ducks should have access to water to be raised successfully, for they grow and thrive as readily without it. There are successful plants where thousands of ducks are raised that have no water, save that which is given them as drink.

Without Water

Some duck raisers use water in ponds, etc., and allow their breeders the freedom of it; some allow the growing stock intended for market free access to water until they are eight weeks, when they are penned and fattened for market. On the other hand, there are raisers having no water on their farms, except in wells, who are just as successful and raise as many birds as those who have the water.

The only noticeable difference between "upland" and "water" ducks is that the latter are of cleaner and prettier plumage than the former.

There are twelve standard varieties of ducks raised in this country, as follows: The White Pekin, White Aylesbury, Colored Rouen, Black Cayuga, Colored Muscovy, White Muscovy, Indian Runner, Gray Call, White Call, Black East India, Crested White, and Blue Swedish. Of these varieties, the first seven are considered profitable to raise; the two varieties of Calls and the Black East India are bantams, and are bred more for the show-room; the Crested White may be considered as almost purely ornamental, while at present but little is known of the Blue Swedish in this country.

Of all the ducks for farm and practical purposes none stands

White Pekin duck and drake.

higher in popular esteem than the White Pekin. It is valuable for raising on a large scale and is the most easily raised of all. It is a very timid bird and must be handled quite carefully. It was imported from China in the early seventies, and has steadily grown in popularity since its introduction into this country. These ducks are large, they are the best of table fowls and excellent layers.

The Colored Rouen duck is deservedly popular throughout this country, and is considered one of the most profitable varieties to keep. These ducks are said to have come originally from the city of Rouen, in Normandy. The flesh is considered very delicate and the breed is easily fattened.

The Black Cayuga is distinctly an American duck, having been bred so long in this country that all trace of its origin is lost. It is said that it was first found in the central part of New York. It is a good practical duck to keep, though most duck raisers prefer the white-feathered birds.

Buildings for Breeding Ducks

Houses for ducks are simple affairs. They are built plain and comfortable, and have no furnishings whatever. A duck is differently constituted from a hen, and must be cared for under different conditions. The hen needs warmer houses and drier surroundings than does the duck. A duck does not mind the cold if she can keep her feet warm. Cold feet will affect a duck as a frozen comb does a hen, retarding laying and inducing ailments. The feathers of a duck are almost impenetrable and will withstand almost any degree of cold. Then again, a duck cannot stand the amount of confinement in a house that a hen can; she is more restless in disposition and is given to exercise in a greater degree than is a hen.

The duck house can be built of rough boards, 12 inches by 1 inch, and the joints covered by 3-inch by 1-inch strips. The roof should be made water-tight and covered with roofing-paper, shingles or tin. The outside should be well drained around the bottom, that it may not be damp.

If the house is well drained on the outside and the earth floor is covered with hay, straw, or leaves, it will be perfectly satisfactory. There must not be dampness in the house, as the birds

SIX BREEDS AS FOLLOWS:

7. Indian Runner
8. Gray Call
9. White Call
10. Black East India
11. Crested White
12. Blue Swedish

will not do so well; while they are given to water on the outside they must have comfortable quarters in which to "warm up" or "dry out."

It is not necessary to provide nests for ducks. More than half the eggs are laid on the floor of the house or in the yard, and, if permitted, a duck will build herself a nest to her liking.

An inclosure should be given the breeding ducks, as they do better confined than when at liberty.

Care of Ducklings

Most duck raisers who operate on a large scale plan to have a "warm brooder house" and a "cold brooder house." Young ducklings, when taken from the nest or incubator, are very delicate and susceptible to the changes of the atmosphere; they must be kept very warm and free from chilling. The first three weeks of a duckling's life are the most critical period, and after that time the liabilities of loss are reduced to a very low rate—hardly five to the hundred.

The front of brooders for young ducklings should be hung with strips of woolen cloth to keep in the warmth of the brooder. The greatest care should be given them at this period; duck raisers consider it the most important part of their work, and after a bird has passed this "critical age" it may be counted on for the market.

The duckling goes from the warm brooder house to the cold brooder house. When the birds are taken from the warm brooder house they are three weeks old and of sufficient age to withstand a cooler temperature. They do not need the extra heat of the warm house, and in it would not grow nearly so well. The size of pens in the growing house is larger, and the ducklings are not crowded so many in a pen. The brooder houses are, of course, equipped with a system of heating that can be easily regulated.

When Salable

Ducklings are kept in the cold brooder house until they are 6 or 7 weeks old, when they are transferred to larger "growing houses." It is here that they are pushed for the market until they are 10 weeks old, when they are salable. There is no heat in the growing houses, which are used only as a means of shelter during the early spring months. When the weather is well advanced, the ducks seldom take to the houses at night; they prefer the outside and spend their nights on the ground. The growing houses should be abundantly ventilated, as too close an atmosphere will do more harm in a single night than if they had not been housed at all.

What to Feed Ducks—How and When Feed—Cost of Raising

Supplying Water

As has been previously stated, water for bathing is not at all necessary for growing ducks, but a liberal supply for drinking is absolutely essential to their growth. The food of the duck is such as to require drink when eating, as it is comparatively dry and cannot be eaten hurriedly, as grain is. When feeding, always replenish the water troughs or fountains with pure fresh water.

Feeding Ducks

The food of the duck is both vegetable and animal in nature. In the wild state it gathers its food from brooks and marshes, consisting of flag, grasses, small fishes, water insects, etc. When the birds are raised in confinement this diet must, in a measure, be imitated to get the most satisfactory results.

The duck has no crop, the food passing directly from the throat to the gizzard, and as a consequence the food must be in a soft mushy state. Too much hard food, such as grain, does not agree with these birds and they cannot thrive on it. While some raisers use a small allowance of grain others do not, and it has not been proved to be of any advantage to feed it. Soft food is the duck's natural diet, together with grasses, vegetables, and animal food.

Method of Feeding

It costs from 6 to 12 cents a pound to raise a duck for market at ten weeks of age. It costs from \$1.75 to \$2.50 each to keep breeding ducks a year.

The usual hours for feeding are 6 a. m., 10 a. m., 2 p. m., and 6 p. m.

Below is given a system of feeding ducks for marketing at ten weeks of age, as used successfully by one of the largest duck raisers on Long Island. It is divided into three parts, as follows:

(1) From time of hatching to seven days old, feed equal parts by measure, corn meal, wheat bran, and No. 2 grade flour, and 10 per cent of this bulk coarse sand. Mix with water to a dry crumbly state and feed four times a day.

(2) From seven to fifty-six days old, feed equal parts by measure, corn meal, wheat bran, and No. 2 grade flour; 10 per cent of this bulk beef scraps; 10 per cent coarse sand, and 12½ per cent green foods (green rye, oats, clover, etc.). Mix with water to a dry crumbly state and feed four times a day.

(3) From 56 to 70 days old, feed two parts by measure, corn meal; one part wheat bran; one part No. 2 grade flour; 12½ per cent of this bulk beef scraps; 10 per cent coarse sand; 12½ per cent green food. Mix with water to a dry crumbly state and feed three times a day—morning, noon and night. Give last feed an hour before sundown.

When ducks are raised for breeders they are fed differently

from those intended for market. They are not forced so much as are the latter, and less fattening food is given them. The corn meal and beef scraps are reduced to one-half quantity used in the above rations. The following is an excellent ration: Equal parts corn meal, wheat bran, green food, 5 per cent beef scraps, and 5 per cent coarse sand or grit.

Grit in some form is essential to ducks, and should be kept before them at all times. Many overlook this fact, and do not seem to understand that it is of as much value to them as it is to chickens.

Hatching Ducklings

Hatching under the setting hen (generally used for hatching ducks) is what is termed the natural process of incubation. The hatching of eggs by this means has always been followed, and no special skill is needed for success, provided the eggs are well fertilized with healthy germs. Many who raise ducks in large numbers, however, use almost exclusively artificial means; some use both the natural and the artificial, while others use the natural entirely.

There are many thousands of ducklings hatched by artificial means each year, and numbers of good mechanical incubators are now manufactured in this country at low prices. The methods of artificial incubation for ducks are in general similar to those fully described in the article on the incubation of chickens.

Colony Houses. View of Michigan Poultry Farm, Lansing, Mich.

Separate Houses

The colony house system consists of having one flock of one colony in one building. Colony houses are of two types, the portable and non-portable. The portable type of colony house has many advantages, especially for growing young stock. The usual method is to nail them on runners and then have a team draw them from place to place as wished.

This type of house saves much feed which has been wasted in the fields. You may draw the house into the grain field after the crop has been harvested, and then, after the oats is cut, the house and chickens can be moved into the oat field, etc. In this way stock is always kept on clean ground and gets more insects than would be possible when kept around the farm buildings.

Setting Hen

The setting hen must have her daily care and attention, just like the incubator.

One of the best foods for setting hens is whole corn or corn chop, together with green food, grit and fresh water. Place the corn and water in front of the nest so that during the first day or two the hen will not have to leave her nest to eat and drink. On the third day release her and scatter grain on the ground.

Try to have it so arranged that she can get a dust bath. A formula for a good dust bath is equal parts of coal and land plaster or fine sand, and some lice powder. Let the hen remain off the nest for about five minutes. The next day take her off at the same hour, if possible, and from then on she may stay off the nest until the eggs are cooled to blood heat.

Stop Desire to Set

To stop a hen from being broody, place her in a small crate or wire exhibition pen with a slatted bottom, so that she has nothing substantial to sit upon. You should then place the crate or pen in the run with the other birds, and place the broody hen in the same, then commence to feed her very sparingly indeed, but supply her with plenty of drinking water.

The broody hen should not be fed until some time after you have fed the other birds, but she should be placed near the other birds when you are feeding them. After the broody hen has been kept in the above structure for a couple of days, all signs of broodiness will have been suppressed without doing the bird any harm.

The Six Standard Breeds of Turkeys

THE NARRAGANSETT THE BUFF TURKEY

THE BRONZE TURKEYS

Standard Varieties and Management

No other kind of domestic poultry has come into such general use throughout the entire world for holiday feasts as has the turkey. Market statistics show that there has been an active demand for turkeys for many years past and the best birds invariably bring good prices. In fact there is no kind of poultry more profitable than turkeys when properly handled.

The fact that from the time they are six weeks old until winter sets in, turkeys will gain the greater part of their entire living from bugs, grasshoppers and waste grain that they pick up in their wanderings over the range, assures their existence during this period at little or no cost to the grower. In other words, they may be termed self-sustaining foragers where they have sufficient range.

Preferred Weight for Market

Turkeys that are hatched early in the spring should grow to weigh from 14 to 20 pounds by Thanksgiving week. These weights are often exceeded by the best growers, but as they are the most popular and most readily produced, they are suggested as the most advisable.

The average yield of turkey hens is from 18 to 30 eggs, each of which can usually be counted on to produce a living poult. The question of profit from keeping turkeys simply resolves itself into the ability of the grower to bring them to a marketable size. This can readily be done if care and attention be given to all the requirements for success.

Six Standard Varieties

Six standard varieties of turkeys are more or less grown in this country, viz: Bronze, Narragansett, Buff, Slate, White, and Black. The main differences are in size and color of plumage. The Bronze and the Narragansett are the largest, the Buff and Slate are the medium, and the Black and White the smallest.

Roosting Places

Turkeys do better when they can roost in the open. If well fed, they will thrive more in the shelter of the trees than in a close, confined house. The troubles that arise from allowing them to live in the trees are that they

Bronze turkey cock.

become wild and frequently are stolen. If housed, their quarters should be airy, roomy, and perfectly clean. It is not wise to have them roost with other poultry.

Origin of Varieties

Our domestic turkeys have all been bred from the wild turkey of the United States and Canada and the wild turkey of Mexico. Climatic conditions have prevented the Honduras, or Ocellated, turkey from playing any considerable part in bringing the domestic turkey to its present state of development. The wild turkey of North America has for the most part been used as the foundation from which size and vigor in our domestic stock have been gained. As to the origin of the White variety, nothing that may be classed as authentic is recorded. The Blacks may have come from either of the wild varieties as sports, and the same may be said of the Whites.

The Bronze turkey holds the post of honor. It probably originated from a cross between the wild and the tame turkey. Its beautiful rich plumage and its size have come from its wild progenitor. To maintain these desirable qualities, crosses are continually made. In this way the mammoth size has been gained. Their standard weight ranges from 16 to 36 pounds, according to age and sex. Probably more of this variety are grown each year than of all others.

Selection of Breeding Stock

A few plain rules which may be observed in the selection of breeding stock are as follows:

1.—Always use as breeders turkey hens over one year old. Be sure they are strong, healthy, and vigorous, and of good medium size. In no instance select the smaller ones. Do not strive to have them unnaturally large.

2.—The male may be a yearling or older. Do not imagine that the large overgrown males are the best. Strength, health, and vigor, with well-proportioned medium size are the main points of excellence.

THE SLATE TURKEY THE WHITE TURKEY THE BLACK TURKEY

3.—Avoid close breeding. New blood is of vital importance to turkeys. Better send a thousand miles for a new male than risk the chance of inbreeding. Secure one in the fall so as to be assured of his health and vigor prior to the breeding season.

The best rule for mating is to have four or five females to one male or tom.

Egg Laying

The hen turkey will begin laying from the middle of March to the first of April. In the warmer localities they begin to lay even earlier than this.

A feature of vital importance is assured fertility of the eggs. As soon as the hen turkey has paired with the male she pays but little attention to him for the time, being fully intent on locating a nesting place where she can lay her eggs.

It often occurs that the hen will begin to lay at a time when changeable weather may endanger the vitality of her eggs. She should be closely watched in her wanderings, so as to locate her nest and gather the eggs in order to protect them from the cold nights that may come at this early season of the year.

Hiding Nests

If unrestrained, the hen will naturally select some secluded place, under a pile of lumber or logs, or in the brush, for example, where she can hide her nest, hatch, and bring out her young after her natural inclination. If she selects a place which is not well protected, it is better to provide a box or coop, with a suitable opening for ingress and egress, to protect her and her eggs from the weather during the four weeks of incubation. In addition to this, a slat or lath frame may be placed over her a short time prior to the hatching of the eggs, so as to prevent the hen from wandering away with the young poults as soon as hatched.

Those who favor the "perfect liberty" plan may secure larger flocks by following the above suggestions. Good care should also be given to the feeding of these semiwild flocks while young and in unusually wet weather.

When the grower wishes to save all the eggs laid, provision must be made against the hiding of nests by shutting the hens into inclosures. In this way they may be taught to lay in prepared nests, where they will set when broody. From these inclosures they may be given freedom to roam about after 3 or 4 o'clock each day, or after they have laid. When roosting time comes, either coax or drive them back if they do not go voluntarily. By so doing one may have eggs to sell or set at will. Turkey hens will lay from 15 to 20 eggs before becoming broody.

Facts About Turkeys

Wide Range Necessary

It is not advisable to keep turkeys on a small confined place. Some have done well with them on from 8 to 20 acres, but only a few can be grown in this way and by the exercise of constant care.

A wide range of territory for them to go over undisturbed is of vital importance; here they will select the kind of food most to their liking. In the early spring and summer season such a range furnishes plenty of food and exercise for the breeding stock, and later the finest feeding-grounds for the growing poults.

If it is found necessary to confine them, all that is needed is a shed or house that will protect them from the elements and marauders of all kinds, and at the same time not be too confining for them. Place the roosts well up from the floor, and keep the interior perfectly clean and free from vermin.

In localities where it is not too

cold during the winter months, it is better to allow the breeding stock to roost out in the open, either in the trees, or upon roosts prepared for them by planting posts that project about 8 feet above the ground. Upon these place long poles about 2 or 2½ inches in diameter for roosts. Roosting places of this kind are better sheltered when located on the south side of a barn or building.

Hatching

Turkey hens produce such a limited number of eggs that it is seldom necessary to use an incubator for their hatching, as the hens themselves can hatch all they lay, or nearly all. Sometimes turkey eggs for hatching are given to chicken hens of large size and the poults they bring from the eggs are given to the turkey hen to rear.

It takes from 27 to 29 days for turkey eggs to hatch. The eggs

are usually fertile and quite often each egg in the nest will produce a living poult.

Some turkey hens will rear two broods in a season when permitted so to do.

While incubating their eggs the hens should be supplied with food and water; these should be placed close at hand where they may go to them at will; or their coming from the nest, as they will each day, should be observed so that they may be fed and watered. Good sound wheat and corn are best for their food at this time.

Growing the Poults

The most difficult part of turkey raising is to know how to care for the poults. It will be necessary to learn from actual experience what to do and when to do it, as well as acquiring a knowledge from other breeders and from study of standard works on the subject.

Squabs ("squeakers"), 24 hours old.

Squab Raising

The raising of squabs, or young pigeons, for the market has been made a profitable business by many farmers and suburban residents in recent years.

The standard size for squabs is 8 pounds to the dozen, the birds being killed before they get so large that they leave the nests.

It will pay to go into the pigeon business for squabs only provided one gets the right kind of stock and gives careful attention and proper management.

The best breed to use for squab raising is straight Homers or a cross between them and Dragons. Successful breeders use Homers almost exclusively, because they are the best workers and feeders and raise larger squabs in four weeks' time than any other variety. By a cross of straight Homers with Dragons you get a larger squab in four weeks' time than with

straight Dragons. A pair of straight Dragons requires five weeks to bring squabs to market size, but the cross will result in a larger squab which can be put on the market in a little over four weeks.

Housing and Feeding

One large pigeon house is better and more economical than several small ones, but in no case should a house be built to accommodate more than 250 pairs. If larger numbers are to be kept, more than one house should be built. A room 8 by 10 feet will accommodate 50 pairs very comfortably. The fly should be extended 32 feet if possible.

Pigeons should be fed twice a day—in the summer time at 6:30 a. m. and 4:30 p. m., in the winter at 7:30 a. m. and 3 p. m.

The best kinds of feed to use

are cracked corn, red wheat, Kafir corn, millet, peas, hemp, and rice. In the morning give wheat, cracked corn, and peas in equal parts; in the afternoon give equal parts of cracked corn, peas, Kafir corn, and millet. The birds should be fed in the pen rather than in the fly.

Water birds every morning before feeding, using nothing except fresh pure water. Always clean out the fountain before filling.

Points for Squab Raisers

Bathing is very essential to the health of pigeons. In summer they should have an opportunity to bathe at least every other day. In winter the bath should be given only on bright, sunny days.

It is essential to clean house once every week. After cleaning the nests, put powdered carbolated lime in all cracks, corners, and

Ways of Preserving Eggs

damp places. Sprinkle the floor with lime and sprinkle a bucket of sand evenly over the lime.

A practical New Jersey breeder with 425 pairs of pigeons produced in one year 4,400 squabs for market. Anyone with good stock and giving as good care and feed ought to do as well.

Common causes of chilled eggs and dead squabs are fighting cocks, unmated birds, mice in the breeding quarters, and lack of vitality in the breeding stock.

In the purchase of breeding stock, the buyer should endeavor to secure young, vigorous, mated birds, free from disease and lice. He should secure all available information about the birds offered, and, if possible, a written guaranty.

Number of Females

Of the light, active breeds, such as the Leghorns and Minorcas, 1 male will be sufficient for a pen of 12 to 15 females under ordinary conditions.

In the case of the medium-sized fowls, such as the Plymouth Rocks and Wyandottes, 1 male should be provided for every 10 or 12 females.

With the heaviest breeds, like the Brahmas and Cochins, 1 male should not be mated with more than 10 females. Where 20 or 30 females are kept in one flock no better means of securing fertile eggs is known than to keep 2 male birds, allowing one of them to run with the hens one day and the other the next day, having a coop or extra pen in which to keep the one not with the hens.

Overcrowding

Overcrowding is the father of a peck of troubles.

Overcrowding makes overfat hens, and overfat hens lay soft shelled eggs and the egg eating habit follows. Overcrowded flocks will roost closely together at night and sweat, leaving them in a weakened condition resulting in sickness. Overcrowding also produces idlers. Idle hens become mischievous hens, and the disgusting vice of feather pulling is the result. Better results in both health and egg production come from flocks that have plenty of "elbow room."

Perches

The perches should be all on the same level in the warmest part of the pen away from drafts, and should be readily removable. If the perches are not all on the same level the fowls will fight for the opportunity to roost on the highest and the chances are that many fowls will be injured by falling off the perches.

The perches should be in the warmest part of the pen as they need the most protection from the cold during the night when the fowls are inactive. At this time the house is also usually colder than during the day. The perches should be easily removable to facilitate cleaning, disinfecting, and fighting mites. They should be so constructed that a disinfectant can be readily applied to all parts. They should be as simple as possible and made in such a way as to have the smallest number of cracks and crevices which offer

hiding places for mites and other vermin.

As a general rule small hens should have about six inches of perch space while the larger hens should be allowed eight inches. In the winter they huddle closer together, but in the summer there should be plenty of room to allow them to spread out.

Perches should be twelve inches apart and not closer than fifteen inches to the wall or ceiling. Show birds, especially Leghorns, or similar types should be kept at a greater distance from walls and ceilings. Many good birds are spoiled by "brooming" their tails against the walls.

PRESERVING EGGS

Many people wish to preserve eggs for home consumption, and so a few methods are given which have proved sufficiently satisfactory to warrant the preservation of eggs for home use.

Eggs to be stored should be:

First, from hens that have no males running with them, because an infertile egg keeps longer, even without the use of a preservative, than a fertile egg; second, perfectly fresh, for not only will they keep much better, but if an egg which has begun to decay is placed in the same vessel with fresh ones it is likely to affect all the surrounding eggs, and, third, perfectly clean, free of any kind adhering to the shell will taint the preserving medium and thus taint the other eggs.

In placing eggs in the preservative be careful not to crack the shells. Keep them in a moderately cool room where the temperature may be kept fairly constant. A dry, clean cellar is a suitable place.

Water-glass.—Of the many methods which have been tried for preserving eggs on a small scale none has proved more successful than the use of water-glass (sodium silicate). This is a very cheap product that can usually be procured at not to exceed 50 cents a gallon, and 1 gallon will make enough solution to preserve 50 dozen eggs, so that the cost of material would not exceed 1 cent a dozen.

Pure water that has been boiled and then cooled should be used. To each 15 or 20 quarts of water 1 quart of water-glass should be added. The solution should be prepared, placed in the jar or other suitable vessel, and the fresh eggs added from time until the jar is filled, but be sure that there is 2 inches of the solution covering the eggs. The eggs should not be washed before packing, for washing injures the keeping quality, probably by dissolving the mucilaginous coating.

Limewater.—A good limewater preservative may be made as follows: Thirty gallons of water, 10 pounds of salt, one-half bushel of finely slacked lime. After mixing thoroughly allow the solution to stand two or three days and then remove the clear liquid by dipping or by means of siphon. Place the liquid in a tub or other suitable receptacle and place the eggs therein, or the eggs may be placed in the vessel first and the lime-water poured over them. Have about 2 inches above the eggs. Lined eggs can be discerned by the roughness of the shell.

Before boiling eggs which have been preserved in the foregoing ways, the shell should be punctured

with a needle, otherwise it is apt to crack as soon as placed in hot water, owing to the pores being closed.

Salt and bran.—Eggs can be preserved for several months in dry salt. Have at least 2 inches above the upper layer of eggs.

Packing in bran has also been found satisfactory in many cases.

Cold storage.—This is undoubtedly the best and most practical method for preserving eggs in large quantities in a commercial way. As the processes by which a low temperature can be maintained for an indefinite period have become more and more improved the greater has been the number of eggs so stored, until the cold-storage business has reached such proportions that it has a considerable influence on the price of eggs, tending to lower it in the winter and raise it in summer.

Scratching Shed.—Questions are often asked as to the size of scratching sheds. A useful one to accommodate nine birds should measure not less than 10 ft. by 6 ft., and any height from 3 ft. upwards.

The shed may be made in five separate pieces, namely, one roof, which should be constructed of $\frac{3}{4}$ -in. match-boarding, and covered with some good strong felt. It is better made 1 ft. wider than the shed itself, and about 4 in. longer, so that there are a couple of inches projecting over each end, about 3 in. over at the back, and the remaining 9 in. at the front, so as to keep the rain from beating in. The two ends should be made the same size, and should also be constructed of $\frac{3}{4}$ -in. matchboarding, likewise the back, which should be about 18 in. less in height than the front. The latter should be constructed partly of wood and partly of wire netting; the bottom half should be boarded up to within 3 ft. or 4 ft. from the ground, and the remaining portion covered with 1 in. wire netting. A door should be made in one of the ends to allow admittance, and likewise a slot for the fowls.

The scratching shed should not have a wooden floor, but should stand upon the bare earth; it should be covered with some kind of litter, such as cut straw chaff, oat husks, peat moss, or dead leaves.

When feeding the birds on grain, scatter the food among the litter to provide them with exercise necessary to keep the birds in a healthy, active condition, and for the same purpose hang up any green food supplied to them, so that they have to reach or jump for it.

Setters and non-setters.—Most of the varieties of poultry come under light or heavy breeds, the former being considered non-setters, and among their ranks are the following:

Leghorns, Minorcas, Andalusions, Anconas, Campines, Redcaps, etc.; and the latter (heavy breeds) are considered setters and under that heading are the following: Orpingtons, Rocks, Wyandottes, Brahmas, Cochins, Sussex, Rhode Island Reds, Faverolles, Dorkings, Langshans, etc. The light breeds are all suitable for confined runs, and lay chiefly during the spring and summer time.

All of the heavy breeds are good winter layers, but when kept in confined runs, great care has to be taken to keep them active and from becoming over-fat and then not laying.

Things Necessary to Know About Incubators

Eggs for Hatching

The eggs intended to be incubated should be kept at a rather cool temperature, 50 degrees to 60 degrees Fahrenheit. It is not advisable to keep them longer than two weeks before being incubated, and the fresher they are when set the better the chances of a good hatch and strong chicks.

Only well-formed eggs with good strong shells should be set.

How Many Eggs for Setting

Number of Eggs to Hen.—This depends on the season, the size of the hen, and the size of the eggs. The usual number for an average-sized hen in the spring is 13. The same hen set in winter should not be given more than 11. After the middle of May she can take care of 15. It is better to give less than she can cover than to give more, for when too many are given most of the eggs, if not all, will be chilled at some period of the incubation.

Testing Eggs

Testing the Eggs.—Each sitting should be tested for the removal of the infertile eggs, which gives a better chance to those left. If there are many infertile ones, and several hens have been set on the same day, some of the hens may be reset. The eggs should be tested about the sixth or seventh day. Egg testers are sold by incubator manufacturers and by dealers in poultry supplies, or a homemade tester can be made in a few minutes from a small pasteboard or wooden box of such size and dimensions that a common hand lamp, a lantern, or a candle can be placed in it. A hole should be cut in the top directly over the flame and another a little smaller than an ordinary sized hen's egg in one side opposite the flame. The testing should be done in a dark room. If the pen in which the hens are set can not be made dark enough, it is best to test after dark. In testing, the light shining through the egg, held against the hole in the side of the box, shows the condition of the egg. An infertile egg is clear, while the fertile egg will show a spiderlike formation, a center with long, crooked threads, leading outward, and this formation will float as the egg is turned. The infertile eggs may be removed and used for cooking purposes.

Feed for Fattening

Fattening birds should always receive abundant soft feed. As they have no exercise they require a feed that can be quickly and easily digested. The following mixture is good: 100 pounds finely ground barley, 100 pounds finely ground corn, 100 pounds finely ground oats (with hulls sifted out), to which mixture is added 10 per cent of beef scraps. Buttermilk or skim milk is used for mixing, the former being preferred. A little salt is sometimes added. The birds are fed twice a day at intervals of twelve hours, and are

crammed for about three weeks. It is important that the intervals between the feedings should be as nearly equal as possible.

Another ration may be made as follows: 100 pounds ground oats, 100 pounds ground corn, 50 pounds flour, 4 pounds tallow.

Green Bone

Fresh bones cut up in a bone cutter especially made for cutting bones to be fed fowls. Fresh cut green bone fed to laying hens confined in winter quarters will help the egg production, as it contains a large amount of protein needed to produce eggs in winter time in cold climates. Bone cutters are generally sold by all poultry supply houses and green bones for cutting may be purchased of any retail butcher.

Grit

Grit is essential to the health of fowls and to economy in feeding. Grit takes the place of teeth in preparing the food for further digestion and is required for the proper preparation of feed in the gizzard. When the feed is not properly taken care of in this organ an undue strain is thrown on the fowl's system, often resulting in disease, and also allowing much of the nutriment to pass through the bird's body without being absorbed. In every pen or yard a box of grit should be kept. Recent investigators have asserted that grit is a part of the necessary feed, giving the fowls strong bones and a bright plumage.

Cost of Feeding

How much does a hen eat?—This question is perhaps best answered by the statement that a hen eats as much as you feed her; but we can give the following statistics: The Maine experiment station, in the course of recent tests extending over a period of one year, found that a hen in this time consumed 90 pounds of grain and meal mixture, 40 pounds of oyster shell, 2.4 pounds of bone, 2 pounds of grit, 2.4 pounds of charcoal and 10 pounds of clover. These materials cost the station \$1.45. This is about the average cost per hen for most poultry men, although we have known many experienced men who claim to have reduced the cost much below this. It is, perhaps, higher than the average farmer pays to feed his hens, but it is a fair estimate for those men who raise chickens as a business.

Artificial Hatching

Incubators.—There are several good incubators on the market, any one of which, if properly handled, will be found satisfactory.

More depends on the operator in most cases than on the incubator. In buying an incubator the order should be placed early without waiting until the purchaser wishes to begin operating it.

Spring is a busy time for the incubator companies, and it is often impossible for them, no

matter how well equipped they may be, to fill an order the same day it is received. Again, shipments are often delayed by the transportation companies. It is also advisable for every beginner to have his machine some time before he desires to fill it with eggs, in order that he may become fully acquainted with its operations. A book of instructions accompanies every incubator, which makes it unnecessary to go into details here.

Probably the most common cause of failure with incubators is carelessness and neglect in attending to the machines.

Incubator Cellar

An ideal incubator cellar is a very valuable factor on a large poultry farm, or in case enough eggs are to be incubated each year to make it necessary to operate several machines. Otherwise, a clean, well-ventilated dwelling-house cellar, or other room, with proper precautions may be used.

If a cellar originally designed for other purposes is available it should be thoroughly cleaned. Good ventilation should be provided, and it may be obtained by opening the windows and placing a thin muslin curtain over each opening. There should be at least two windows arranged in this manner even when only one machine is operated.

In very cold weather the windows may be partly closed, especially on cold nights. When a cellar is not available, a room above ground may be used, but the best conditions for successful artificial incubation prevail in a room that is partly underground. There it is easier to keep an even temperature and to retain moisture. If possible, incubators should be operated in a building used for no other purpose.

Location.—If a cellar is to be built especially for the incubators, a site should be chosen far enough from the other buildings to avoid great loss from fire in case of accident, but not so far away that it would be inconvenient to reach.

Sloping ground presents an ideal condition. The building may then be erected parallel to the slope, having one end of the incubator room in the slope almost entirely below ground, the other end coming out above ground, or nearly so, thereby making it possible to secure good air and drainage.

The Building.—A high ceiling is especially beneficial. A room ten feet high and with a distance of seven feet from the floor to the bottom of the windows is very satisfactory.

If properly placed, windows are not at all objectionable in an incubator cellar. If hinged at the bottom they may be allowed to drop part-way open and there be securely fastened by a small chain or strong cord. In this way the air passes over them and into the room, an arrangement that does not permit direct draughts to reach the incubators.

It is also advisable to place muslin curtains over the windows that are left open permanently, the other windows affording most of the light. The latter may be shaded in case the sun shines through on the incubator or affects the temperature of the room.

Money in Eggs and Poultry

MRS. BERRY IN "PROFITABLE POULTRY"

When contemplating going into a business of any description, the question naturally arises: Is there any money in it? And a thorough investigation is made with that one object in view.

Now, when we say that there is money in eggs and poultry, it is not an utterance from a phonograph, but backed by human intellect and experience. I do not make the assertion because some one else has told me, and thus believed it and thought there ought to be money in it; or figured it out on paper; but I positively know it to be a fact.

What other one thing is there such a demand for as poultry and eggs? In fact, the demand is so great that prices for eggs always range from 15 cents to 30 cents per dozen and in many localities as high as 60 cents. This in itself shows that a good flock of hens is as good as a U. S. mint.

How many a family is supplied with daily food and wearing apparel from a good bunch of poultry. If plenty of range can be had, the cost of feed is comparatively nothing, and all the income a profit.

There is money in a bunch of scrubs, or a mixed lot of chickens, but there is more money in a good flock of pure bred fowls; they will lay more eggs, and bring higher prices on the market, they thrive better and grow larger, and besides all this, how much prettier a flock of chickens all of one variety look than a bunch of mixed up birds, and how much more satisfactory they are. A great deal depends on the start.

Best Time to Go Into the Poultry Business

There is no time like the present to go into the poultry business. Just the sooner you get into it the better. Hard times will not affect it like other lines. There is always a good demand for poultry products and at a profit. The prices may vary a little and go up and down like all commodities; but it never gets so low that it is not profitable. So if you are contemplating entering the poultry business some time, act now and make the start at once. Remember now is the acceptable time.

Six Hundred Million Dollars

That sounds pretty big, don't it? Well, that is the size of the pile added to the nation's wealth by the poultry business last year.

Have you a part of it to jingle in your pockets, or for pin money? If not, then you are missing a good thing.

The poultry business offers better chances for more people of all classes and all conditions every place than any other line.

The poultry business cannot be overdone.

There may be a good many mistakes made in starting, but the conservative person who starts right and then goes ahead and plans his work along right lines and proceeds with care, knowledge, and judgment, will win out as thousands and thousands are doing.

Who Can Enter the Poultry Business?

There is no other business that will admit such a number of people, with a full assurance of success as that of poultry. They can come from all the walks of life, all vocations, all classes, all peoples and make the poultry business a profitable one.

As it is a very healthy business, much of the work being out of doors and the work not hard, thousands of broken down business men, clerks, worn out traveling men, railroad men, miners, tradesmen, machinists and professional men who are eking out a scanty existence in overcrowded professions are turning to this industry.

Thousands of maidenly inclined school teachers, shop ladies, dressmakers, factory and sweat shop women, lady clerks with overstrained nervous systems and their vocations becoming a burden to them and the profits only making them a scant living, could take up the raising of poultry with great advantages for bettering their conditions. In the work of poultry raising, they would be gaining in health, obtaining a good living and laying up something for the proverbial rainy day. A peculiarity of the poultry business is that it leads to great enthusiasm and

it is very easy to acquire a great liking for it. Read such valuable books as this "Profitable Poultry." Subscribe for a few of the many poultry journals and you will readily succumb to an attack of the "chicken fever." It becomes very violent sometimes and we have seen persons who could not think or talk of anything but chickens. It shows that there is a great fascination for the work.

I wish to cite you one instance, although I could point out thousands of them. One right here in our own state. Mrs. D. C. Johnson, of Maxwell, Ia., left a widow at 24 years of age with three small children and practically no means of support; education limited and with no business knowledge, started in the chicken business and in a few years, by sheer force of grit, push and hard earned ability, learned the business, made a living, made money and in five years bought a 270-acre farm with a good payment down and in a few years later had it paid for.

Poultry Business Open to All

What would be the natural consequence of lessening the industrial and manufacturing business of the country? An overproduction of labor in all lines, which will lower the price and also throw many out of employment.

The poultry farmer is always sure of a good living; it will affect them much less than any other class. The farmers furnish the food for all classes, and as all must eat their products, which will always be in demand. Perhaps not quite so high in hard times as in prosperous periods, but they will be the last to be affected. The farmers as a class have been making more money than any other.

The poultry raiser is strictly in it at all times; the supply is never too great.

The United States never produces enough eggs for the demand and imports great quantities from Canada every year. So there is no danger of overdoing the poultry business, especially in the production of eggs.

There is no business that affords greater opportunities to all classes than that of the poultry business. Take the great West, for instance, where many places in the new states and territories, eggs sell for from 30 to 60 cents per dozen. There is no business that can be started with so little capital as that of poultry, and it is open to all.

It is a business that is easily learned and readily picked up by any one with common intelligence. It does not require long apprenticeship or years of study. Just go at it and not too fast at first, and you cannot help but succeed.

There are opportunities for raising poultry everywhere; better near a town or city where a good steady market can be had for good poultry and fresh eggs. Young men just starting out in business, investigate this great enterprise. Small or unsuccessful farmer, look into this matter. Discouraged tradesman and laid off workman, it will pay you to investigate the great possibilities of the poultry business. It will put new life in you—new hope, and make life a thing of joy and happiness. It is open to all classes and conditions of people everywhere.

Poultry Business for Physically Disabled People

On account of the poultry business being light work it is especially adapted to persons that are physically unable to do hard manual labor or perform hard, strenuous mental strains as the active business man is forced to do.

I do not want to lead you to think that the poultry business is all play and requires little or no work with hands or brain, but will say that it requires very close watching of small details and constant work—not hard work but constant light duties that because of their interest and fascination become a pleasure and the change usually has a very beneficial effect upon most people that are broken down in health and take up the chicken business.

And especially it is a beneficial change for those suffering mental disability, nervousness and the change of life of women, as the chicken business is highly fascinating, so much so that the "Chicken Fever" is very easy to catch and is one of the best things a person can have. It is good for health, pleasure, and profit; you forget your ailments in the fascination of the work.

Insect Pests Create Annoyance With Fowls

Insect Pests

Two classes of external parasites, popularly known as lice and mites, will be considered here. There are several varieties of lice which attack poultry. The subsist mainly on the feathers and perhaps on the epidermic scales.

They are found largely on the head and neck, under the wings and about the vent, and when present in large numbers they cause the fowls much discomfort. Persian insect powder (pyrethrum), powdered sulphur, and some of the various preparations on the market, such as the louse powders, are good in combating these pests.

The hens can be dusted with one of these powders after they have gone to roost. Have the powder in a box with a perforated cover, grasp the fowl by the legs and shake the powder well among the feathers.

Dust at least three times at intervals of about a week in order to catch the lice which hatch out after the first dusting.

The mites subsist on the blood of the fowls and are not usually found on the bodies of the bird except when at roost or on the nest. During the day they inhabit the cracks and crevices of the walls, roosts and nests.

Setting hens are often so annoyed that they are compelled to leave the nests in order to relieve themselves of these parasites.

The free use of kerosene about the nests and perches is useful in fighting mites. The walls of the house may be sprayed with kerosene, the operation being repeated every three or four days for two weeks.

Insect powders are of little avail. The following method has proved excellent in ridding houses of mites and lice when the weather conditions are such as to permit the birds being kept out-

side the house for five or six hours:

Close all the doors and windows and see that there are no cracks or any other openings to admit air.

Get an iron vessel and set it on the gravel or sand near the center of the house; place in the vessel a handful of shavings or straw saturated with kerosene, and on these sprinkle sulphur at the rate of about one pound to every 90 or 100 square feet of floor space. Instead of using the shavings and kerosene the sulphur can be saturated with wood alcohol. When everything else is in readiness light the material and hastily leave the house. In case any anxiety is felt about fire, a glance through a window will show whether everything is all right.

There is very little danger of fire when proper precautions have been taken to have plenty of soil beneath the vessel.

Allow the house to remain closed for three or four hours, at the end of which time one can safely conclude that there are no living beings inside.

Now throw all the doors and windows wide open so as to drive out the sulphur fumes thoroughly, and then the fowls may be allowed to enter. Let them in one by one, and as each enters catch it and dust it well with insect powder, which will destroy the lice on the birds.

Tobacco dust is also good to use instead of insect powder. The birds and house have now been freed from vermin for the present, but the eggs of the insects have not been destroyed, and in a week another swarm will be hatched out. Therefore it will be necessary to repeat the operation once or twice before the pests are exterminated. After this care should be used to see that no strange fowl is admitted to the house or yard without having been thoroughly rid of lice, for one

lousy hen will contaminate all the rest.

Intestinal worms.—Worms are frequently present in the intestines and ceca of chickens, particularly young chicks, often causing considerable loss. Practically the only way to determine that worms are present is to examine the ceca and intestines of dead chicks. The worms are small and hairlike. Occasionally flat tape worms are found, but these are not very common. Chicks infested with worms go off feed and become thin and sickly looking.

In combating worms care should be taken to keep clean the soil over which the chicks run, and to move the runs each year or two if possible. Cleanliness in the house must also be observed. In treating affected birds, powdered areca nut (20 or 40 grains per fowl), administered either in mash or mixed with butter and made into pills, is an effective remedy. Powdered male fern (30 grains to 1 dram), or oil of turpentine (1 to 3 teaspoonfuls), alone or diluted, with an equal bulk of olive oil, is also very good. It is well to follow any of these remedies with a dose of castor oil (1 to 3 teaspoonfuls.)

Mash Feeding

It is the practice of a large percentage of the most successful poultrymen to feed a part of the daily grain ration ground. Most of them feed the ground grain moistened with either milk or water, although some feed it dry. A fowl's gizzard is capable of grinding all kinds of grain, but it is generally considered to be more economical to have a part of the grinding done by steam or water power. The soft-feed idea, however, must not be overworked. A beginner often reasons that it is cheaper for the miller than for the fowl to grind the grain;

MOE'S SANITARY CONVENIENCES

Observe Quietude Among Fowls

but the powerful muscles of the gizzard are there to be used, and experience has shown that the balance of power of functions in the fowl's economy makes the vigorous exercise of the gizzard beneficial. When feeding moistened ground feed have it a comparatively dry, crumbly mash, and not a thin slop. Give what they will eat readily in 15 to 20 minutes.

Marketing

Marketing poultry and poultry products.—A large part of the profit in poultry keeping often depends on the marketing of the products, and the producer should study the market demands as to how, where, and when to dispose of the products to the best advantage.

An attractive appearance is of prime importance, and the producer should study the details of killing, dressing, and packing in order to arrange the products in the best possible manner.

The requirements for dressing and packing vary somewhat in different markets, and the producer should learn any special requirements of the market to which he intends shipping.

Milk

When properly fed, milk makes an excellent feed for poultry. In feeding sour milk or buttermilk, however, the feeder must exercise care not to give too much or bowel trouble will likely result.

Skimmed milk is an economical feed. In skimming, the most valuable food constituents—the nitrogenous substances—are left in the skimmed milk. Not only does this skimmed milk contain much nutritive material, but it contains it in a form which, as a rule, is easily digested.

Skimmed milk may often be advantageously substituted in part for meat. Milk may be used in mixing the soft feed, or it may be given the fowls to drink in addition to water.

Molting

Molting.—Where a specialty is made of producing winter eggs it is important that the hens shed their feathers early, so that the new plumage will be grown before cold weather begins. Henry Van Dreser has proposed a way by which it is possible to cause a flock of fowls to pass through the molting period early and uniformly. This method consists in withholding part of the feed for about two weeks, which stops egg production and reduces the weight of the fowls, and then feeding heavily on a ration suitable for the formation of the feathers and the general building up of the system. This method was tried at the West Virginia Experiment Station with good results. The hens molted more rapidly and with more uniformity, entering winter in bet-

ter condition than similar fowls fed continually during the molting period on an egg-producing ration. Whether this method is employed or not, the fowls should receive a more nitrogenous ration than the one ordinarily fed. The addition of a little linseed meal during the molting period will aid in the production of a new coat of feathers. An increase in the amount of animal feed will also be beneficial.

Soft Shelled Eggs

The cause may be either too much fatness, diseased egg-producing organs, or lack of shell making material. If the first be the cause, the remedy would be to reduce the fatness by giving less food or food of a less fattening character, with plenty of exercise; if the second, little can be done; though a promotion of the general health through plenty of exercise, fresh air and correct feeding might restore the diseased organs to a normal condition; if the third, the providing of plenty of good sharp grit and an abundance of ground oyster shells would doubtless be sufficient to cause the hen to lay eggs with proper shells.

Hens will occasionally lay one or two soft-shelled eggs when they appear to be in good laying condition and properly fed, while the rest of their product will be normal. In such cases there is no occasion for alarm. But if the practice continues one should promptly set to work to ascertain the cause and provide appropriate remedy.

Sprouted Oats

Oats can be sprouted in shallow wooden boxes, with sides, about 3 in. to 5 in. deep, such as used by nurserymen for seedlings, the chief factors for their growth being sufficient but not too much moisture, together with light and warmth. In summer there is no difficulty about the latter points, but in winter either a greenhouse, corner of the kitchen, scullery, or warming outhouse are necessary for obtaining sufficient heat for rapid sprouting.

The oats should be spread thickly over the bottom of the box, and at first watered freely so that they become thoroughly soaked, and as sprouting progresses see that just sufficient moisture is supplied to keep them growing, but not to rot the roots.

A little experience will soon tell the amount of oats which yield the best results. To keep up continuity of supply a fresh planting should be made about every three days, and the sprouted oats fed to the chickens or fowls when they are from 4 in. to 6 in. high. A sod of these cut out are a rare treat to poultry when other green food is scarce.

If preferred, the oats, before spreading in boxes can be thoroughly soaked in a tub of water, and this where they are kept within doors will do away with the attendant mess of at first watering the boxes freely.

Taming Fowls

Fowls to produce well must be kept tame. At feeding time, when the birds are hungry, and you have from one to five minutes time that can be spared, sit or kneel down at the usual feeding place with the bucket of feed and throw out a little of the feed near you, gradually shortening the distance from day to day. In this way the birds may be made to approach rather close, and after a few trials they will usually eat from one's hand.

Gentleness at all times must be observed if good results are to be obtained. Laying fowls, like bees, sting when disturbed by quick motions or otherwise, the only difference being that the sting is in the pocketbook.

Avoid hasty passing by windows or openings of poultry houses and do not enter suddenly. Sometimes it is well to rap on the door to draw the bird's attention, so that they will not be taken by surprise and pile into a corner or try to get out by way of the roof.

When walking among the birds, do so with a slow, deliberate step. It is also a good practice to call the birds to their feed with a low whistle and to use this same whistle when entering the pen, or when the birds are disturbed in any way.

Telling the sex.—In some breeds, especially the American and Asiatic varieties, it is often difficult to tell the sex of the young stock, particularly when of the age of three or four months. Usually the head is broader and the tail more stumpy in males than in females. But this rule does not always hold good, as pullets quite frequently have the outward markings of cockerels.

When all other signs fail, the expert distinguishes the sex by the sound of the voice of the chicken when caught—that of the male being coarse and more harsh than that of the female.

Ventilation

Ventilation.—The ventilation of a poultry house is very important. A house with tight walls, roof and floor and an open front, will contain cold, dry and pure air, three essentials for the health of the fowls in winter. With such a construction there will be no draughts but plenty of fresh air.

Size of poultry house.—In determining the size of a house, consider the number of fowls that are to be kept in one pen. As a rule, fowls are too crowded for economical production.

A flock of fifty hens should usually be allowed about five square feet of floor space per hen. Where the attendant is careful to keep the house clean and the floor heavily littered with straw, less floor space will be necessary. As a rule, it is far better to allow too much floor space rather than too little. The larger the pen, the less floor space will be required per hen. One hundred hens will thrive in a pen 20x20 feet, that is, four square feet of floor space per hen, but one hen will not thrive in a pen 2x2 feet. In a large pen, each one has a chance to wander about over the entire floor space, thus getting more exercise.

FOR LAWNS
FOR MEADOWS

GRASSES

FOR PASTURES
FOR HAY

Grass That Will Survive in Shade and Steep Side Hills

Amount Required Per Acre. Adapted to Various Locations. Average Price Which May Vary in Different Seasons in Different Regions.

Canada Blue. Has a flatter and a more wiry stem than the Kentucky grass, also bluer color. Used in the cheap mixtures as a substitute. Useful throughout the East and North, including Canada, on dry sand or clay. Seed weighs 14 pounds per bushel. Takes 3 bushels per acre. Worth \$25 per 100 pounds.

Creeping Bent. Forms strong turf; grows rapidly; improved by heavy rolling. Favorable for low-lying inland and dry valleys of the Eastern States. Sow three bushels to the acre. Price \$40 per 100 pounds.

Crested Dog's Tail. Valuable for shady places, and under trees. Also for terraces on deep soil. Has the same color of Kentucky blue grass. Mixes well with that and is a good bottom grass, but not recommended alone. Prefers rich, moist soil. Is among the best lawn grasses which require close cutting and an ability to resist tramping, as in golf links, croquet lawns, tennis courts, etc. Takes one bushel of 30 pounds per acre. Worth \$40 per 100 pounds.

English Rye. Makes good verdure in four weeks. Dies out in two or three years. Valuable for quick effects in the Middle and Eastern States. Requires 2 bushels to the acre. Worth \$9 per 100 pounds. Weight of bushel is 28 pounds.

Italian Rye. Very rapid grower and valuable for short, quick effects. Is practically an annual. Use very thickly in mixture, as far South as Jacksonville, Florida. Seed weighs 22 pounds per bushel. Worth \$9.50 per 100 pounds.

Kentucky Blue Grass. Starts early, lasts till frost, fine texture, rich green color, smooth even growth. Three years to establish. Dislikes some soils. Seed weighs 14 pounds to the bushel. Takes 3 bushels to the acre. Worth \$35 per 100 pounds.

Red Top. Stands hot weather and rough usage. Adapted to regions north of Tennessee. Fills in well with blue grass. Takes from 4 to 6 bushels per acre. Worth \$28 per 100 pounds.

Rhode Island Bent, favorable to use on sandy seashores. Makes a close, fine turf in color, very green. Price per 100 pounds \$40.

Sheep's Fescue. Useful in mixtures for the Northwest and for lands on poorest sands. This is a "bunch" or "stool grass" with very fine foliage and dense dwarf growth for any uplands. Seed weighs 16 pounds to the bushel and takes 2 bushels to the acre. Worth \$30 per 100 pounds.

Slender Fescue. Has a finer leaf than Sheep's Fescue and stools like that. Recommended only in special situations. Dry slopes, on lawns, or on dry, high situations. Takes 1½ bushels per acre, weighs 22 pounds per bushel. Worth \$40 per 100 pounds.

Wood Meadow. Very hardy and early, resisting heat. Best grass for very shady places in woodland parks. Takes 1½ bushels per acre. Weighs 19 pounds per bushel and is worth \$50.00 per 100 pounds.

Best Farm Grasses for All Purposes

Weight per bushel. Amount required per acre. Where necessary to use. Price of seed liable to vary according to season and locality.

Brome Grass. Suitable for upland soils in the Northwest. Makes good hay first two years. Seed weighs 14 pounds to the bushel. Requires 20 pounds per acre. Makes good pasturage. Seed worth \$18 per 100 pounds.

Canada Blue Grass. Makes good hay on Northern sandy soils. Leaves a coarse stubble. Requires 42 pounds seed to the acre. Weighs 14 pounds to the bushel and costs but 15 cents a pound in lots of 100 pounds. Look up price in feed stores. It is worth probably more.

Crested Dog's Tail. Good for hard dry soils and sheep pastures. Seed weighs 21 pounds per bushel. Takes 50 pounds per acre. Costs 30 cents per bushel for 100 pounds.

English Rye Grass. Well liked by stock. Highly prized for hay in Europe. Seed weighs 25 pounds per bushel. Takes 50 pounds per acre. Costs 9 cents a pound per 100 pounds.

Foxtail Millet. Makes good hay. Suitable for soiling; common type is earliest. Hungarian medium, German, latest and best yielder. Seed weighs 50 pounds per bushel. Use 12½ pounds per acre.

Italian Rye Grass. Useful, self-feeding, annual, but little known in the East. Requires 50 pounds seed to the acre. Weighs 20 pounds per bushel. Makes excellent hay. Seed costs \$9.20 per 100 pounds.

Japanese Millet. An annual suitable for hay in the South and West, on wet soils. Requires 15 pounds per acre. Costs 7 cents per pound, per hundred pounds. Price varying, of course, in different seasons.

Kentucky Blue Grass. Standard pasture for humid U. S. and limestone soils. Seed weighs 14 pounds per bushel. Acre requires 40 pounds seed, costing 18 cents a pound per 100 pounds.

Meadow Foxtail. Sow early on moist soil 7 pounds to the acre. Mixed with other grasses. It is not usually sown alone as it does not reach maturity till the second or third year. Weighs 32 pounds to the bushel. Is suitable for either hay or pasturage. Requires 25 pounds per acre. Price \$40 per 100 pounds.

Orchard Grass. A hardy grass, which is best when cut young. Good in mixtures. Requires 40 pounds to the acre. Seed weighs 18 pounds to the bushel and costs 22 cents a pound per 100 pounds.

Redtop, Burdens Grass. Suitable for pasture on soils too wet for timothy. Requires 32 pounds per acre if used alone, or 15 pounds as a mixture. Weighs 32 pounds to the bushel. Costs \$18 per 100 pounds.

Timothy, Herd's Grass. Makes the standard hay in the North Atlantic States. Takes 35 pounds seed to the acre. Weighs 45 pounds to the bushel. Costs 9 cents per pound, per 100 pounds, according to the price given in "Garden and Farm Almanac." The price is much higher probably, as will be learned at the seed stores.

Wood Meadow Grass. Good for moist shady soils. Better for lawn than field use. Requires 28 pounds seed to the acre. Weighs 14 pounds to the bushel and costs 50 cents per pound in 100 pound quantities.

The Clover Grasses

Clover, Alfalfa or Lucerne. Adapted to use of cattle, horses and hogs. Adapted to hay and pasture, perennial. (See elsewhere for description of Alfalfa.)

Clover. Red; adapted to all live stock; plowed under makes the best green manure known.

Clover. Alsike grows 2 to 3 feet tall. Can have 2 to 4 cuttings per year; adapted to Northern and Middle States; requires a good clay loam; takes from 5 to 7 pounds seed to the acre.

Clover. White; a perennial, fine for pasturing and makes the best plant known for bees.

DOGS, IN EUROPE AND AMERICA.

DIFFERENT BREEDS.

Bloodhound,
Hounds, Mastiff, Newfoundland,
Collie, and St. Bernard

DOGS;

Including Retriever, Pointer, Setter,
and other Dogs.

Colley Dog.

The Colley, an English sheep dog, origin unknown, is highly intelligent through many generations of special training.

English Mastiff.

The English Mastiff has descended far away back, according to some authorities, from a bull dog ancestry.

Bloodhound.

The Bloodhound receives its name from certainty with which he follows any animal after smelling of its blood.

English Fox-Hound.

The English Fox-Hound, a smooth, handsome dog, has extremely keen scent, great speed and strength of wind.

Deer Hound.

The Deer Hound, a native of Scotland, large, graceful, formerly of great service in hunting deer.

Smooth St. Bernard Dog.

The Smooth St. Bernard exhibits great energy and sagacity. There are two species, rough and smooth coated.

Newfoundland Dog.

The Newfoundland is a native of the Isle of that name. Large, black, and of docile disposition.

Pug Dog.

The Pug is of uncertain origin, but the pure breeds have always stood high among dog fanciers.

Rough St. Bernard Dog.

The Rough St. Bernard has wide reputation as savior of lost travelers on the Swiss Alps.

Pomeranian Dog.

The Pomeranian, or Spitz Dog, is an importation from Pomerania, in Prussia, and now bred in America,

Basset Hound.

The Basset Hound, originally from France, long ears, smooth coated, short legs, waddling gait, hair glossy.

Dachshund.

The Dachshund, or German Badger Dog, originated in Central Europe. Has long body and short, crooked legs.

Maltese Dog.

The Maltese Dog has long silky hair, slightly wavy but not curly.

Dalmatian Dog.

The Dalmatian, a Spotted Dog, is a native of Delmatia, in Austria. An excellent coach dog.

Harrier Dog.

The Harrier, an English dog, somewhat resembling the Fox Hound, his principal vocation being to hunt hares.

Italian Greyhound.

The Italian Greyhound is a delicate, small dog, valued principally as a drawing-room pet.

Truffle Dog.

The Truffle Dog is an English breed, cultivated originally to find and dig a vegetable known as Truffle.

Greyhound.

The Greyhound, is formed on the principle, of the thoroughbred race horse, slender legs, quick action.

Chinese Crested Dog.

The Chinese Crested Dog, China, has no hair on body and resembles the Greyhound in form.

Bulldog.

The Bulldog originated in England several centuries ago when bullbaiting was one of the popular amusements.

Otter Hound.

The Otter Hound, an English sporting dog, of service in protecting fish ponds from depredation by otters.

Poodle Dog.

The Poodle was originally a Water Spaniel in the lowlands of Europe. Draining the land changed its nature.

Wavy-Coated Retriever.

The Wavy-Coated Retriever is supposed to be a cross between the Small Newfoundland and the Setter.

Black Wavy-Coated Retriever.

The Black Coated Retriever, extensively bred in England, is a union of the small Newfoundland and water spaniel.

Pointer Dog.

The Pointer, an English hunting dog. Two breeds, two colors, liver and white, lemon and white.

English Setter Dog.

The English Setter, a superior hunting breed, dates back to 1780, but has been greatly improved since 1825.

King Charles Spaniel.

The King Charles Spaniel derives its name from Charles II, England. Intelligent and pleasant in disposition.

Blenheim Spaniel.

The Blenheim Spaniel receives the name from the Marlborough family of England. In form resembles the King Charles.

Beagle Dog.

The Beagle, English hunting dog, is kept in packs by Englishmen for hunting rabbits and hares.

Irish Water Spaniel.

The Irish Water Spaniel, native of Ireland, learns easily, is plucky, companionable, obedient and highly intelligent.

Clumber Spaniel.

The Clumber Spaniel takes his name from the home of the Duke of New Castle, in Nottinghamshire, England.

Scotch Terrier.

The Scotch Terrier, small, rough dog, native of Scotland. Courageous, docile and valuable as a vermin hunter.

Sussex Spaniel.

The Sussex Spaniel, English, dates back to 1772 and belongs to the same family as the Clumber.

Cocker Spaniel.

The Cocker Spaniel is an English species, popular because active, faithful and enthusiastic in the hunting field.

Prick-Ear Skye Terrier.

The Prick-Ear Skye Terrier is a variety of the native dog of the Isle of Skye, Scotland.

Drop-Ear Skye Terrier.

The Drop-Ear Skye Terrier is the name of the old English Yorkshire Terrier. Superior for rats and rabbits.

Bull-Terrier.

The Bull-Terrier, a handsome, symmetrical dog, active and vivacious, is a compound of Terrier and Hound.

White English Terrier.

The White English Terrier differs from the black and tan only in color. Is affectionate, lively and tractable.

Black-and-Tan Terrier.

The Black-and-Tan Terrier, English bred originally, has keen scent for hunting and destroying rats.

Airedale Terrier.

This as a truly sporting breed of English origin and highly popular in America. Philadelphia is quite a stronghold of this breed.

Irish Terrier.

The Irish Terrier, native of Ireland, is a fine sporting dog, active, companionable and a good house dog.

Bedlington Terrier.

The Bedlington Terrier, dating back to 1825, comes from Bedlington, England. Weighs from 16 to 25 pounds.

Yorkshire Terrier.

The Yorkshire Terrier, named from Yorkshire, England, where it originated. It is a parlor pet with long silky hair.

Smooth Fox-Terrier.

The Smooth Fox-Terrier is the outgrowth of old time Terriers used in hunting foxes in England.

Rough Fox-Terrier.

The Rough Fox-Terrier, an irregular breed, and so named in opposition to the Smooth Fox Terrier.

Dandie Dinmont Terrier.

The Dandy Dinmot Terrier, a Scotch dog, is supposed to be a cross with the German Dachshund.

DOMESTIC PETS, INCLUDING PIGEONS, SWAN, GUINEA FOWL, PARROT, AND CATS.

The Pea-Fowl

Persian Cat.

Lop-Eared Rabbit.

Leghorn Runt Pigeon.

The Leghorn Runt is said to have originated on the shores of the Mediterranean.

Guinea-Fowl.

The Guinea Fowl is found wild in Africa.

The Swan.

The Swan belongs to the duck family.

Guinea-Pig.

The Guinea-Pig is a native of South America and esteemed for beauty and gentle disposition.

The Pea-Fowl, native of India, belongs to the Pheasant family.

Gray (Talking) Parrot.

The Gray Parrot is a cage pet, found on the western coast of Africa, whence it is imported. Remarkable as a good talker and for its longevity.

Silver-Gray Rabbit.

The Silver-Gray Rabbit ranks next to the lop-eared in value. Imported into England from other countries.

Angora Cat.

The Angora Cat, English, belongs to the long-haired class.

English Pouter Pigeon.

The English Pouter, remarkable for swelling its crop

Brown Tabby-Cat.

The Brown Tabby is a favorite domestic animal.

DOMESTIC PETS, COMPRISING VARIOUS KINDS OF RABBITS AND PIGEONS.

Himalayan Rabbit.

The Himalayan Rabbit is silver-gray in color, but whether originated in Himalaya is not known.

Dutch Rabbit.

The Dutch Rabbit, laying claim to great beauty, has been cultivated for many years in France.

Angora Rabbit.

The Angora Rabbit takes its name from its resemblance to the Angora goat in having long hair.

Trumpeter Pigeon.

The Trumpeter Pigeon, which is quite common in Europe, derives its name from the peculiar sound of its voice.

Belgian Hare Rabbit.

The Belgian Hare, a native of Belgium and adjacent countries, was originally imported into England for food.

Nun Pigeon.

The Nun Pigeon, from its marked contrasts in colors, has always held high place among fancy pigeons.

Latz Pigeon.

The Latz Pigeon is so-called from the appearance of a latz bodice in color, covering its form.

The Pheasant.

The Pheasant, an ornamental bird, cultivated for its beauty, is a prolific layer and good mother.

Jacobin Pigeon.

The Jacobin, so named because feathers in the back of its head resemble the head of a monk.

Fantail Pigeon.

The Fantail has been cultivated in India for 200 years.

Almond Tumbler

The Tumbler receives its name from its natural propensity to turning over in its flight.

English Carrier Pigeon.

The English Carrier, king of pigeons, said to have originally come from Persia.

**PROFITABLE
PLEASANT INDUSTRY**

BEE KEEPING

**REQUIRES CARE
AND ATTENTION**

Full Particulars as to How to Conduct the Business

Apiculture, or bee-keeping, is one of the oldest of all human industries. In the earliest ages the honey of the wild bee was highly esteemed as food. A land "flowing with milk and honey" was regarded as an earthly paradise. Treatises on the bee and its management were written long before the Christian era, and all down the centuries many men have been occupied with profit in bee-keeping. Modern improvements in hives and in methods of management have reduced the business to a science, and with the introduction of foreign bees, especially the Italian bee, into the United States, bee culture is now fully recognized as a profitable industry.

It may be safely said that any place where farming, gardening, or fruit raising can be successfully followed is adapted to the profitable keeping of bees—in a limited way at least, if not extensively. Many of these localities will support extensive apiaries.

This pursuit may also be followed in or near towns and, to a limited extent, in large cities. It even happens in some instances that bees in cities or towns find more abundant pasturage than in country locations which are considered fair. Thus, bees thrive in the city of Washington on account of the excellent bee pasturage in the numerous gardens and parks and the nectar-yielding shade trees, including the linden or basswood, along the streets. A prosperous apiary has been kept on the roof of a business house in the heart of New York City, another on the roof of a store in Cincinnati, and similar experiments in other cities have given satisfactory results in yield of honey.

It is evident, therefore, that no one need be deterred by his locality from keeping bees, provided the nectar-yielding trees and plants of the range are of the right sort and abundant. Moreover, regions so rough and sterile or so swampy as to give no encouragement to the agriculturist, or even to the stock raiser, will often yield a good income to the bee-keeper, insignificant and apparently worthless herbs and shrubs furnishing forage for the bees.

The ability of the bees to range over areas inaccessible to other farm stock and to draw their sustenance from dense forests when the timber is of the right kind, and the freedom which, because of their nature, must be accorded them to pasture on whatever natural sources are within their range of 3 or 4 miles, must be taken into account in estimating the possibilities of a locality.

Profits of the Business

Bee-keeping is an occupation extremely fascinating to most people who have a taste for the study of nature, but the income to be derived from it when rightly followed is a consideration which generally has some weight, and is often the chief factor in leading one to undertake the care of bees. Of course, where large apiaries are planned, the prime object is the material profit, for they require much hard labor and great watchfulness.

Apiculture, like all other branches of agriculture, depends largely upon the natural resources of the location, and the special conditions of any particular season, no matter how skillful the management, may make great differences in the year's return. The knowledge, skill, industry, and promptness of the one who undertakes the care of the apiary have likewise much to do with the return. Furthermore, profits are of course largely affected by the nature and proximity of the markets.

A moderate estimate for a fairly good locality in an average season would be 35 to 40 pounds of extracted honey or 25 pounds of comb honey per hive or colony.

When two or more of the important honey-yielding plants are present in abundance and are fairly supplemented by minor miscellaneous honey plants the locality may be considered excellent, and an expectation of realization more than the yield mentioned above may be entertained.

With extracted honey of good quality at the wholesale price of 6 to 8 cents per pound and comb honey at 12 to 14 cents, each hive should under favorable circumstances give a gross annual return of \$2.50 to \$3. From this about one-third is to be deducted to cover expenses other than the item of labor. These will include the purchase

of comb foundation and sections, repairs, eventual replacing of hives and implements, and the interest on the capital invested.

By locating in some section particularly favorable to apiculture—that is, near large linden forests, with clover fields within range, supplemented by buckwheat; or in a section where alfalfa is raised for seed; where mesquite, California sages, and wild buckwheat abound; where mangrove, palmettoes, and titi, or where sourwood, tulip-tree, and asters are plentiful—the net profits here indicated may be frequently doubled or trebled.

On the whole there should be expected from the raising of bees for any purpose whatever only fair pay for one's time, good interest on the money invested, and a sufficient margin to cover accidental losses, etc.

With no greater expectations than this and where intelligence directs the work, bee-keeping will be found in the long run, to rank among the best and safest of rural industries.

Bees Help Fruit Crops

The value of bees in the pollination, or fertilization, of various fruit and seed crops is often sufficient reason to warrant the keeping of a small apiary, even if circumstances are not favorable for large yields of honey or the saving of all swarms. The quality and quantity of many varieties of apples, pears, plums, and small fruits depends absolutely upon complete cross-pollination. The most active agents in this important work are honeybees.

How to Avoid Stings

Almost anyone can, with perseverance and the exercise of due caution learn to manipulate bees with perfect freedom and without serious risk of being stung.

Stings can be avoided, first, by having gentle bees. If no other point of superiority over the common brown or black bee than that of gentleness could be fairly claimed for some of the races of bees introduced and some of the strains developed in recent years, it would still be worth while to get them on this account alone. When the fact of superiority in several other important points is considered also, there should be no further question as to the advisability of procuring them in preference to the common variety. The beginner is advised never to think of doing otherwise.

Of the races already in general cultivation, Carniolans are gentlest, although Caucasians, more recently introduced from southeastern Russia, are by far the least inclined to sting of any bees, and may be handled at all times without resorting to the protection of a bee veil, and generally without smoke or at most a very slight application of smoke. Some strains of Italians equal in gentleness average Carniolans, but in general the race native to Italy is by no means as gentle as that found in Carniola, Austria, and the Caucasians are much to be preferred for the beginner. In case these gentler races are not easily procurable he need not hesitate, however, to undertake, after adopting due precautions, the manipulation of pure Italians.

The second essential to enable one to avoid stings is to have a good "smoker" at hand whenever the bees are to be handled. Any way of getting smoke of any kind into the hive and about it may answer the purpose, but for ease and effectiveness in keeping bees under control nothing will take the place of the modern bellows smoker. A good one lasts for years, and its cost is slight.

A veil, made of black bobbinet or Brussels net, to draw over the hat, and a pair of gloves, preferably of rubber, may be also used. Both veil and gloves can be safely dispensed with if the gentlest bees are kept.

The use of the "bee escape" in removing surplus honey reduces the risk of being stung during this operation. This useful device is fitted into a slot made in a board the same size as the top of the hive, and the whole, when slipped in between the brood apartment and an upper story or super, will permit all of the workers above to go down into the lower story but not to return to the top one, so that in one night it is possible to free entirely a

Difference in Temper of Bees

set of combs from bees without any manipulation of the combs, and without smoking, shaking, or brushing the bees.

Reasonable care in handling and attention to the above points will reduce the risk of stings to a minimum.

Different Races of Bees

The following are the principal races of bees now found in this country:

1. Caucasians, a gentle race of good workers, natives of Southern Russia.

2. Carniolans, larger-bodied than the Caucasians, good honey gatherers, introduced from Austria.

3. Italians, the first of the foreign races introduced into this country, industrious, handsome, and excellent honey producers.

4. Cyprians, from the island of Cyprus, small-bodied with great wing power, prolific, and the best of honey gatherers, but difficult in management.

5. German, common black, or brown bees, commonly found wild and cultivated to a greater or less extent, in this country; probably derived from early introductions from the Old World. In comparison with the races mentioned above, they may be said to be inferior, since they possess the least energy in honey collecting, are less prolific, and not as good defenders of their hives. Under favorable conditions, however, as regards pasturage they may be relied upon for excellent results. They are, however, spiteful under manipulation, and have the disagreeable habit of running from the combs and dropping in bunches on the ground, likewise of flying from the hive entrance and attacking passers-by.

Crosses are frequently made of black bees with Italian queens, or of the other varieties mentioned, and generally with good results.

What Hive to Adopt

Bee-keepers are agreed that the best hives must have movable frames on which the comb is made, and which may be lifted out at pleasure. This is called the Langstroth principle, from the name of the first maker of such a hive.

The suspended Langstroth frame is used more than any other frame among English-speaking bee-keepers. It is safe to say that in the United States 500 hives are made and used which are essentially Langstroth in principle to one frame hive of any other kind whatever.

The success of American bee culture in the last twenty-five years was first attributed by European bee-keepers to the honey-producing power of the country; but the most intelligent apiarists who have tried the American methods with the Langstroth hive now recognize that success is principally due to the manipulations that it permits.

There being no patent on the Langstroth hive, and accurately made hives being obtainable at moderate prices from hive factories in various parts of the country, it is taken for granted that the enterprising beginner will adopt a simple form embodying this principle—the loose-fitting, suspended comb frame—as its main feature.

The hive should not only be substantially built, but should have accurate bee-spaces and a close-fitting, rain-proof cover or roof. Factory-made hives, as a rule, best meet these requirements, as both lock joints and halved corners can only be made to advantage by machinery, and the expert hive builder understands, of course, the absolute necessity of great accuracy in bee-spaces, as well as the great desirability of good material and workmanship. Provision should also be made for winter protection.

For comb honey, hives permitting the insertion in the brood apartment of any number of frames up to eight, or frequently up to ten, are used to advantage, as the strength of the colony or of a given harvest may require.

Location of Stands

The stands for hives should be placed in an enclosure where the bees will not be disturbed by passing animals or by strangers, and where they may be kept quiet. The hives should be placed on separate stands at least three feet apart. Weeds should not be permitted to grow near them, and in no case should the stands be placed close to walls or fences, where manipulation of the hives would be rendered difficult.

Natural Swarming

Swarming is simply the migration of honey-bees to a new hive or home under the leadership of a queen.

During the swarming season, which comes in the warm days of summer, the bee-keeper must be on the alert. When the swarm is seen issuing from the hive, or in the air, after an unusual excitement or buzzing in the hive, the utmost coolness and care are demanded of the operator. The old method of rushing about beating tin pans, dinner gongs, and cowbells is no longer in vogue, having deservedly fallen into disrepute as a means of saving the swarm. In all the operations performed with bees the keeper must act gently and quietly.

Soon after he sights the swarm the bees will probably gather in a clump on a tree or bush near the apiary, and however formidable getting them into the hive may at first seem, nothing will be simpler than shaking them into their new hive, or into a basket or box, from which they may be poured in front of the hive, just as one would pour out a measure of wheat or beans. If any stick to the basket or box, invert it and give a sharp thump with one edge against the ground.

If the hive has been standing in the shade so that the boards composing it are not heated, and if it be now well shaded and plenty of ventilation be given above and below the bees are almost certain to take possession at once and begin work actively.

The securing of swarms can be made, however, even simpler than this by having the colonies placed several feet apart on a smooth lawn or dooryard and clipping one wing of each laying queen so as to prevent her flying.

The prime or first swarm from each hive is accompanied by the old queen, and if she be clipped she will of course fall from the alighting board to the ground and may be secured in a cage. The bees will circle about a few times and return. Meanwhile the only thing for the attendant to do is to replace the parent colony by means of an empty hive. The returning bees will enter the latter and the queen may be allowed to go in with them, the cage being placed with its open end directly against the entrance to insure this. The swarm is thus made to hive itself.

The parent colony removed to a new stand a rod or more away will rarely give a second swarm. But to make certain all queen cells except one may be cut out four or five days after the issuance of the first swarm. At the same time one-third to one-half of the remaining bees of the removed colony may be shaken at the entrance of the hive containing the swarm.

This reduces the population of the parent colony greatly, but the loss is soon made good by the young workers emerging daily, and the new queen which will issue from the single queen-cell, spared when cutting out cells, will soon restock the hive.

Artificial Swarming

Where an increase in the number of colonies is desired, and in case no one can be near the apiary to care for natural swarms with clipped queens, one of several artificial methods of forming new colonies may be employed. Natural swarming is, however, preferable to a poor system of artificial increase.

Prevention of Swarming

Under the most frequent conditions, however,—that is, where it is not practicable for the bee-keeper to be present at all times during the swarming season, or where the desired number of colonies has been gained—it is desirable to manage so as to prevent as far as possible the issuance of swarms from the hive, without interfering with honey storing. There are many plans to prevent swarming.

The most commonly practiced and easily applied preventive measure is that of giving abundant room for storage of honey. This to be effective should be given early in the season, before the bees get fairly into the swarming notion, and the honey should be removed frequently, unless additional empty combs can be given in the case of colonies managed for extracted honey, while those storing in sections should be given additional supers before those already on are completed.

With colonies run for comb honey it is not so easy to keep down swarming as in those run for extracted honey and kept supplied with empty comb. Free ventilation and shading of the hives as soon as warm days come will also tend toward prevention. Opening the hives once or twice weekly and destroying all queen cells that have been commenced will check swarming for a time in many instances, and is a plan which seems very thorough and the most plausible of any to beginners.

The removal of a queen at the opening of a swarming season interferes, of course, with the plans of the bees, and they will then delay swarm-

How Obtain Surplus of Honey

ing until they get a young queen. Then, if the bee-keeper destroys all queen cells before the tenth day, swarming will again be checked. But this plan is not to be commended, as it interferes with brood rearing and honey storing.

Quite the opposite of this, and more efficacious in the prevention of swarming, is the practice of replacing the old queen early in the season with a young one of the same season's raising, produced, perhaps, in the South before it is possible to rear queens in the North. Such queens are not likely to swarm during the first season, and, as they are vigorous layers, the hive will be well populated at all times and thus ready for any harvest. This plan is called "requeening." It is conducive to the highest prosperity of the colonies and aids the securing of the largest average yield of honey.

Pasturage for Bees

Bees will fly a great distance for food, but should not be compelled to forage over a range greater than 2½ to 3 miles from the apiary. They should have access to an abundance of honey-producing plants. When selecting crops for planting, therefore, the bee-keeper should choose such as will furnish honey at the times when pasturage for his bees would otherwise be lacking.

Planting for honey alone would hardly be profitable in any case, but the intelligent bee-keeper will note his surrounding trees and plants carefully and see to it that his bees have an adequate supply of forage at all seasons. It must be remembered that the various plants and trees visited by bees produce honey only for a short time each year, often only for a single month. Hence, as complete a list as possible should be made of the plants and trees visited by honey-bees, and notes should be added as to period of blossoming, importance of yield, whether honey or pollen or both of these are collected, quality of the product, etc.

If gaps occur during which no natural forage abounds for the bees, some crop can usually be selected which will fill the interval, and, while supplying a continuous succession of honey-yielding blossoms for the bees, will give in addition a yield of fruit, grain, or forage from the same land.

Bees may, if necessary, be fed artificially and should always have access to pure water.

Alfalfa, asparagus, basswood, buckwheat, locust, catalpa, chestnut, eucalypti, catnip, figwort, mignonette, mustard, rape, raspberry, roses, sainfoin, and sunflower are among the best honey-producing plants and trees.

To Obtain Surplus Honey

Good wintering, followed by careful conservation of the natural warmth of the colony; the presence of a prolific queen—preferably a young one—with abundant stores for brood rearing and the prevention, so far as possible, of swarming, are the prime conditions necessary to bring a colony of bees to the chief honey floor in shape to enable it to take full advantage of the harvest.

In addition, it is only necessary to adjust the surplus honey receptacles in time, making the space given proportionate to the strength of the colony, and, while continuing to prevent as far as possible the issuance of swarms, to remove the accumulated honey fast enough to give abundant storage room.

Extracted Honey

To secure extracted honey, the requisite number of combs may be in one long hive, or in stories one above another. Preference is generally given to the latter plan. The brood apartment is made in this case to hold eight to twelve Langstroth frames, and a second, and sometimes a third or even a fourth story, may be added temporarily. These are often called supers.

Before removing the filled combs time should be allowed the bees to ripen and cap the honey; hence enough combs are necessary to give the bees storage room while they are capping others. The honey in combs that are quite or nearly sealed over may be considered sufficiently ripened to be removed from the hive.

The cells are uncapped by means of a sharp knife, made especially for this purpose, and the combs are then made to revolve rapidly in a machine called a honey extractor. The centrifugal force exerted on the honey throws it out, leaving the comb cells uninjured, or so slightly injured that they are wholly repaired within an hour or so after the return of the comb to the hive.

The chief advantages of this method of harvesting over that of crushing the comb are at once apparent when it is known that each pound of

comb saved represents several pounds of honey (consumed in its construction), and may with care be used over almost indefinitely in securing surplus honey. Furthermore, extracted honey is of much finer quality than that obtained by crushing the combs and straining out the liquid part, since it is free from crushed bees, larvae, pollen or "bee bread," etc., which not only render strained honey dark and strong in flavor, but also make it liable to fermentation and souring.

The extracted honey is run into open buckets or tanks and left, covered with cheese-cloth, to stand a week or so in a dry, warm room not frequented by ants. It should be skimmed each day until perfectly clear, and is then ready to be put into cans or barrels for marketing, or to be stored in a dry place.

Comb Honey

The main difference to be observed in preparing colonies for the production of comb honey, instead of extracted, is in the adjustment of the brood apartment at the time the supers are added. After the colony has been bred up to the greatest possible strength, the brood apartment should be so regulated in size, when the honey flow begins and the supers are added, as to crowd many of the bees out and into the supers placed above. The supers may hold from 24 to 48 sections. When the honey is designed for home use or for a local market, half-depth frames are sometimes used, the same as those often used above the brood nests when colonies are run for extracted honey, but for the general market pound sections are better adapted.

Comb foundation is now manufactured with extra thin septum or base and with the beginnings of the cells marked out by somewhat thicker walls which the bees immediately thin down, using the extra wax in deepening the cells. This is not artificial comb, but a thin sheet of wax having the bases of the cells outlined on it. Complete artificial combs have never been used in a commercial way, although there exists a widespread belief that they have been.

Production of Wax

No method has yet been found which will enable a bee-keeper, at the present relative prices of honey and wax, to turn the whole working force of the bees, or even the greater part of it, into the production of wax instead of honey; in fact, the small amount of wax produced incidentally in apiaries run for extracted or for section honey is usually turned into honey the following season; that is, it is made into comb foundation, which is then employed in the same hives to increase their yield of marketable honey. As each pound of wax represents several pounds of honey, all cappings removed when preparing combs for the extractor, scrapings and trimmings, and drone comb are to be rendered into wax. A practical machine for this purpose is known as the solar wax extractor.

The Wintering of Bees

How to bring bees successfully through the winter in the colder portions of the United States is a problem which gives anxiety to all who are about to attempt it for the first time in those sections, and even many who have kept bees for years still find it their greatest difficulty.

It may happen occasionally that a queen, apparently young and vigorous in the autumn, will die during the winter, when a young one cannot be reared, and as a result the colony will dwindle away. Such losses are, however, rare, and, aside from the possible results of fire, flood, or violent storms, are about the only ones which cannot be avoided by careful attention to right methods in wintering.

Insufficient or poor winter stores, hives faulty in construction, lack of protection from cold and dampness, too much or too little ventilation, too great a proportion of old bees or too great a proportion of young ones, overmanipulation late in the season, etc., are the most important and most easily detected causes of loss in wintering bees.

Indoor wintering should be confined to regions where there are several weeks, at least, of continued severe weather. When all conditions are right, consumption of honey will be less indoors and loss of bee life less than with the methods usually practised in outdoor wintering.

Whatever method be followed in wintering, certain conditions regarding the colony itself are plainly essential: First, it should have a good queen; second, a fair-sized cluster of healthy bees, neither too old nor too young; third, a plentiful supply of good food.

Wide Opportunity for Bees to Gather Honey

The first of these conditions may be counted as fulfilled if the queen at the head of the colony is not more than two years old, is still active, and has always kept her colony populous; yet a younger queen—even one of the current season's rearing, and thus but a few weeks or months old—is, if raised under favorable conditions, much to be preferred.

The second point is met if brood rearing has been continued without serious interruption during the latter part of the summer and the cluster of bees occupies, on a cool day in autumn, six to eight or more spaces between the combs, or forms a compact cluster 8 or 10 inches in diameter. Young bees, if not well protected by older ones, succumb readily to the cold, while quite old bees die early in the spring, and others, which emerged late in the summer or autumn preceding, are needed to replace them.

The third essential—good food—is secured if the

hive is liberally supplied with well-ripened honey from any source whatever, or with a fairly thick sirup, made from white cane sugar, which was fed early enough to enable the bees to seal it over before they ceased flying.

The sirup is prepared by dissolving 3 pounds of granulated sugar in 1 quart of boiling water and adding to this 1 pound of pure extracted honey. Twenty to 25 pounds for outdoor wintering in the South, up to 30 to 40 pounds in the North, when wintering outside with but slight protection—or, if wintered indoors, about 20 pounds—may be considered a fair supply of winter food.

Special double-walled hives and other devices may be obtained to promote successful wintering. In fact, the manufacture of apparatus and supplies for bee culture is in itself an industry of considerable importance nowadays.

Bees in Open Field

Bee Keepers' Maxims

Clip the old queen's wings.

Go through the hives every ten days to destroy queen cells.

As the swarming season approaches have hives ready with foundation in brood-frames, and hive-stands ready to receive them.

Keep a serene spirit while hiving bees.

The hive in which the colony is placed should be kept cool and not heated from standing in the sun; it should be shaded, as the swarm will not enter a hot hive.

If the bees refuse to accept a hive, give them a frame of unsealed brood to reconcile them.

Maxims for Opening the Hive

Have the smoker ready to give forth a good volume of smoke.

Use the smoker to scare the bees rather than to punish them.

Do not stand in front of the hive lest the bees passing out and in take umbrage.

Be careful not to drop any implements with which you are working; take hold of all things firmly.

Move steadily, and not nervously.

Do not run if frightened, for the bees understand what running away means as well as you do.

If the bees attack you, move slowly away, smoking them off as you go.

If a bee annoys you by her threatening attitude for some time, kill her ruthlessly.

Ammonia applied to the wound

made by a bee-sting will usually afford immediate relief.

Keep the colonies strong.

The bees should be kept warm and well fed in the spring.

The bees must have wintered well.

The colony must have brood and plenty of honey in the brood-chambers at the beginning of the honey season.

Never let the honey in sections or supers be exposed in the apiary to incite robbery.

Keep the sections in a room in which the temperature never falls below 60 degrees.

Fumigate the sections before they are stored if you are troubled with bee-moth.

Send the honey to market in as attractive form as possible. Make your product individual in appearance, and strive to create for it a special market.

Maxims for Feeding

Keep close watch on the bees during the entire season, so as to know whether they need feeding or not.

Feed only good honey or the best sugar.

Never feed scorched sugar in the winter as it will surely kill the bees.

Observe the practice of feeding at nightfall to preclude robbing.

Never spill the sirup or honey around the yard, lest robbers be led on to black deeds.

Feed small amounts to stimulate a swarm or nucleus. Bees

are susceptible to small encouragements.

Be careful never to cool off the brood chamber when feeding in early spring or late fall.

See to it that the bees have water near by, especially early in the season.

Maxims for Wintering

Keep the colonies strong. Be sure that a good-sized swarm has at least thirty pounds of sealed stores.

Pollen should not be left in the comb for winter use.

Be sure that the honey is of good quality, and not made from decayed fruit or honey-dew.

Give the hive ventilation from below.

If wintered out of doors, give the bees a chance to fly.

If wintered in cellars, do not put too many bees in a cellar. If you have space for fifty colonies, do not try to winter more than thirty in it.

In cellars take off the bottom boards and arrange the hives so that the bees will get plenty of ventilation from below.

Have a thermometer in the cellar and keep watch on it. This should not show more than ten degrees of variation. If the temperature rise to 55 degrees, open the windows at night.

Keep the cellar dark and the air sweet.

Sweep the dead bees off the cellar floor several times during the winter.

DIFFERENT KINDS

GRAINS

SUCCESSFUL CULTURE

Wheat Growing

Wheat is the most valuable of all the cereal crops. Its original home is unknown, but it is probably a native of Western Asia. It was cultivated in the most ancient periods of the world's history. In China it was grown 2700 years before the Christian era, but it was probably not grown in America until after the discovery by Columbus in 1492. Today it is a most important crop in all the temperate parts of the globe, including vast areas of the United States and Canada.

Wheat is a hardy plant, though its cultivation does not extend as far north as that of barley, oats, or rye. It is an annual and may be sown either in the spring or in the fall. When sown in the fall it is known as winter wheat. Wheat grown in comparatively dry climates is superior in quality to that grown in humid regions, as is shown by the

soils. The most favorable soils are those which are permeable and deep, a little clayey and of medium fertility. Gravelly and sandy soils are not suitable. It grows well on alluvial soils and in fact on most soils which may be classed as heavy but which do not possess a very great tenacity.

Perfect drainage is essential, since young wheat plants are readily injured by the heaving of the soil due to the action of frost. Rolling the land before sowing winter wheat leaves the soil in a drier condition and thus minimizes the action of frost.

The preparation of the land for winter wheat consists in plowing the soil about 4 or 5 inches deep as early in the season as possible, to allow it to become somewhat compact before the seed is sown.

The seed is sown broadcast or in drills. When broadcasted, usually by a machine made for the pur-

In the Harvest Field of the Great Northwest

One Tractor Drawing Three Grain Binders, Cutting a Swath 21 Feet Wide. Each Binder 7 Feet Wide, Cutting 50 Acres in a Day of 10 Hours

difference in quality of the hard spring wheat of the Dakotas, for instance, and the soft winter wheats produced on the Pacific Coast. A prevalence of dry weather with bright sunshine from the time the plants begin to head until they are ripe is everywhere of the greatest importance.

The different varieties are classified by farmers as spring and winter wheats, bearded and beardless or bald varieties, soft and hard wheats, and also according to the color of the grain, as red, white, amber, etc. The varieties are very numerous, more so than in any other kind of grain. Botanists have classified the common bread wheats as *Triticum vulgare*, this species of *Triticum* including soft and hard winter wheats, hard spring wheats, white wheats, and early wheats.

Durum Wheat

The hardest-grained of all the wheats grown are popularly known as the durum or hard wheats. They are specially valuable for the manufacture of macaroni, but are frequently mixed with the bread wheats in the manufacture of flour and are largely grown in the United States.

Fertile Soil Required

Wheat requires a fertile and well-prepared soil. It makes a poor growth on light, humid, and acid

pose, it is harrowed in. Drilling, however, is the most popular method and has the advantage of evenly distributing the seed and covering it at a uniform depth.

Spring Wheat

Spring wheat is usually grown on fall-plowed land, and in the United States also frequently follows a corn crop without plowing the soil. It is generally sown as soon as the soil is capable of being worked in the spring. As wheat grows best and makes most of its growth during the cool part of the year, it should be sown as soon as conditions will permit. A moist soil at sowing time, provided it is not so moist that it cannot be worked, is the desirable condition.

Where wheat follows a corn crop (maize) without an intervening plowing of the soil, it is sown broadcast among the corn stalks and the field then cultivated with a corn cultivator and the surface smoothed down by repeated harrowings. Sometimes the corn stalks are cut into short pieces with a stalk-cutter before the seed is sown, which makes the cultivating and harrowing easier and more effective, but frequently the stalks are simply broken down by means of the harrow. If the stalks are not broken down flat to the ground, they cause trouble subsequently in cutting the grain by machine.

When Cut Wheat, Care Afterwards

Harvesting Wheat

Wheat is generally harvested before it has become dead ripe, in order to prevent the grain from shattering while being handled from the time it is cut until it is stacked or threshed. In California, however, this precaution is not so necessary and wheat is often left standing for a week or more after it is ripe enough to cut.

The time of harvesting wheat, like the time of sowing, varies with the latitude. In the United States the harvest begins in Texas early in May and it ends in some of the Northern States in August.

Harvesting wheat is usually done with the self-binder, although in regions where labor is cheap the reaper is still largely used.

After the grain has been bound into sheaves it is set up into shocks and left to dry and cure. Round shocks are made if the main object is to protect the sheaves against the rain, but long shocks are required if the sheaves are wet or the grain is cut quite green. This expedites drying and curing.

When the wheat has been cut and shocked, the sheaves are hauled and stacked until threshing time. The principal point to be observed in building a

stack is that the sheaves, especially the outer tier, must have an outward slant in order to shed the rain.

In this country threshing is generally completed in the fall. In sections where wheat is grown on an extensive scale, and the straw has little value, the grain is often harvested with headers, or machines which cut the grain just below the head. Some of these machines, with either horse or steam power, cut the heads and thresh out the grain at the same time.

At the present day, wheat is threshed with improved or perfected machines operated by horse, steam, or electric power. The old method of threshing by flail is now even less common than sowing by hand.

In this country wheat properly follows corn in the rotation of crops, since corn leaves the soil in clean condition. In the eastern states the use of commercial fertilizers in wheat growing is quite common, but in the west, as a rule, no fertilizers are applied. Barnyard manure is seldom applied directly to wheat, though it is usually applied to a preceding corn crop.

CORN, THE GREAT CEREAL CROP OF THE UNITED STATES

How Fertilize, Plant and Cultivate

Maize or Indian corn (*Zea Mays*) is a universal crop in the United States under the popular name of corn. It is generally thought to be a native of America, all the evidence pointing to its cultivation by the native tribes long before the discovery by Columbus, who is said to have carried the first grains of corn to Europe on his first return voyage.

Most varieties have white or yellow kernels, but black, red, and various other colors are represented among the many different sorts. Ears vary in length from one inch in some varieties of popcorn to 15 inches or more in the so-called dent varieties. The plant varies in height from less than two feet in dwarf varieties to more than 30 feet in some forms grown in the West Indies. Specimens more than 20 feet tall are not uncommon in the rich, river valleys of the United States.

plants should be cultivated with the horse-hoe or corn cultivator after they have attained sufficient height and until they are too large to admit of further cultivation without injury to the plants. In the principal corn-growing states cultivation usually begins about the first of June and lasts for about six weeks. When planted in drills it can be cultivated in one direction only. When grown in hills, or checks, the direction of each cultivation is at right angles to the preceding cultivation, so that all the surface soil may be stirred.

The time of harvesting corn depends somewhat on the use to be made of the crop. When grown for fodder, corn is cut when the kernels begin to glaze and the lower leaves begin to dry. The cut stalks are put up in shocks and left to cure in the field. When dry the ears are removed and the stalks,

Ten Champion Ears of Corn

Corn is grown on many different kinds of soil, but for its best growth requires a well-drained, rich, sandy loam which does not bake hard during drought.

In preparing the soil for corn, it is plowed deeper than for any other cereal crop, the object being to obtain a deep and well-pulverized seed-bed.

The bulk of the world's corn crop is produced in the northern Mississippi Valley, where it is planted from May 1 to May 20 and matures in about five months. In other latitudes planting is done late enough to escape the latest spring frosts.

Corn is usually sown in hills or in drills, by means of a corn-planter, but it is sometimes also sown broadcast. The hills should be about $3\frac{1}{2}$ feet apart each way, and three or four stalks are produced to each hill; but when planted in drills the single plants are grown about one foot apart in the row.

From the time of planting until the young plants appear above ground, the soil is harrowed for the purpose of keeping the surface in a pulverized condition and preventing the growth of weeds. The

called fodder or stover, are used directly for feed, or shredded and then fed.

Corn grown for the grain is harvested when it is fully ripe and dry. The ears are gathered, husked, and stored in slat cribs, through which the air passes freely, thus drying the corn and preventing attacks of mold. This method of harvesting is known as husking, picking, or shucking—the first being the most common name.

Before it is fed or sold corn is usually shelled, by passing the huskless ears through corn-shellers operated by hand, horse, or steam power.

The great corn-producing states are Illinois, Iowa, Kansas, Nebraska, Missouri, and Indiana. About 50 bushels an acre is considered a good yield, but the average yield an acre for the whole United States is only about 25 bushels an acre. In individual instances yields of several hundred bushels an acre have been recorded and under more scientific cultivation the average yield an acre is on the increase.

Facts About Some of the Common Crops

Barley

Barley is one of the most ancient of cultivated plants. It has been found in the earliest Egyptian monuments. Its botanical name is *Hordeum vulgare* and the range of latitude in which it is grown practically equals the width of the temperate zones.

The preparation of the soil for barley is very similar to that for wheat. The land should be plowed fairly deep and thoroughly pulverized to form a well-prepared seed-bed. The soil should be porous, well drained and fertile.

In northern latitudes barley grows best on sandy and calcareous loams, but in southern countries it thrives best on soils containing a little more clay. It is a plant of a short growing period and the tilth and fertility of the soil should be such as to enable it to make a rapid growth. When barnyard manure is applied directly to the crop it should be well rotted. It will be better to apply the manure to a previous crop, preferably corn.

In the United States barley is sown in the spring, as a rule, though it is also grown as a winter annual to some extent in the southern states. The quantity of seed sown varies from two to three bushels an acre. It germinates at about the same temperature as wheat but the young plant is more susceptible to cold than wheat and a light frost will often injure it.

In the states where spring wheat is grown it is a common custom to sow barley after wheat and before oats are sown. It is generally sown broadcast, but many farmers, especially in the New England states, prefer to sow it in drills from 8 to 10 inches apart.

Barley is now generally harvested with the self-binder. As soon as the sheaves are dry enough, they should be stacked or hauled into barns to prevent exposure to rains or damp weather, which will injure the color of the grain and materially reduce its market value. Barley ripens earlier than spring wheat and is usually harvested just before that crop. When grown for malting purposes it should not be harvested before it is thoroughly ripe.

From 35 to 40 bushels of barley an acre is considered a good yield, although under very favorable weather and soil conditions the yield often reaches 60 bushels an acre, or even more.

Oats

The oat (*Avena sativa*) is a hardy plant, well adapted to temperate climates and extensively grown for food and fodder in the United States. It succeeds best in a cool, moist climate.

Oats will grow on light or heavy soils, provided there is no excess of water. The seed-bed is prepared about the same as for wheat and barley, but not quite so deep. In the eastern states the land is usually plowed before oats are sown, but in the west they are frequently sown on corn land without plowing and covered with a corn cultivator or disk harrow, the surface being then smoothed with an ordinary harrow.

When sown on unplowed land oats are always broadcasted, and on plowed land may be either broadcasted or drilled. From two to three bushels of seed an acre is usually sown.

Oats are sown in the spring and in the fall, the latter in southern localities. The bulk of the crop is spring-sown.

When sown as early in the spring as possible the crop does best, as it makes most of its growth during the cooler part of the season. In northern latitudes it ripens in 90 days or even less, but in southern localities a longer time is required.

From 40 to 60 bushels an acre is considered a good yield, but much greater returns are often secured.

The oat plant furnishes green forage, hay, and straw, while the ripe grain and its milling products are of great importance as foods and feeding stuffs. The grain has long been used as a food for man, in the United States chiefly as a breakfast food.

Tobacco

The tobacco plant is a native of America and this continent has continued the principal producer and chief tobacco-growing country, the center of the tobacco interest in the United States being Virginia and Kentucky. Its name comes from Tobago, one of the West Indian Islands.

Tobacco owes its principal properties to the presence of a most poisonous alkaloid named nicotine.

In the cultivation of the tobacco plant the object is to render the leaves as large and numerous as

possible. When the leaves become brittle the plants are cut close to the ground, and afterward carried to the drying shed, where they are hung up in lines to sweat and dry.

When perfectly dry the leaves are stripped from the stalks and made into small bundles, which are subsequently stored in casks for exportation.

In the manufacture of tobacco the leaves are first thoroughly washed with salt and water. The midrib of the leaf is then removed, the leaves are again sorted and the large ones set apart for making cigars.

Cotton

This is a perennial shrub, consisting of two varieties, the long staple cotton, which has a fine, soft, silky fibre nearly two inches in length, and a short-staple cotton which has a fibre a little over one inch long adhering closely to the seed. The long-staple variety, known as Sea Island Cotton, holds the first place in the market. It is grown in some of the Southern states of America, especially on islands bordering the coast. The mode of planting is usually as follows: The seeds are sown in the spring in drills about a yard in width, the plant appearing above ground in about eight days afterwards. For the many improvements and methods of cultivation of cotton the reader is requested to address any of the agricultural experiment stations in the South which we publish elsewhere.

Hay

Hay ranks third in value of the farm crops in the United States, being exceeded only by corn and cotton.

Timothy, medium red clover, and alfalfa are the favorite hay crops in the order named, the first far in the lead. Other grasses largely used for hay are red-top, brome grass, Kentucky blue grass, buffalo grass, and foxtail millet, each flourishing best in certain localities. In many sections of the South, Bermuda grass is the favorite, while the cowpea has come more and more into favor there. On the Pacific coast wheat, oats, and barley are each harvested extensively for hay. Timothy is another of the many top-notchers that America has given to the world, being indigenous to the north-eastern states. It was named 150 years ago in honor of a New Hampshire farmer, Timothy Herd, who, with Yankee shrewdness recognized its value, and, with New England missionary zeal, did much to make known its good qualities to others; from him it is sometimes called timothy, at other times herdsgrass. He introduced it into the Carolinas in 1720.

Grasses should not be harvested more than one year, unless the land is restored by a liberal top dressing of barnyard manure or commercial fertilizer.

Red-top, brome grass, and Kentucky blue grass should be sown broadcast by hand. Timothy, re-cleaned Kentucky blue grass, clover, and alfalfa do better when a grass seeder is used.

Fall seeding is preferable except in exceedingly moist climates, and the seeding is generally done along with a "nurse crop"—a grain crop—since the grain will shade the ground and prevent the growth of weeds that would ruin the hay.

Rye

Common rye (*Secale cereale*) does not seem to have been cultivated so long as the other common cereals, though it was known to the Romans in Pliny's time. It does not grow as far north as barley, but succeeds in regions too cold for wheat and on soils too poor for any other grain. It is most productive where wheat will ripen, and is best adapted to light, sandy lands.

The varieties of rye are far less numerous than those of the other important cereals, and may be classified into winter and spring varieties. The former are most frequently grown and are sown in autumn, the latter early in spring.

Cultural management for a crop of rye is much the same as that for barley. Winter rye is usually ripe for cutting in June. A good crop is from 20 to 30 bushels of grain an acre.

On lands deficient in humus, rye is frequently grown for green manuring.

In Europe rye ranks next to wheat as a bread-stuff. When the grain is milled entire—the usual way—it contains more protein than wheat flour. Mixtures of wheat and rye flour, and of corn and rye, are often made for bread-making.

Buckwheat, Hops and Mushrooms

Buckwheat—The Farmer's Aid

This cereal will grow upon poor, thin, light soils, where other crops would not be productive at all, though the largest yields are obtained on fertile, well-drained, sandy loams. Upon a foul soil it occupies the entire ground, remorselessly driving out the weeds and leaving the land clean for another crop. Buckwheat prefers a moist, cool climate, and matures in 8 to 10 weeks, thus being adapted to short seasons and high altitudes. It is also valuable from its adaptability to the production of a crop late in the season on lands that have been too wet in the early part of the season for starting other crops. Sown as late as the middle of July in regions as far north as Iowa, it will mature a crop.

Because of its single, long tap-root, the buckwheat is excellent for deepening the fertile soil. Two or three crops will mellow up the most refractory soil. It serves well for this purpose as its growth is rapid and luxuriant. Buckwheat is sometimes sowed early in the spring to be plowed under as green manure for other grains. Three crops to the year may thus be grown. It makes a good "cover-crop" for orchards, sown after the middle of August.

The name buckwheat is generally admitted to come from the Scotch word *boc*—for beech—owing to its resemblance to the three-cornered beechnut.

Aside from its value as a palatable flour for winter use, on account of its heat-producing properties, the grain is valued as a stock food for fattening purposes; sheep love buckwheat straw, which is an excellent fertilizer, and buckwheat bran fed to cows adds to the quantity of the milk, though detracting from its quality. The crop is also grown as among the best of bee pastures.

Though this grain will succeed with less cultivation than any other crop (the surface soil needs to be finely pulverized and that is about all), yet a good preparation of the seed bed aids very materially in securing profitable yields of buckwheat.

Heavy applications of barnyard manure or nitrogenous fertilizers are not usually profitable because they increase the tendency of the crop to "lodge," and when once lodged the buckwheat never rises again. At the government experiment stations the application of 400 pounds of acid phosphate per acre for two seasons apparently almost doubled the yield of grain, but the third season the best results were obtained by the use of 150 pounds or less of the phosphate.

Early plowing to allow the ground to settle before the seed is put in is recommended. The seed is sown with the ordinary grain drill, or broadcasted; it is harrowed in the same as other grains. Three pecks of seed to the acre is sufficient on good soil, but on land of low fertility 4 to 5 pecks is used. Hot weather and frost are both injurious to the crop while the grain is forming, hence in the South the grain is sown from May to September; in the North from June 15 to about July 10. The plant blossoms for three weeks and the kernels ripen unevenly. Harvesting should begin when the first seeds are ripe, the immature seeds will ripen in the swath and over-ripe seed would shell out in handling. The grain is cut with the hand cradle or the dropper reaping machine. It ought to be cut while the stocks are damp with dew or moist after a shower, to avoid danger of the grains being shaken off in handling. It heats rapidly and should be left in loose shocks in the field and should not be mowed away in the barn too soon.

Because it leaves the soil peculiarly mellow, it has been found profitable to follow a buckwheat crop with potatoes in regions of rather heavy soils. Oats and corn are not best as following crops to succeed buckwheat. A good rotation is found to be clover, buckwheat, potatoes, oats or wheat; the clover can be harvested early and followed by the buckwheat, securing two crops for the season.

Hops

A soil capable of growing good corn is suitable for hops. The land should be high, sunny, dry, airy, rich, and mellow. Proximity to thick woods in a valley renders the plant liable to rust, mold, and blight. In planting, after richly fertilizing the land, plow deep, using a sub-soiler, and set out vines as soon as the ground can be worked in the spring, placing in hills eight feet apart.

The hop is propagated by cuttings from the most healthy of the old shoots; two buds are required, one beneath the ground from which will spring the roots and one above to develop into the stalk.

Any hoed crop can be raised the first year between the rows. The plant is a perennial but the vine dies down to the root every season. If trained on poles the pole should be about eight feet high. The vine turns from right to left, and will grow thirty feet in a season.

The value of the hop is determined by the amount of lupulin found in the flower; this furnishes the odor, taste, and medicinal property of the flower.

Hop-culture is first mentioned in history by Pliny. The Romans raised the plants as a garden vegetable, eating the young shoots as we do asparagus.

The leaves and spent hops are an excellent food for livestock, especially sheep.

Medicinally hops have tonic, stomachic, and narcotic properties. Hop pillows are used to induce sleep; hop poultices to allay pain.

Lippia—A Soil-Binder

The lippia, or fog-fruit, is a soil-binder and lawn plant for arid regions and sandy soils. It belongs to the same family as the lantanas and verbenas; is a perennial, much-branched, creeping plant and gives all the effect of a white clover lawn in regions where it is difficult or impossible to grow the usual lawn grasses. Along sandy shores, water courses, and to prevent washing of reservoir and stormwater embankments its use is unrivaled. It has maintained itself on the mesas of Arizona for eight months with less than two inches of rainfall and can endure temperatures ranging from 10 to 110 degrees Fahrenheit.

Mint

Is a hardy perennial of easy culture, grown in gardens for use in soups, sauces, salads, etc. It is increased by divisions of the roots, and planted at a distance of a foot apart, it soon forms a mass that can be cut from for years. It is grown to considerable extent in hotbeds and forcing pits for the spring markets.

Mushroom Growing

Mushrooms may be grown out-of-doors in the open field or lawn, when conditions are favorable. The spawn should be planted in rich, old, well-drained grass lands, avoiding wet or shady locations as well as dry and sandy soil. A V-shaped cut 4 inches deep should be made in the sod, a piece of spawn about 3 inches square inserted, and the sod replaced and firmed down so as to retain moisture, and the plant left to itself. The spawn should be planted about 3 feet apart for this open culture. Plant in June and you may expect mushrooms in August and September.

Grown indoors, the mushroom is the most profitable vegetable crop that can be raised for the amount of capital and labor invested. It is more over one of the most interesting crops for the amateur in that there appears nothing tangible to start with, since the eye can discern neither plant, seeds, nor roots.

Mushrooms may be grown either in houses especially erected for them or they may be grown in cellars, out-houses, sheds, under green-house tables, in stables, or in caves, as they do not require light.

The cool moisture and uniform temperature of a cellar is more congenial to their growth than rooms above ground. But if the cellar is beneath a dwelling, judgment must be used in placing the beds where there is no danger of the odors that may arise disturbing the occupants of the house.

The temperature should range between 55 and 65 degrees. The germs or spores are found in the gills of a perfectly developed mushroom and these, when falling into a congenial "soil," produce the spawn which may be bought of any seedsmen.

The beds may be about 4 feet wide, bounded by scantlings or boards about 10 to 15 inches wide. In these beds place fresh horse droppings from the stable mixed with the same weight (about 1/3 the bulk) of fresh loam from pasture or sod land. Beds should be pressed down with a brick but not packed too tightly, and should be 8 inches deep.

Make the beds for a crop wanted in winter about August or September. The temperature then is high enough to cause the spawn to germinate freely. Moisten the bed with water and leave to ferment.

Popcorn, Flax and Rice

Testing with a "hot bed thermometer," the temperature may rise to over 100 degrees; when the bed has cooled to 90 degrees insert the spawn. This is done by using a dibble and making, all over the bed, at a distance of a foot each way, holes four inches deep and in each hole placing a piece of mushroom spawn about the size of a hen's egg; firm it down and leave ten or twelve days, until the spawn have run through the whole bed, then cover the entire bed with two inches of well-pulverized loam to keep the heat in at an equable temperature, and over this spread three or four inches of hay or straw. The atmosphere may be kept moist by a few barrels of fermenting manure in the house. This does away with the risk of getting the beds too wet. But if watering is necessary use at a temperature of 80 to 100 degrees. And the temperature of the room should not fall below 50 degrees.

After the mushroom appears the soil must be kept moist.

The spawn planted in August will produce mushrooms in December or January. After the first crop is gathered an added half inch of soil on the top of the bed will result in a second crop often better than the first, and the bed may continue to yield until March or April.

Pepper Grass

Prized because of its exceedingly rapid growth, which makes it the very first of the green vegetables available from cut-door planting in the spring, being ready for use before either the early radishes or new onions. A very rich, well-pulverized soil, prepared as for radishes, should be provided.

Pop-Corn

Broadly speaking, the same soil and cultivation required for sweet corn is suitable for pop-corn, and a small stand of pop-corn is a good feature for any home garden, especially where there are children, as it adds to their interest in mastering garden work. If grown in large areas it should be drilled in and not planted in checks. There are over a score of varieties of this corn which may be divided into three groups: Those having kernels broader than deep, as the Nonpareil; those with kernels broad as deep, which varieties include the Tom Thumb, Golden Pearl and Dwarf Golden; while the Queen's Golden and various rice corns belong to a third group having kernels deeper than broad. Large growers in the West have sometimes 1,000 acres devoted to pop-corn, and an ordinary yield with this specialized crop is 100 bushels to the acre. The usual yield, however, when grown by the average farmer, is 80 bushels to the acre at a cost of \$12 to \$15 an acre to put on the market. In nutritive value popped pop-corn has been found to contain 13.3 per cent protein, 5.7 per cent fat, 70.4 per cent nitrogen-free extract. Pop-corn with cream forms a highly nutritious article of diet, and at many sanitariums pop-corn has a regular place on the diet list.

Flax

While hemp is usually grown in America for its fibre, flax is more often grown here for the seed. It is a pioneer crop to a great extent, especially on the prairie lands of the Northwest. The pioneer breaking the sod on new prairie land turns it over to rot for a season before planting it to wheat; by planting flax on this freshly turned sod he secures a crop the first season. Two and one-half pecks of seed to the acre should be sown if flaxseed is the object, that the plant may develop many branches, each bearing seed. For fibre alone a bushel and a half to three bushels of seed is required. The thick growth allows for the development of but few seeds at the top but the fibre is of much finer quality. Both seed and fibre may be secured by sowing a medium amount of seed. The yield per acre is usually two or three tons of fibre or fifteen to twenty-five bushels of flaxseed (fifty-six pounds to the bushel). A bushel of seed yields about twenty pounds of oil, which, because of its quick-drying qualities, is highly esteemed for making paints and varnishes. Where labor can be had at low cost the flax grown for fibre is pulled by hand. By repeated sowing to flax, soils soon become "flax sick."

Rice

There are as many varieties of rice as there are of wheat or barley, 25 or more being generally considered; however, one catalogue classifies 161 varieties in the island of Ceylon, and it is claimed that 1,400 varieties exist in China, India, and Japan. Three main types are recognized in the United States: Honduras, Japan, and Carolina rice. It has been grown in the American colonies of South Carolina and Georgia for nearly 250 years, almost from their foundation.

Rice is more rich in easily digestible carbohydrates than is any other cereal and has few equals, in this respect, among the foods of man. The South Carolina rice is especially rich in fat and is held in high esteem. The unpolished rice is by far the most nutritious and preferable for food.

Rice flourishes in a sub-tropical climate and is more and more widely grown in the Gulf States. It is a grass, an annual, varying from one to six feet in height. It thrives best in low, marshy ground which can be overflowed, and in tide-water swamps, but must not be flooded with salt water. In seaboard areas, subject to inundation, its culture is comparatively easy, otherwise irrigation is necessary.

It is planted from March to June. The early plantings are usually covered with earth, when the fields are flooded to sprout the grain. The field is then drained and kept so until the crop is set, when another short flow is given.

The later plantings are in open trenches, where water is put on until the grain has taken root. It is then given air by slaking the water down to the surface, but holding the surface moist until the plants are well rooted, when the tides are let on again. A uniform covering of 3 to 6 inches is considered satisfactory, but 6 to 12 inches are recommended. Four to six months are required to mature a crop of rice. When the grains are in the milk the water is removed from the field until the crop ripens. This takes usually about a week.

The grain should be cut with sickles and bound in bundles and stacked. After a week or two it will get through the stack sweat and be ready for cleaning.

The enemies of growing rice are water-weeds and birds. To guard against the former the rice swamp may be drained for a season and planted to some other crop, when the water-weeds will naturally die out. The birds are the Rice birds (Bob-o-link) and the omniscient English sparrow.

One species of rice, known as "Cochin China," is an upland rice and grows on the dry soils of Virginia, Maryland, and North Carolina, also in other sections. It endures a wider range of climate than the wet-grown rice. The upland rice may be grown upon any soil that will produce good corn or cotton. It thrives well on rich soil and in marshy bottoms. The land should be plowed in the fall, the ground must be thoroughly pulverized. The seed should be sown in June, in drills 30 inches apart and covered lightly. One to three bushels to the acre is required. The after culture is the same as for any other drill crop.

The upland rice produces 15 to 20 bushels to the acre, while the rice grown in the flooded fields will yield 30, 60, and even 100 bushels to the acre, each bushel of 45 to 48 pounds.

Sorghum

Wherever common corn will grow, sorghum, or sugar-cane, will grow, whether it be in Vermont or Texas. Aside from its use for making molasses and sugar, it makes a more profitable green fodder for stock than does corn, since it contains more sugar. The cultivation of sorghum is the same as that of corn excepting that it is planted in drills, twenty-five or thirty grains to the foot of drill.

Cocoanut

The cocoanut tree is known as one of the great family of palms, attains a height of 60 and 100 feet, and bears from 80 to 100 nuts a year. Begins bearing after planting when seven years old and continues to bear for 70 years or more thereafter. Many uses are made of the cocoanut. The oil of the nut is one of its most valuable products. Ten nuts usually produce a quart of oil. The best oil is used for cooking purposes and the inferior sorts for illumination. Large quantities are imported into the United States for the manufacture of candles and soap.

ALFALFA

The Richest Forage Crop With Directions How to Plant, Cultivate and Successfully Grow Several Crops a Year

Alfalfa, though known to and highly esteemed by the ancients and one of the easiest things in the world to grow, was long regarded by the American farmer as a crop of mystery. Only within the past few years has this remarkable hay plant come into its own, so that it is now recognized as one of the hardiest of all plants, highly responsive to cultivation and a boon, if not a bonanza, to the enterprising and enlightened grower.

Alfalfa was grown in ancient Egypt and Persia. It was introduced into Rome in 146 B. C. and has been cultivated in Italy ever since. In the 16th century it was imported into America by the Spaniards. Its introduction into the United States has been from both the east and the west.

Many Names

The botanical name of alfalfa is *medicago sativa*. It is also known throughout the world by the following names: Lucerne, French clover, Brazilian clover, Syrian clover, sainfoin, Spanish trefoil, purple medic, medica, common fodder, snail clover, branching clover, stem clover, monthly clover, horned clover, perennial clover, Burgundy clover, Welsh clover and Sicilian clover.

These names are given to the plant in English-speaking countries and indicate its widespread character and some of its characteristics. The names given to alfalfa in foreign languages would fill a column.

The importance of alfalfa to the farmer and stockman lies in the fact that it is the richest hay food known. An enthusiastic grower has said: "The cultivation and feeding of alfalfa mark the highest development of our modern agriculture. Alfalfa is one of Nature's choicest gifts to man. It is the preserver and the conservator of the homestead. It does not fall from old age. It loves the sunshine, converting the sunbeams into gold coins in the pockets of the thrifty husbandman. It is the greatest mortgage lifter yet discovered."

"The labor alfalfa performs in penetrating the subsoil is enormous. No other agricultural plant leaves the soil in such good physical condition. It prospects beneath the surface of the earth and brings her hidden treasures to the light of day. It forms a partnership with the micro-organisms of the earth, by which it is enabled to enrich the soil upon which it feeds. The farmer with a 50-acre meadow of alfalfa will have steady, enjoyable employment from June to October; for as soon as he has finished gathering the hay at one end of the field, it will be again ready for the mower at the other."

Grown Successfully in All Sections

Alfalfa is hardy, has a deep-feeding root system and is grown successfully in every section of the United States. But it demands proper treatment and a knowledge of the needs of the plant is necessary to successful growing.

The conditions as regards moisture are the dominating influence in growing alfalfa. Locality, altitude, soil and position are minor considerations. The expression so often heard, "Alfalfa will not stand wet feet," is literally true in every locality.

Necessary Soil Conditions

Choose a loamy surface with good drainage; this can best be obtained on a sloping hillside or on gently rolling land. The water level should be not less than three feet below the surface and the subsoil should be porous enough to permit the roots to penetrate to the saturated soil beneath. If the soil be water-logged less than three feet below the surface, alfalfa is unable to utilize its deep-feeding root system and the best results are not obtained.

Gently rolling land has the advantage in not having low, wet, flat spots in it where ice may form, a situation which is as detrimental as is standing water to a good stand of alfalfa. When the plants are dormant the field will stand flooding, but ice will kill them. It is essential that, if a soil is low and subject to standing water, complete drainage be provided before alfalfa is seeded.

Preparing the Soil

A soil intended for alfalfa growing must not be acid, because alfalfa will not thrive on acid soil; its roots absorb the plant food in the soil for its nourishment, but this is not enough to satisfy the plant—it must have abundance of nitrogen; this it secures from the air by means of nitrogen-gathering bacteria which live in nodules on its roots. These bacteria cannot live in an acid soil and in such a soil it is impossible to establish them by artificial transplantation or otherwise, therefore, ground limestone must be applied in quantity sufficient not only to sweeten the soil but to keep it sweet for a term of years, if success in growing the crop is attained.

Where It Will Grow Best

It was formerly thought that only certain soils would grow alfalfa. Now it is known that, while it prefers rich, loose limestone soils, it will grow luxuriantly on strong, stiff limestone clays, once they are made dry with tiles and fed with manure. It grows on sand, when the sand is made rich. It grows away from limestone, when the land has been sweetened with lime. In fact there is hardly a type of soils in the United States that is not now growing alfalfa, under culturists who persist in giving the conditions that it needs and deserves.

Alfalfa is the most energetic soil-enricher of all the clovers, but it must find fertile soil on which to begin, and cannot, like sweet clover, begin on worn-out lands. Once it is well established, however, its ability to build up the field on which it stands, and the adjoining fields (from the manure made by feeding the hay), is nothing less than marvelous.

Worth \$65 an Acre as Fertilizer

The New Jersey experiment station has shown that the yield of an acre of good alfalfa contains fertilizing ingredients that in the shape of commercial fertilizers would cost on the market at least \$65.00. So it can readily be seen that once alfalfa is established on a farm, and the hay fed thereon, and the manure saved, that farm must very rapidly increase in productivity.

Several Crops a Year

Alfalfa is a perennial, enduring on well-drained soil from five to fifty years with one sowing. It may be cut from three to five times a year, and will yield, in the regions of the corn-belt, from three to six tons of hay per acre.

The composition of alfalfa hay is such that it has almost the same nutritive value as wheat bran, and may be substituted for wheat bran in the ration of clover with good results. As a feed for all classes of live stock it is unexcelled.

Every animal upon the farm loves alfalfa, and thrives upon it.

As a pasture plant alfalfa has no equal in the amount which animals will gain from an acre of it; as much as 600 pounds of pork per acre being frequently reported where hogs have grazed it. It is also the best horse pasture known, and is sometimes used as a pasture for sheep and cows.

Alfalfa Seeding

Much needless mystery has been made of the question of seeding alfalfa. The best authorities now agree that the matter can be summed up in four words: Lime, drainage, humus, inoculation.

1. Lime is necessary on soils not naturally of limestone formation or filled with limestone pebbles. The importance of this is seen more and more each year.

2. As to drainage, there is no use in planting alfalfa on any soil where water may ordinarily be found at a depth of less than three feet. The alfalfa may grow all right until its roots strike this water, but then it will probably die.

Preparation of Ground—Proper Seeding

3. Fertile soil contains enough humus. Impoverished soils may be so deficient that special preparation must be made before alfalfa can possibly succeed. Stable manure, where obtainable is the very best thing for adding the proper humus to the soil; and its use wherever possible is advised. It might be best to use this a year in advance of sowing alfalfa, and follow with clean cultivation to overcome what weeds might be sown with the manure, or, a good way is to top-dress the alfalfa during its first winter, using a manure spreader and applying the manure evenly without large chunks that might smother the young plants. On impoverished soils, experts recommend preparation for alfalfa one or two years in advance, growing such crops as crimson clover, mammoth clover, cow peas, Canada field peas, or soja beans, and preferably turning them under or else pasturing them off, so as to give the soil the greatest benefit possible from them.

4. Inoculation is recommended, not that it is always necessary, but because it is an inexpensive process and in five cases out of six it will actually pay. The methods are described later on.

Having determined that the soil is sweet, well drained, and sufficiently supplied with humus, the only questions that remain are: 1, the preparation of a good seed-bed; 2, sowing at the proper time of year; and, 3, the use of good seed.

Carefully Prepare Seed-Bed

For the seed-bed, it is essential that the ground be carefully fitted. It must be plowed, unless it is old ground, such as corn stubble, which may be thoroughly disked instead of plowing. It is better to firm the subsoil a little, so that only the surface is really loose. This, because if the entire soil is very loose, the seed may be planted too deep, and also because the alfalfa seems to prefer the sub-surface being a trifle firmed.

Time of Seeding

Alfalfa may be seeded in the spring, summer, or autumn, the time varying according to locality, the personal experience of the grower, or the nature of the previous crop or nurse crop, as it is generally called. In the Central States many successful growers sow alfalfa about the first week in April, using beardless spring barley as a nurse crop. Many farmers, using oats as a nurse crop, prefer to sow alfalfa later.

Where beardless spring barley may be used as a nurse crop, alfalfa experts advise the early spring seeding in the states of Ohio, Indiana, Illinois, Michigan, New York and part of Pennsylvania. The late seeding is preferable in some of the New England states, in Virginia, and in the states south of the Ohio River. In these states the alfalfa thrives better when sown late than when sown early. The farther south one goes the later it is safe to sow alfalfa. There are growers in Georgia, Alabama, Mississippi, Louisiana and Texas who seed as late as November 1st, but their winters are so mild that the alfalfa is never winter-killed, and it comes on the next spring in just as good shape as if it had been sown earlier in the season.

Seeding in August

In Illinois success has been attained by seeding in August, as by seeding at this time land can be utilized that has already produced a crop of grain, and the fall weeds are not so injurious. The young plants also begin to make their growth after the hot days of summer are past and are not so likely to be burned from excessive sun-heat. In ordinary years the young plants will reach sufficient size and maturity to stand the winter without loss, though if sown too late it is likely to get winter-killed because of immaturity at time of frost.

Seeding in August gives opportunity to harvest a crop of rye, wheat, oats, or potatoes and to thoroughly eradicate the weeds and grasses that are ever a serious trouble.

A good rule is to seed at such time as will enable the young plants to have made a vigorous growth before freezing weather.

Method of Seeding

If the farmer owns a special grass drill that can be adjusted to the sowing of alfalfa seed he will find it very satisfactory; if not, a press wheat drill is the most practical machine for putting the seed in the ground.

The amount of seed to the acre varies between four and thirty pounds. The smaller amount of seed is sometimes sown when seed is desired from it, as it seeds better not to be thick.

There are 14,448,000 seeds in a bushel of alfalfa seed. Therefore to sow half a bushel to the acre would put 166 seeds to the square foot. To sow fifteen pounds would put on eighty-three seeds. Seeing that this is true, it is evident that it is more essential to have good seed and good distribution of the seed than to use a great amount of seed. About twelve to sixteen plants to the square foot are all that will ever stand, and on rich, deep soils they will not long endure even that much crowding.

Crops are often taken from the seed the same year, though alfalfa is not at its best until the third year, but it will yield very heavy crops the second year.

The depth that the seed should be sown varies according to the soil. In the Middle West where the soils are mostly black, loose, and loamy, the seed is sown about one and one-half or two inches deep, except in early spring sowings, when it is not necessary to sow so deep.

Good Seed Important

Good seed is of great importance. Alfalfa seed coming from South America, or Arabia, will grow all right the first year, and then will probably winter-kill the first winter, especially in any of the northern states. It has been found that the very best seed in the world, that which is freest from dangerous weeds and which possesses the greatest vitality, is produced in our own United States, particularly in the northwestern part. Also it is better if grown on non-irrigated soil.

Kansas, Iowa, the Dakotas, Nebraska, Wisconsin, and Minnesota produce the alfalfa seed that is most highly esteemed by expert growers of the Middle West.

Clipping the Young Alfalfa

Weeds often come up to crowd the young alfalfa. To destroy these weeds clip the field with the mower setting it to run as close to the ground as possible. There may come a yellowish rust that attacks the leaves. To destroy this clip close with the mower. Therefore when preparing land for alfalfa, see to it that the field is left as smooth as practicable, so that the mower may run over it in security. This trouble of the leaf rust will not be so much in evidence in western lands as in the lands east of the Mississippi river.

Time to Cut Alfalfa

Some successful growers cut alfalfa when about one-fifth of the plants begin to show bloom. A somewhat better way of ascertaining the proper time is to watch for the buds at the base of the plants and cut when they appear above the ground. These buds are the beginning of new stalks, and their appearance indicates that the plant is ready to make another crop.

Secure Crop Quickly

If possible, all of one crop should be cut down within a week, seeing that it is all ready at one time. Thus the hay is secured in best condition and the following crop is benefited by being given the space in which to grow.

Wide cut mowers are convenient things in the alfalfa field. After the hay is laid down the hay-makers should keep close watch, and as soon as it shows signs of drying and before the leaves fall from the stems, it should be raked into small windrows and permitted to cure in part in the windrow, or in the cock, according to where you are and what sort of climate you must work in. Alfalfa dried in the swath loses many of the leaves when raked.

Stack or put in the barn when cured, which will be in one to four days, according to weather conditions.

Inoculation

All legumes like the clover plants have tiny bacteria that work on their roots, forming "nodules." These bacteria draw nitrogen from the air, and both supply the plants with it and also add it directly to the soil. Without these bacteria the legumes will soon perish, although most of the legumes seem to find their proper bacteria in almost any soil. Alfalfa is an exception, and it nearly always pays to supply its bacteria artificially.

Alfalfa Soil from Another Field

This may be done very inexpensively. Obtain soil from some near-by alfalfa field and apply it at the rate of one hundred pounds per acre, sowing it late in the afternoon and harrowing it in immediately, before allowing the sun to strike it. This is the best way to inoculate. Soil from around the sweet clover or mellilotus roots answers equally well. The government will furnish inoculation of another sort free; this usually succeeds, but not always.

Another excellent way is to sow a few pounds of alfalfa seed with your red clover. After the clover is plowed up, sow alfalfa, and you will probably have the field inoculated.

Earth From an Old Field

Alfalfa will not thrive without the right bacteria upon the roots. Nor will milk sour without the bacteria of souring being present. And yet milk sours, and yet women folks do not add bacteria, knowingly, to their milk. Nevertheless, milk will sour more rapidly if a little sour milk is added to the sweet at milking time. So alfalfa will surely become inoculated by natural processes if grown on fit soil, but it will the sooner become inoculated if earth from an old field is dried in the shed and pulverized and sown broadcast over the field and harrowed in. There are also cultures available that are used to inoculate the seed. They are sometimes of use. They often fail to be of use, through some defect in the method. It is not worth while to bother with cultures.

It is worth while, when sowing alfalfa on land that has never had it before, to use soil from either an old alfalfa field or a sweet clover (mellilotus) patch. The bacteria that live on mellilotus are the same that live upon alfalfa.

Do not sow either alfalfa or bacteria upon soils not a fit home for bacteria. That means that the land should be dry, sweet, and stored with vegetable matter.

Field Management

It is sometimes a good practice to harrow a new alfalfa field after the plants have attained a height of three or four inches in order to stir the top soil; this, of course, depends upon the condition of the soil. Young alfalfa plants are easily affected by a compact surface soil. Set the harrow teeth at quite an angle and weight them down so they will penetrate the land. This treatment will pull out some small weeds and cover up others, but will not pull out many alfalfa plants because of their long tap-root.

Do Not Mow Too Low

When clipping alfalfa, do not set the mower too close to the ground, because the plant must not be cut off below the lowest branch. Alfalfa plants require considerable top growth to balance their great root development and too close mowing will put them out of balance, kill some, and decrease the vitality of others so they cannot survive the summer.

How Treat Land After Crop

Harrowing or disking after cutting is necessary to successful alfalfa growing. Use a spring-tooth harrow or disk; if a disk is used, set the disks rather straight, but, in any event, see to it that the land

is well dug up, the crowns of the alfalfa plants split, and the grass and weeds destroyed. Do this thoroughly. It will not injure the alfalfa. It will help its growth, and at the same time retard the growth of grass and weeds. When a grower fails to give his alfalfa field this treatment he usually finds that the grass and weeds take the field in a few years.

Penetrate Soil Deeper

When the alfalfa is three years old the disk may be weighted and made to penetrate the soil at least two inches and this should be followed by a smoothing harrow to level the land again.

It is absolutely necessary that the soil be thoroughly stirred in order that the air may penetrate to the roots of the plants where the bacteria can gather from it the nitrogen so necessary to the growth of the plant.

Advantages of the Alfalfa Crop

What, briefly, are the advantages of the alfalfa plant over other forage crops?

First, that it roots so deep in the soil. It is safe to say that alfalfa roots penetrate as deep as there is any soil. If the soil is three feet deep, the roots will penetrate three feet. If the soil is ten feet deep, the roots will go down ten feet. And if the soil is thirty feet deep, the roots will go down thirty feet. Thus the whole soil is utilized.

Second, the alfalfa plant uses the whole of the growing season, and it is the one crop that the farmer grows that does this. Soon after the corn is planted the alfalfa is ready to cut—by the first of June in most of the region of the corn belt, earlier in the South, and not much later anywhere. Thus the soil has yielded one crop almost before the corn has begun to take hold at all.

Three or Four Crops a Season

Third, there are three or four crops of alfalfa to the season. Thus it uses to the best advantage all of the soil, all of the season from early spring till late fall, and all of the soil moisture. Of no other crop can this be said.

Fourth, and best of all, the forage that the alfalfa plant produces is the richest and most palatable hay food that the farmer can grow.

Comparison of Corn and Alfalfa

It is hard for a farmer in the heart of the corn belt to consider seriously the demands of any other crop, says Mr. Joseph E. Wing, the Ohio alfalfa expert, yet if he will study alfalfa a little he will see that he is accepting no inferior plant when he puts it in place of some of his corn fields. Alfalfa will make, on good land in that region, a total yield during the season of from four to eight tons per acre. Taking six tons as a standard, and calling the hay worth \$8.00 per ton, there is thus derived from that acre a gross revenue of \$48.00. To equal that amount the field must yield 120 bushels of corn which must sell at forty cents per bushel. Or, put it according to the amount of available and digestible carbohydrates and protein produced by these crops, the alfalfa will yield fully three times as much protein as the corn and double the carbohydrates, too! Furthermore, the alfalfa is not depleting the soil, while corn is a robber crop.

FORAGE CROPS

A mixed crop of oats and Canadian field peas is recommended as being valuable for pasture, for cutting as a soiling crop, and when mature, for hay. When planted in succession of about two weeks, the first planting being as early in the spring as conditions will permit, a succession of highly nutritious forage is produced which is greatly relished by stock.

The following directions for growing this crop may be given.

The crop loves a mellow loamy soil, but will grow fairly well on soils ranging between heavy clay and sand and produce liberal returns. For early forage land should be selected which is moderately open and porous, so that the plowing may be done early. Those soils containing a comparatively large percentage of clay can better be used where late forage is desired.

Land should be plowed deep, and in cases where sod is inverted the jointer should be used. While the land is still rough, as left by the plow, the peas should be sown broadcast at the rate of about 1

bushel per acre. Then the harrow should be used and the land thoroughly fitted and fined for oats. This fitting will cover the peas deeply and well, and it is to secure this deep covering that the peas are sown directly after the plow.

Oats may then be sown broadcast or drilled in the ordinary way, using 1 to 1½ bushels of seed per acre. If the soil is somewhat porous, sandy, or gravelly, the roller may follow the seeding. But should there be a somewhat large percentage of clay in the soil then the rolling would better be deferred until the young plants are 2 or 3 inches high, when the roller can be used without danger of producing injurious soil conditions due to packing.

Comparative tests were made at Cornell a few years ago of oats and peas; oats; barley and oats; and barley. The average yields were nearly 12, 8, 7.5, and 6.5 tons per acre, respectively. The estimated value of the food constituents per acre, calculated on the dry matter, is given as \$63.11 for oats and peas, \$57.99 for oats alone, \$43.39 for oats and barley, and \$31.99 for barley alone.

THE SILO ON THE FARM

Illustration Showing How Silo Is Made, Location, How the Silo Is Filled From Power Which May Be Supplied by Automobile

Keeping in mind the fact that ensilage is literally fodder kept in a pit, the principles requisite for a good silo are more easily grasped.

The first requisite of a silo is that it must be airtight, with smooth perpendicular walls that will allow the mass to settle without leaving open spaces along the walls, and the walls must be firm so as not to spring with the pressure of the mass as it settles. The bottom may be of clay, but the use of stones covered with cement is preferable. The foundation should be set below the frost-line, in northern climates the wall should run down five feet below the surface.

Since the object is to have the least possible surface exposure, the round form of silo is preferred. It must be emptied from the top in even layers, so as to expose the silage as little as possible to the action of the air.

As it must be visited twice a day, the silo should be located near the barn, but not where the odors from the open silo will penetrate the stable at milking time to affect the milk. The roof should have a

dry roughage, and it is always well to avoid feeding it excessively.

Corn is the preferred ensilage crop, and the favorite time for cutting is when it has reached the roasting-ear stage; the slow-growing varieties are best, as they continue to grow later and produce a greater yield of ensilage to the acre than those varieties grown chiefly for the grain. Next to corn come clover and alfalfa, followed by sorghum, cow-peas and soya-beans, with beet pulp near the front rank where easy access to a sugar beet factory is to be had. Oats, rye, kafir corn, and milo maize are used in different sections.

How Big a Silo Shall Be Built

Allow 40 pounds of silage per day for each mature cow, and half this amount for each head of young stock. Figure on feeding the silage for about 200 days each year.

The deeper the silo in relation to its diameter and the tighter and better it is built, the smaller the

Filling the Silo. Special Power Machine at Right. Belt Extending from Machine to Silage at the Left.

cupola for ventilation, and in extremely cold weather this will be closed to prevent freezing. If it can be placed south or east of the barn the danger of the silo's being blown over by wind-storms is lessened.

In building of brick it is economy to use brick of a high grade. Strength, durability, and a smooth inside wall, impenetrable to the air, are objects aimed at.

A stave silo built on the principle of a stave water-tank or cistern may be bought ready to place on a cement foundation, such silo of 16x32 feet dimensions, but without foundations, costing about \$300; the cost of a concrete silo of equal dimensions is \$300 to \$500.

It is advisable for three or four farmers located close together to buy a silage cutter together. Then by helping each other they are able to fill the silo for the group at the minimum expense. The cutters used to fill medium to large size silos have a capacity of from 10 to 15 tons per hour.

Silage is pre-eminently a cow food; steers may be fed to advantage 40 to 50 pounds a day; in moderate quantities, up to about 20 pounds a day, it is good to mix with the rations of horses; sheep-men look upon it with great favor, especially for ewes at lambing time; and opinions vary as to its value for hogs. Silage must always be fed in connection with some

allowance that must be made for spoiled material. In any case it is wise to build a bigger silo than you absolutely need, to allow for shrinkage, an unexpectedly long season, and a possible increase in the size of your herd.

The Dairy Division of the Department of Agriculture has for a number of years conducted experiments in growing, preparing, and feeding silage. The results of these investigations have lately been summed up:

Cost accounts kept for silos on thirty-one farms in Wisconsin and Michigan show that the cost of putting up a ton of silage varies from 46 to 86 cents. Cost records kept for eighty-seven silos in various parts of the United States give 87 cents a ton as the average cost of filling.

"The cost of producing a ton of silage," explains the Department, "varies, of course, with the acre yield, the cost of growing an acre, and the cost of filling the silo. In general, it may be stated that from \$1.50 to \$4 a ton represents the limits between which most of the silage is produced."

As to the use of silage the Department draws from its records of various feeding experiments with various classes of cattle several rations that have been found to give satisfactory results.

Amount of Silage Consumed in Different Parts United States

Amount of Silage Required Per Day

Rations for dairy cows are classified in accordance with milk yield and the quality of this yield, as follows:

For a 1300-pound cow yielding 40 pounds of milk testing 3.5 per cent: Silage, 40 pounds; clover, cow-pea, or alfalfa hay, 10 pounds; grain mixture, 10 pounds.

For a cow of the same weight yielding 20 pounds of 3.5 per cent milk: Silage, 40 pounds; clover, cow-pea, or alfalfa hay, 5 pounds; grain mixture, 5 pounds.

For a 900-pound cow yielding 30 pounds of 5 per cent milk: Silage, 30 pounds; clover, cow-pea, or alfalfa hay, 10 pounds; grain mixture, 11 pounds.

For a cow of the same weight yielding 15 pounds of 5 per cent milk: Silage, 30 pounds; clover, cow-pea, or alfalfa hay, 8 pounds; grain mixture, 5 pounds.

Mixture of Grain for Silage

A good grain mixture to be used in a ration that includes silage and some sort of leguminous hay is composed of: Corn chop, four parts; wheat bran, two parts; linseed-oil meal or cottonseed meal, one part.

The Department classifies rations for fattening steers according to locality. The following rations have been found highly satisfactory for a 1000-pound steer:

For the Corn Belt. Ration 1: Corn silage, 25 pounds; corn stover, 6 pounds; cottonseed meal or oil meal, 3 pounds; shelled corn, 14 pounds.

Ration 2: Corn silage, 25 pounds; clover hay, 7 pounds; shelled corn, 15 pounds.

For the Eastern States where hay is very high and corn is relatively high: Corn silage, 30 pounds; corn stover, 6 pounds; cottonseed meal or oil meal, 4 pounds; shelled corn, 10 pounds.

For the South where cottonseed meal is of moderate price and cow-pea hay is raised on the farm. Ration 1: Corn silage, 35 pounds; cow-pea hay, 8 pounds; cottonseed meal or oil meal, 7 pounds.

Ration 2: Corn silage, 30 pounds; cottonseed hulls, 12 pounds; cottonseed meal, 7 pounds.

For the West where corn cannot be raised. Ration 1: Kafir silage, 30 pounds; prairie hay, 3 pounds; cottonseed meal, 3 pounds; kafir meal, 10 pounds.

Ration 2: Kafir silage, 25 pounds; alfalfa, 7 pounds; kafir, 15 pounds.

Pays for Itself Yearly

It is claimed by some that "one could build a silo, fill it, and destroy it every year, and still make

money on the investment." It is stated authoritatively that "the man who feeds ten head of cattle without a silo for a year loses the cost of the silo and still has none."

A pioneer silo company reports:

"A silo will pay for itself in a single year, and the years to come it is a clean and usually an enormous profit."

"And the silo is the best means yet found of conserving the land. It gives value to products of the farm that without the silo would be wasted, and by stimulating feeding as against the sale of grain it puts the farmer in a position to turn out the finished product, the marketable live stock and dairy products."

"In turning out only the finished product the farmer keeps the manure, the fertilizing value. He sells product and not farm, and the latter keeps on developing and getting better from year to year instead of undergoing a gradual but sure impoverishment."

Feeding Value of Silage

It is well known that cows produce more milk when fed green, succulent feed than when kept on dry feed. June is usually the month when the cows yield their largest flow of milk. This is due chiefly to the fact that they have been turned onto fresh, green pastures where they get an abundance of succulent food. In cold winter months, when the pastures are frozen and covered with snow, silage, properly preserved, furnishes feed that is highly nutritious and keeps the cow's digestion and appetite in the best possible condition. Silage is recognized by successful dairymen as absolutely necessary for economical milk production.

Advantage of Corn Silage

The superiority of corn silage over dried corn fodder lies in the fact that the silage is juicy and appetizing; cattle relish it when they would reject ordinary dried fodder. The Vermont Experiment Station made a careful test of the relative values of corn silage and dried fodder. The results were:

24,858 pounds of green fodder corn, when dried and fed with a uniform allowance of hay and grain, produced 7,688 pounds of milk.

24,858 pounds of green fodder corn, converted into silage and fed with the same ration of hay and grain as was fed with the dried fodder, produced 8,525 pounds of milk.

Four acres planted in corn will produce about 40 or 50 tons of silage, with only an average crop. Forty tons will feed ten cows 200 days, allowing 40 pounds of feed per day for each cow.

BUSHEL OF CORN ON AN ACRE

How Many Bushels of Corn Can Be Grown on an Acre?

Shelled Corn Produced on One Acre, 160.4 Bushels

For four years the Bowker Fertilizer Company conducted special scientific crop growing contests for cash prizes. The first two were corn contests in which \$1000 was offered each year for the largest yields of crib-dry corn containing not over 12 per cent moisture. Each contest acre was a measured acre and the crops were harvested in the presence of several disinterested witnesses. The samples were sealed and sent to the Massachusetts Agricultural Experiment Station, where they were tested for moisture, protein, fat, and carbohydrates. This resulted in a very interesting and instructive comparison between the flint and dent varieties, but the greatest value of this analysis was the determination of amount of moisture and of cob.

One of the samples analyzed as high as 73 per cent of water and cob, and in order to determine the actual winners producing the greatest dry food value per acre, all the yields were reduced to the 12 per cent moisture basis. The result was that many crops which were large at harvest time were fairly well down the column in the final report.

Contest of 1910, 27 Contestants

There were 27 contestants who finished in the 1910 contest. The grand prize crop as harvested was 126.8 bushels and when reduced to a basis of

12 per cent moisture it was found to be 103.23 bushels of crib-dry shelled corn. This crop was grown by Perley E. Davis, Granby, Mass., and was awarded the grand prize of \$500.

Contest of 1911, 39 Contestants

In the contest for 1911 there were 39 contestants who finished. The grand \$500 prize was won by Lester S. White, Collinsville, Conn., with a yield of 160.4 bushels, harvest measure, which by analysis was found to equal 112.68 bushels of crib-dry shelled corn per acre, containing 12 per cent moisture.

The average yield of the two first prize winners in the two contests was 107.95 bushels of crib-dry shelled corn containing 12 per cent moisture. The average yield of all the contest acres for two years was 59.05 bushels of crib-dry shelled corn per acre. The average yield for the New England States in which this contest was held was 45.5 bushels to the acre as harvested, and for the entire United States 27.4 bushels to the acre, field run. When we read about these phenomenal yields of 150, 200 and 250 bushels of shelled corn per acre, we should ask what was the moisture at harvest time. Water and cob should not be reckoned as shelled corn, and were not in these tests.

IRISH POTATOES

POTATOES

SWEET POTATOES

How Prepare Soil, Cultivate and Raise Potatoes

Irish Potatoes

Sweet Potatoes

Irish Potato Culture

The value of a potato crop to the grower depends mainly upon the yield and the size, form, and healthy condition of the tubers. Perfect tubers find ready sale at the best prices, while the yield in itself has no effect on the transaction, and the chemical composition of the potatoes is, as a rule, disregarded by the buyer, unless they are to be used in starch-making.

In every 100 pounds of average potatoes there is 75 pounds of water. Of the remaining 25 pounds about 20 pounds is carbohydrates (starch and sugar, etc.) and 2 pounds protein.

The chief value of the potato for food as well as for starch-making lies in the starch which the tubers contain. The protein content is low and the carbohydrates high, and, therefore, potatoes are especially valuable for use in connection with foods rich in protein, such as lean meat, eggs, etc., to furnish a well-balanced diet.

Thorough tillage of potatoes is highly important, but intensive tillage alone is not sufficient to produce a large yield. Intensive tillage may be overdone. During a drought only so much tillage is necessary as shall keep the surface mulch loose and thoroughly dry. The drier the surface layer of soil the more slowly will moisture be absorbed by it from the layers of subsurface soil.

Harrowing potato land before the plants appear above ground is considered a wise practice. In an important series of experiments conducted by the New York Cornell Station, the use of Bordeaux mixture in nearly every case resulted in an increased yield, even when blight was not prevalent, and thorough spraying with this material is therefore recommended as a general practice. Pruning potato vines to one main stem was not beneficial.

Potato machinery, while not yet perfected, has reached such a degree of perfection that where potatoes are grown upon any considerable area special potato machinery should be provided. Implements should be purchased which are found adapted to the local conditions.

There is no royal road to success with potatoes. Methods of procedure which are applicable during one season must be modified to meet the requirements of another season; treatment of one soil might be radically wrong when applied to another soil. Success will be attained only by thorough familiarity with the plant and its habits of growth, and then conditions must be made to meet as completely as possible the requirements of the plant. The general adoption of the common potato as an article of food by the Irish people in the middle of the 18th century, gave the name Irish to this potato.

The Sweet Potato

A sandy loam and fourteen to sixteen weeks of hot, growing weather is what the sweet potato asks. If to this can be added lots of rain in the early part of the season and comparatively dry weather for ripening and harvesting, a crop of 200 bushels to the acre may be expected, with proper cultivation. Crimson clover in the North and cowpeas in the South are good crops to precede the sweet potato because they add nitrogen and humus, subsoil the earth, and leave it in good physical condition, and aid in keeping the soil mellow as is required for well-formed sweet potatoes. Ten tons of manure, with 25 lbs. of nitrogen, 50 lbs. phosphoric acid, and 75 lbs. of potash, may be used per acre as fertilizer. Well-rotted horse manure, ten to twenty tons to the acre, is also good. Deep plowing increases the yield of potatoes, but has a tendency to make long potatoes, which are not as popular in the markets. The fertilizer should be applied in the furrow after the land is plowed, then harrowed in. Next, the land is thrown up into beds or ridges three or four inches high, with the centers of the ridges about three and one-half feet apart, and the sets planted eighteen inches apart in the row.

The sweet potato may be planted like the Irish

potato, by cutting in pieces and planting the "eyes," but the usual way is to plant in a hotbed. The tubers are placed quite close together, but not touching, and covered with manure; they are then covered with three inches of soil, the bed covered with glass, and watered as often as necessary. The shoots, or sets, that develop should not be transplanted to the field until the ground is quite warm—about the first of June in the latitude of Iowa or Michigan. The vines or runners may be lifted from time to time with a pitchfork if there is a tendency to root. Good cultivation is absolutely necessary. It should be frequent and shallow, to save moisture.

Black-rot is to be guarded against. If a plant shows a leaf that is black it should be dug up and destroyed, and, as the germs of black-rot remain in the soil over winter, the same ground should not be used again for sweet potatoes.

Digging may be begun as soon as ripe, to supply immediate demands, but the main crop is not dug till about time of first frost. The potatoes should be stored in a well ventilated place in the shade.

Yams are a variety of sweet potatoes, popular in the South and are larger than the ordinary sweet potato. Both are natives of America.

POTATOES ON AN ACRE

To test the possibilities of an acre the Bowker Fertilizing Company, of Massachusetts, has been giving prizes for best productions, with following result on potatoes:

Potatoes Produced on One Acre, 545.4 Bushels

For two years there were conducted potato contests based on quality and size as well as yield, which is a new way of deciding such contests. The crops were planted on measured acres and dug and sampled in the presence of witnesses. The samples were tested for cooking qualities by three experts, a woman (professor of household economics), a professor, and a potato merchant, who boiled and baked the potatoes under precisely the same conditions and scored them accordingly. They also scored the potatoes for appearance, size, etc. Finally the potatoes were tested for starch by Professor Phillip H. Smith of the Massachusetts Agricultural Experiment Station at Amherst. All the judges and the chemists worked on samples marked with the contestant's numbers. The names were unknown to them.

There were 33 contestants who finished in the 1912 contest. The grand prize crop was 545.4 bushels, 77 per cent of which (419 bushels) were table size, scoring perfect as to cooking qualities and almost perfect in appearance, shape, etc. This crop was grown by L. A. Littlefield, Lincoln, Penobscot County, Maine, and was awarded first prize of \$200.

In the contest for 1913, New England was divided into two zones. There were 20 contestants who finished. The first prize of \$100 in the northern zone (Me., N. H., and Vt.) was won by Alvah B. Cobb, Lee, Penobscot County, Maine, for a yield of 502.6 bushels, 75 per cent of which (378 bushels) were table size, scoring 85 out of a possible 100 in cooking quality and appearance.

Mr. Cobb's acre was planted on a rocky loam soil which yielded about one-half ton of hay in 1912. The rows were 33 inches apart and seeded with Green Mountain cut by guess, planted 10 inches apart in the rows by machine and covered 4 inches deep. The piece was cultivated three times and hoed three times and sprayed twice with Pyrox. 2,200 lbs. of a patented Potato Manure was applied, 400 lbs. broadcast and 1,800 lbs. in the drill. No other fertilizer or dressing of any kind was used. The entire crop weighed 30,156 lbs. which is equal to 502.6 bushels.

The second prize was awarded to O. B. Keene of Liberty, Maine. His acre was planted on dark loamy soil which produced in 1912 without any fertilizer about 800 lbs. of hay to the acre. In 1913 it was planted in potatoes in rows 32 inches apart and seeded with Cuban Multipliers, cut 1 to 3 eyes, dropped 8 inches apart in the rows, covered 6 to 8 inches deep and was cultivated by bushing 3 times with a heavy brush harrow until perfectly level.

When the plants broke through the ground they were horse hoed and buried, and in 11 days buried again. He applied 1,900 lbs. of commercial fertilizer, 1,000 lbs. in the drill, the balance broadcast. The yield was 418.5 bushels, of which 72.01 per cent were table size, 28.41 per cent under 4 ozs., and 1.58 per cent above 12 ozs.

The first prize in the southern zone (Mass., R. I., and Conn.) was won by A. W. Butler, Brockton, Mass., whose yield was 363.1 bushels from one acre, 72.51 per cent of which (263 bushels) were table size, scoring 82 out of a possible 100 for cooking quality and appearance.

Mr. Butler's acre was planted on "rocky loam" which produced about 2½ tons of hay per acre in 1912, which had been grown on barn manure. The rows were 30 inches apart and seeded with Green Mountains cut to two eyes, planted 14 inches apart by hand, and covered 3 inches deep. The piece was cultivated five times by machine. First when the potatoes were two inches high and then about every two weeks. The acre was sprayed with Pyrox when the plants were about 4 inches high and then about every two weeks until they had been sprayed five times altogether. 2,800 lbs. of commercial fertilizer was applied, 2,100 lbs. broadcast and 700 lbs. in the drill.

One important fact has been demonstrated by these contests; namely, that apparently the starch content has no dependable relation to cooking quality. For example, Mr. Keene, who took second prize in the northern zone for 1913, scored 102 for starch and 17 on mealiness, while Mr. Demeritt, who took third, scored only 60 on starch but got 18 on mealiness. Thus these results confirm the conclusion that high starch content does not necessarily mean high cooking quality, and that the only way to determine cooking quality is to make an actual cooking test of representative samples. Over one-half of the crops ran over 300 bushels of potatoes per acre.

The average yield of potatoes in New England for the northern zone is only 156 bushels per acre and in the southern zone 107 bushels, and 89 bushels per acre for the whole country. The average yield in this contest was 383.1 bushels per acre for the northern zone and 247.4 bushels for the southern zone.

These corn and potato contests, which have been conducted for four years on strictly scientific lines, have attracted not only the attention of practical farmers but have been followed with great interest by the Department of Agriculture, and by scientific men and economists throughout the country.

FERTILIZERS FOR SALE BY ALL NURSERYMEN

Keep Up Fertility in the Soil.

Potato Manure. Its great potash content makes it very valuable for use on all root crops, also on fruit lands. It works well on grass and fruit in connection with bone meal, and makes a valuable and lasting top-dressing. 2 per cent ammonia, 5 per cent available phosphoric acid, 10 per cent potash. Per sack, 200 lbs., \$3.50; per ton, \$28.

Potato and Truck Special. A high grade fertilizer for the vegetable and truck garden; especially recommended for beans, corn, eggplants, tomatoes, potatoes, and all other root crops. Sacks of 200 lbs., \$3.75; per ton, \$32.

Poudrette (Native Guano). Contains all the elements necessary for plant life; used extensively by market gardeners. An excellent lawn top-dressing. Per 100 lbs., \$1.50; 200 lbs., \$2.75; 1,000 lbs., \$9.50; per ton, \$18.

Salt, Agricultural. For top-dressing asparagus beds. Apply very early in spring at the rate of 800 to 1,000 pounds per acre. 200 lbs., \$1.50; per ton, \$10.

Sheep Manure, Pulverized. A pure natural manure, unequalled for mixing with potting soil, for lawns, general vegetable and flower garden fertilizer, for making liquid manure water, or for any purpose where quick as

well as lasting results are wanted. 2-lb. package, 15c; 5 lbs., 25c; 10 lbs., 40c; 25 lbs., 75c; 50 lbs., \$1.25; 100 lbs., \$2; 500 lbs., \$9; 1,000 lbs., \$16; ton, \$30.

Soot. The leading growers recommend the use of soot to produce plants of a good healthy color; destroys insects and grubs in the soil, and should be spread on greenhouse staging and flower beds; then stir the soil. 25 lbs., \$1; 100 lbs., \$3.50.

Tobacco Stems. A lawn covering for winter. It not only acts as a protector, but imparts large quantities of ammonia and drives away insects and moles. Bbl., \$1; bale, \$2; ton, \$12.

FERTILIZERS

Fertilizers for Farm, Lawn, Garden and Greenhouse

For Sale by All Nurserymen and Seed Dealers.

(Fertilizers marked * can be sent by Parcel Post at purchaser's expense. Consult your local post-office for rate from wholesale houses. We give approximate prices at which the fertilizers may be bought from dealers because users will thus be enabled to estimate the cost.)

Animal Base and Potash Compound. For all crops. Superior for broadcasting in spring prior to harrowing. 2 per cent ammonia, 8 per cent Av. Ph. Acid, 2 per cent potash. Per sack, 200 lbs., \$3; per ton, \$23.50.

Blood (dried). One of the quickest acting fertilizers, being immediately soluble. 5 lbs., 30c; 10 lbs., 50c; 50 lbs., \$2; 100 lbs., \$3.75.

Bone Flour. Ground very fine; excellent for pot plants or beds where an immediate effect is wanted. 5 lbs., 25c; 100 lbs., \$2.50; bbl. of 200 lbs., \$4.50; ton, \$40.

Pure Bone Meal. A standard fertilizer for all purposes, safe and effective. 3 lbs., 15c; per ton, \$33.

Ground Bone. A little coarser than above; excellent for grass plots, gardens, etc. Apply 400 to 600 lbs. to the acre. 5 lbs., 25c; 25 lbs., 75c; 50 lbs., \$1.25; sack of 200 lbs., \$3.75.

Coarse Bone. Ground coarse, for grape borders and poultry. A superior fertilizer to use when planting shrubbery and trees. 5 lbs., 25c; 50 lbs., \$1.25; per ton, \$36.

Cattle or Cow Manure, Shredded. For garden, lawn, and greenhouse, and especially good to mix with compost and for water lilies. 100 lbs., \$2; 500 lbs., \$9; 1,000 lbs., \$16; per ton, \$30.

Clay's Fertilizer. (Imported.) Recommended to all who grow either fruit, flowers, or vegetables. Should be used in potting soil and spread on staging of greenhouses planted with flowering plants. 28 lbs., \$2; 56 lbs., \$3.50; 112 lbs., \$6.50.

Hardwood Ashes. Good dressing to apply to orchards. Should be applied late in fall or early spring. This is a splendid fertilizer for the lawn and garden, containing all of the fertilizing elements except nitrogen. If used on the lawn at the rate of a ton or more per acre as a first application, and annual dressing of 300 pounds afterwards, will insure a thrifty growth of dark color, exemption from ill effects of dry weather, and freedom from weeds. It is also beneficial to vegetables and field crops, and especially recommended to cabbage and onion growers. 100 lbs., \$1.50; per bbl., \$2.50; per ton, \$22. Special price by the car.

Kainit (German Potash Salt). Analysis: 12 per cent actual potash. Excellent to apply in fall or winter on lawns or vegetable garden. Apply 1,000 lbs. per acre. 100 lbs., \$1.25; 200 lbs., \$2; per ton, \$15.

Land Plaster. Much used in composting or mixed with guano, etc. 100-lb. bag, \$1; bag, 200 lbs., \$1.50; per ton, \$10.

Lime (hydrated). For lawn and field use where the ground has become sour. 100 lbs., \$1; ton, \$12.50. Special price by the car.

Manure. Fresh horse manure by carload. Write for prices.

Muriate of Potash. 80 per cent pure, equivalent to 48 to 50 per cent actual potash. A high

grade fertilizer and one of the best orchard fertilizers known. 25 lbs., \$1; 50 lbs., \$1.75; 100 lbs., \$3. Original sacks of 200 lbs., \$5.50.

Nitrate of Soda. A fertilizer for all crops. It is very quick in action and hastens maturity of crops fully two weeks. Being quickly soluble, it should not be applied until the plants are above ground, when 200 to 300 lbs. mixed with land plaster is sufficient per acre. Nitrate of soda does not exhaust the land. 5 lbs., 25c; 25 lbs., \$1.25; 50 lbs., \$2; 100 lbs., \$3.50. Large quantities, prices on application.

"Peerless" Plant Food for House Plants. (Odorless.) May be used either dry or liquid, the latter much the best, being immediately available to the plant, and less danger of giving an overdose. Put up in ½ and 1-lb. packages. Directions for use with each package. 15c and 25c; by mail, 25c and 40c.

"Peerless" Plant Food for Lawn and Garden. (Odorless.) A high-grade fertilizer. Apply at any time during spring or fall. It will restore lawns to full luxuriance, and acts quickly in the vegetable garden, where it can be applied at any time during the growing season. 5 lbs., 25c; 10 lbs., 40c; 25 lbs., \$1; 50 lbs., \$1.75; 100 lbs., \$3; 200 lbs., \$5; ton, \$45.

Peruvian Guano Substitute. For potatoes and all vegetables. Since it is difficult to procure pure Peruvian guano, this is a good all-round fertilizer. 5 per cent ammonia, 6 per cent available phosphoric acid, 7 per cent potash. 50 lbs., \$1.50; 100 lbs., \$2.50; sack of 200 lbs., \$4; ton, \$36.

Weights and Measures

Troy Weight
24 grains.....1 pwt.
20 pwt.....1 ounce
12 ounces.....1 pound
Used for weighing gold, silver, and jewels.

Apothecaries' Weight
20 grains.....1 scruple
3 scruples.....1 dram
8 drams.....1 ounce
12 ounces.....1 pound
The grain, ounce, and pound in this are the same as in Troy Weight.

Avoirdupois Weight
27 11-32 grains.....1 dram
16 drams.....1 ounce
16 ounces.....1 pound
25 pounds.....1 quarter
4 quarters.....1 cwt.
2,000 pounds.....1 short ton
2,240 pounds.....1 long ton
The avoirdupois pound contains 7,000 Troy grains, the Troy pound 5,760 grains.

Dry Measure
2 pints.....1 quart
8 quarts.....1 bushel
4 pecks.....1 bushel
36 bushels.....1 chaldron

Liquid Measure
4 gills.....1 pint
2 pints.....1 quart
4 quarts.....1 gallon
31 1/2 gallons.....1 barrel
2 barrels.....1 hogshead

Time Measure
60 seconds.....1 minute
60 minutes.....1 hour
24 hours.....1 day

7 days.....1 week
28, 29, 30, or 31 days.....1 calendar month (30 days, 1 month in computing interest.)

365 days.....1 year
366 days.....1 leap year

Circular Measure
60 seconds.....1 minute
60 minutes.....1 degree
30 degrees.....1 sign
90 degrees.....1 quadrant
4 quadrants 12 signs, or 360 degrees.....1 circle

Mariners' Measure
6 feet.....1 fathom
120 fathoms.....1 cable length
7 1/2 cable lengths.....1 mile
5,280 feet.....1 statute mile
6,085 feet.....1 nautical mile

Long Measure
12 inches.....1 foot
3 feet.....1 yard
5 1/2 yards.....1 rod
40 rods.....1 furlong
8 furlongs.....1 statute mile
3 miles.....1 league

Cloth Measure
2 1/4 inches.....1 nail
4 nails.....1 quarter
4 quarters.....1 yard

Paper Measure
24 sheets.....1 quire
20 quires.....1 ream (480 sheets)
2 reams.....1 bundle
5 bundles.....1 bale

Miscellaneous
3 inches.....1 palm
1 1/2 inches.....1 hand
6 inches.....1 span
18 inches.....1 cubit

21.8 inches.....1 Bible cubit
2.5 feet.....1 military pace

Square Measure
144 square inches.....1 square foot
9 square feet.....1 square yard
30 1/4 square yards.....1 square rod
40 square rods.....1 rood
4 rods.....1 acre
640 acres.....1 square mile

Surveyors' Measure
7.92 inches.....1 link
25 links.....1 rod
4 rods.....1 chain
10 sq. chains or 160 sq. rods.....1 acre

640 acres.....1 sq. mile
36 sq. miles (6 miles square).....1 township

Measurements of Acre.
220 feet by 198 feet.....1 acre
110 feet by 396 feet.....1 acre
60 feet by 726 feet.....1 acre
120 feet by 363 feet.....1 acre
300 feet by 145.2 feet.....1 acre
400 feet by 108.9 feet.....1 acre
210 feet by 210 feet.....1 acre
The last is approximate.

Cubic Measure
1,728 cubic inches.....1 cubic foot
27 cubic feet.....1 cubic yard
128 cubic feet.....1 cord (wood)
40 cubic feet.....1 ton (shipping)
2,150.42 cubic inches.....1 standard dry bushel
231 cubic inches.....1 standard liquid gallon
268.8 cubic inches.....1 standard dry gallon
1 cubic foot.....about 4-5 of a bushel.

BARNYARD MANURE SAVING MANURE

MANURES

USE OF MANURE COMPOSTS

In those regions where fertilizers are extensively used it is of the greatest importance to know with reasonable exactness the varying fertilizer requirements of different soils and crops in order to get the greatest return from the fertilizers applied. A commonly accepted method of securing this information is by means of plot experiments, in which the crops are grown on the different soils with the various fertilizers whose merits are to be tested. Many of the experiment stations have carried out extensive experiments of this kind, in cooperation with farmers, on a great variety of soils and crops; but the safest plan is for each farmer to test the question for himself on his own soil, using the results of experiments on other soils only as general guides in the use of fertilizers in default of such tests.

Barnyard manure is easily the most important of all fertilizers. A well-kept manure heap may be safely taken as one of the surest indications of thrift and success in farming. Neglect of this resource causes losses, which, though little appreciated, are vast in extent. Waste of manure is either so common as to breed indifference or so silent and hidden as to escape notice.

Loss from Wasting Manure

Experiments indicate that if the horses, mules, cattle, hogs and sheep in the United States were kept in stalls or pens throughout the year, and the manure carefully saved, the approximate value of the fertilizing constituents of the manure produced by each horse or mule annually would be \$27, by each head of cattle \$20, by each hog \$8, and by each sheep \$2. In the aggregate the value of these fertilizing materials would reach a fabulous amount—considerably over two billion dollars.

Discussing this subject from a practical standpoint, a well-known expert has suggested the sum of \$250 as a conservative estimate of the value of the manure produced during seven winter months on a small farm carrying 4 horses, 20 cows, 50 sheep and 10 hogs.

It should be clearly understood that when the farmer sells meat, milk, grain, hay, fruits, vegetables, etc., from his farm, or neglects to save and use the manure produced, he removes from his soil a certain amount of potash, phosphoric acid, and nitrogen that must be restored sooner or later if productiveness is to be maintained.

A useful table has been compiled showing the amount and value of fertilizing constituents carried away from the soil in different products. We learn from this table that the farmer who sells a ton of hay, for example, sells in this ton of hay fertilizing ingredients which, if purchased in the form of commercial fertilizers, would cost him about \$5.10; that if he sells 2,000 pounds of wheat he sells an amount of nitrogen, phosphoric acid, and potash which it would cost him \$7.91 to replace in his soil in the form of commercial fertilizers. Or, looking at it from a somewhat different standpoint, a farmer who sells, for example, \$10 worth of wheat sells with it about \$2.63 worth of the fertility of his soil. In other words, when he receives his \$10 this amount does not represent the net receipts of the transaction, for he has parted with \$2.63 worth of his capital, that is, of the stored-up fertility of his soil, and if he does not take this into the account he makes the same mistake a merchant would make should he estimate his profits by the amount of cash which he received and neglect to take account of stock.

Benefit from Feeding Stock

If the farmer, instead of selling off his crops, feeds them to live stock on the farm as far as possible, a large proportion of this fertility, as has been shown above, is retained on the farm; and "if the business of stock feeding is carried to the point where feed is purchased in addition to that grown on the farm, a considerable addition may in this way be made to the fertility of the farm at an almost nominal cost, since it is assumed that feed will not be bought, unless its feeding value will at least pay its cost." This system of indirect purchase of fertilizers in feeding stuffs is practiced largely in England and other European countries, and accounts for no small share of the profits of stock raising in those countries.

But it is evident that these advantages will not be secured unless the manure produced is carefully saved and used.

The growing of more leguminous plants, such as beans, peas, clover, lupines, etc., as a means of

increasing the fertility of the soil, is strongly recommended both from theoretical and practical considerations. But the leguminous crop is best utilized when it is fed out on the farm and the manure saved and applied to the soil. The greatest profit is thus secured, and nearly the same fertility is maintained as in green manuring. The farmer should mend his system so that the barnyard manure will be as well cared for as any other farm product. Loss from surface washing, leaching, fermentation, and decay should be guarded against. Then the feeding of richer food will mean richer manure and better and cheaper crops.

Dislike Changing Old Habits

It is hard to persuade the farmer to abandon time-honored practices and adopt methods with which he is unfamiliar. He also hesitates about incurring the necessary expense of building suitable receptacles for the storage of manure, frequently assuming that this is greater than it really is. As the expert quoted above says, "The new idea that the manure should be as carefully preserved from unnecessary waste as any other product of the farm is hard to put in practice, after having for forty years stored the farmyard manure under the eaves upon the steep hillside which forms one border of the running brook."

Management of Manure

Barnyard manure rapidly undergoes change. When practicable to remove the manure and spread it on the field at short intervals the losses of valuable constituents need not be very great, but when the manure must be stored for some time the difficulties of preservation are greatly increased.

Loss of Manure Value

The deterioration of manure results from two chief causes, (a) fermentation, whereby nitrogen, either as ammonia or in the gaseous state, is set free, and (b) weathering or leaching, which involves a loss of the soluble fertilizing constituents. The loss from destructive fermentation may be largely prevented by the use of proper absorbents and by keeping the manure moist and compact. Loss from leaching may be prevented by storage under cover or in water-tight pits. Extremes of moisture and temperature are to be avoided, and uniform and moderate fermentation is the object to be sought. To this end it is advisable to mix the manure from the different animals thoroughly in the heap.

Use of Manure

The disposition to be made of the manure of the farm (both fermented and unfermented) must be determined largely by the nature of the crop and soil. Where improvement of the mechanical condition of the soil is the principal object sought, fresh manure is best adapted for this purpose to heavy soils and well-rotted manure to light soils. Where prompt action of the fertilizing constituents is desired, the best results will probably be obtained by applying fresh manure to the light soils, although excessive applications in this case should be avoided on account of the danger of "burning out" of the soil in dry seasons. Fresh manure has a forcing effect, and is better suited to early garden truck, grasses, and forage plants than to plants grown for seed, such as cereals, or to fruits. Direct applications to root crops, such as sugar-beets and potatoes, or to tobacco, often prove injurious. The manure should be spread when carried to the field, and not left in heaps to leach.

The rate of application must be determined by individual circumstances. As a rule it is better to manure lightly and frequently than to apply a large amount at longer intervals.

Composting With Other Material

One of the best ways to utilize barnyard manure is to apply it in connection with such fertilizing materials as supplement its fertilizing constituents. These materials may be either composted with the manure or used separately, except in case of a nitrate, such as nitrate of soda, which should never be composted with barnyard manure on account of danger of denitrification and loss of nitrogen. As is well known, barnyard manure is lasting in its effects, and in many cases need not be applied so frequently as the more soluble and quick-acting superphosphates and potash and nitrogen salts.

MAKE SOIL HOLD MOISTURE

DRY FARMING

HOW PREPARE TOP SOIL

Method of Holding Moisture to Prevent Evaporation

Dry farming, also called arid farming, is the production of crops without irrigation in regions having a limited rainfall. As a rule, where dry farming is practised the annual rainfall ranges from about 8 to 20 inches. There are vast semi-arid areas in the West which cannot be brought under irrigation, and this method of farming is an attempt to utilize some of these lands for other agricultural purposes than mere grazing.

Farming without irrigation was practised in numerous localities by the early settlers, and while in many cases these efforts were successful, in many more they were failures. They demonstrated, however, that under certain conditions dry-land agriculture may be successfully practised.

The experience gained during the last thirty or forty years and the results of the recent work in this connection carried on by several experiment stations and other agencies, indicate that, by means of special methods of cultivation requiring, in some instances, special tools and implements, and by the use of drought-resistant crops and varieties, arid farming may be placed on a much safer basis than heretofore. The fact should not be disregarded, however, that under semi-arid conditions without irrigation crop failures are bound to be much more frequent than in regions of adequate rainfall; and it is generally conceded that, in order to establish a permanent home on the dry lands of the western plains, provision should be made for the irrigation of a small area on which vegetable food for the family and forage for the stock kept may be grown with certainty every year to tide over the seasons of possible crop failures on the unirrigated portion of the farm.

The experts of the Utah Experiment Station have pointed out that the two main problems in dry farming are (1) the absorption and retention of moisture by the soil, and (2) the culture of crops which make satisfactory growth and reach maturity with very little water. The soils of Utah, generally very deep and quite uniform to great depths in chemical and physical properties, are well adapted to dry farming on account of their great moisture-retaining capacity. The station estimates that under ordinary conditions the average annual rainfall of 12 inches can be held in $3\frac{1}{4}$ feet of soil of this description. In this method of farming, therefore, the soil should be treated to facilitate the absorption and retention of as much as possible of the moisture that falls upon it.

Data secured by the station indicate that on the dry farms of the State 750 pounds of water is required to produce 1 pound of dry matter in the plant, while experiments conducted in this country and in Europe show that under humid conditions only about 500 pounds is sufficient for the same purpose. A rainfall of 12 inches amounts to 1,361 tons of water per acre, or a quantity sufficient, if entirely used by the crop, to produce 27 bushels of grain, even on semi-arid lands.

Large areas within the State have an annual precipitation of 12 inches or more. During the summer months the proportion of sunny days reaches 80 per cent, and the average temperature from May to September is about 65° F. The highest average day temperature, which is from 100° to 105° F., occurs

in June and July. Under these climatic conditions dry farming is considered feasible.

The best yield of corn secured on the Utah experimental farms amounted to 25.93 bushels of ear corn and about a ton of stover per acre.

On all these farms fall planting of alfalfa proved a failure, while spring planting produced a stand wherever tried. To obtain a good stand of alfalfa under similar conditions, the Colorado experts recommend plowing the ground early in the season 5 to 8 inches deep, harrowing it until it is well packed, and planting the seed after the ground is thoroughly wet. If a crust has been formed on the surface by the rain, this should be broken up with a light harrowing and the seed then sown broadcast. If a drill is used, the seed should be drilled in as soon as the ground shows dry on top. The sowing may be done at any time, while the ground is in good condition, between May 10 and July 15.

A study of the principles of dry farming made by the Utah Experiment Station indicates that fall plowing is essential for the purpose of opening the soil and permitting the storage of the fall and winter precipitation, and that deep plowing and, in many cases, subsoiling is desirable, as the water is stored deeper and is not so readily driven off by the direct rays of the sun. In general wheat was the most successful crop grown.

On account of the limited quantity of soil moisture thin seeding is recommended, as it was found that sowing from one-half to 1 bushel of wheat per acre gave the best results. Fall sowing is preferred to spring sowing, as the crop beginning its growth in the fall is at a better advantage to make use of the soil moisture.

Experience has shown that sowing broadcast when the surface is dry does not place the seed deep enough in the soil to assure favorable conditions for germination, but that by the use of the press drill this difficulty is largely overcome. Dry farming does not generally produce long straw, and the harvesting for this reason is done with the header.

The main purpose of summer fallow on dry farms is to store the water of two or more seasons in the soil for the production of a crop, and hence this is practiced more frequently where the rainfall is limited than where it is heavier. The Colorado Station gives the following directions for this practice:

"After the snows of winter have melted in the spring plow the ground at least 7 to 8 inches deep. Level this down with the harrow and packer, following this process with a smoothing harrow forming a smooth surface to check evaporation. This mulch should not be too fine, as the winds of the plains will tend to rift the soil or blow the earth mulch entirely away. If possible stir the surface soil from 2 to 4 inches every 10 to 15 days throughout the summer. Allow no crust to form after summer showers, as this will increase the evaporation of the soil moisture."

In addition to the crops noted above, kafir corn, sorghum, millet, field peas, brome grass, meadow fescue, and western wheat grass have given good results on the plains. As regards the quantity of water required for maturity, the common field crops are placed in the following ascending order: Corn, potatoes, wheat, barley, field peas, oats, alfalfa, and red clover.

Spray Formulas for Insect Destruction

Paris Green.—Use 5 ounces to 50 gallons of water. Always add 1 pound of fresh burned lime. In small quantities use 1 heaping teaspoonful to 3 gallons of water.

Lead Arsenate.—Use 3 pounds to 50 gallons of water. In small quantities use 1 tablespoonful to 1 gallon of water. Lead arsenate sticks better than Paris green.

Poisoned Bait.—Mix dry 1 peck of bran and 3 tablespoonfuls of Paris green. Moisten the bran with sweetened water. Don't get it too wet. Distribute this in small amounts through your garden for cut-worms.

Hellebore.—Mix 1 part hellebore with 3 parts flour, and keep in closed vessel over night. This

may be used on vegetables or fruits that are about ready for the table. Hellebore may be steeped in water 1 ounce to 1 quart of water, for spraying.

Contact Poisons—For Sucking Insects

Lime Sulphur.—Slake 20 pounds of fresh burned lime. Add 15 pounds of sulphur. Boil in 25 gallons of water for one hour. Dilute to make 50 gallons. This is a winter spray only.

Kerosene Emulsion.—Dissolve 1 pound of hard soap in 2 gallons of hot water. Remove from fire and add 4 gallons of kerosene. At once churn violently, until a creamy emulsion is formed. Dilute this with water so as to have

10 per cent of kerosene oil in your spray for summer use, or 15 per cent for winter use.

Tobacco Water.—Cover tobacco stems with hot water. Allow to stand over night. Dilute the resulting liquor with 3 parts of water.

Pyrethrum.—Mix with 3 parts of flour and keep in closed vessel for several hours.

Soap Solution.—Use 1 pound of soap to 8 gallons of water. This will be found excellent for plant lice, scale on house plants, or for any of the soft-bodied insects.

Whale Oil Soap.—For winter use dissolve 2 pounds in 1 gallon of water. For summer use dissolve 1 pound in 4 gallons of water.

SPRAY ORCHARD TREES AVOID WORMY FRUIT

FERTILIZERS AND SPRAYING

SUCCESSFUL FRUIT GROWERS SPRAY FREELY

Among Latest Improvements Is Spraying Fruit Trees

In no department of human endeavor has there been greater advancement made in the last half century than in machinery for increasing the production of food by cultivation of land. Comprising plowing, harrowing, threshing, and culture of crops. But along with improvement in machinery has come knowledge of constituents of soils by which greater crops have been made possible by application of certain ingredients to the soil by which growth of vegetables and fruits have been increased.

It is within the past fifty years that scientists have been giving attention to the chemistry of soils. Within that time they have studied the effect of different manures, and in case of scarcity of animal manures, what could take the place as a substitute. Study and experiment have evolved many fertilizers which materially aid in producing greater yield of crops, while demonstrating that at the very head of all fertilizers stand the animal manures from horses, cattle, hogs, sheep, and poultry.

Among the substitutes are guano made from bird droppings where waterfowl and various birds have roosted on certain islands in the South seas for

thousands of years. Certain stone, known as phosphate rock, and straw of various vegetables known as legumes which highly fertilize the soil when plowed in with the common earth.

Chemists have discovered that plants are susceptible to change from the application of certain materials which they name as follows:

Nitrogen. This is a material which is heavily in the air. Thus the pumpkin vine which comes from a quart of earth, creeps along the ground, and produces several large pumpkins without diminishing the amount of the quart of soil—comes from the air.

Nitrogen is the principal factor in the production of all vegetable growth. Thus, the immense crop of corn that stands on the field, which a short time ago was bare land, without a blade of vegetation, the hay fields, the fruit and grain fields, heavy with the approaching harvest, all attest the wonderful power and accomplishment of nitrogen and other fertilizers.

Phosphates are restored to the soil by adding some form of decayed or burned animal matter.

Commercial Fertilizers

The theory of the use of commercial fertilizers is that crops cannot reach perfection in quality and quantity at the time they are supposed to mature, without plenty of available plant food. If this is not found in the soil or supplied by the barnyard manure, it must be fed to the crops in the form of one of the commercial fertilizers.

A careful study of the present conditions of farming in the United States indicates, however, that as a rule the manure produced on the farm is not sufficient to maintain its fertility, and that the need for artificial supplies is real, though the amount required may be considerably reduced by careful management.

The ordinary methods of grain farming, one-crop farming, market gardening and fruit growing result in the rapid depletion or exhaustion of our fertile soils; hence the need of supplies of plant food from sources outside the farm in order that maximum crops may be produced.

The important points for the farmer to recognize may be summed up as follows:

1. Commercial fertilizers are mainly valuable because they furnish the elements—nitrogen, phosphoric acid, and potash—which serve as food, not as stimulants.

2. The kind of farming in the past and the demands for special products in the present make their use necessary in profitable farming.

3. In order to use them profitably the farmer should know:

(a) That nitrogen, phosphoric acid, and potash are the essential manurial constituents.

(b) That the agricultural value of these constituents depends largely upon their chemical form.

(c) That these forms are contained in specific products of a well-defined character and composition, and may be purchased as such from dealers and manufacturers and may be mixed successfully on the farm.

4. The agricultural value of a fertilizer bears no strict relation to the commercial value; the one is determined by soil, crop, and climatic conditions, the other by market and trade conditions only.

5. The variations in the composition and value of manufactured fertilizers which contain the three essential constituents are due to variations in the character and in the proportion of the materials used.

6. The ton basis alone is not a safe guide in the purchase of these commercial fertilizers. Low ton prices mean either low content of good forms of plant food or the use of poorer forms. Fertilizers, high grade both in quality and quantity of plant food, cannot be purchased at a low price per ton.

7. The best fertilizers cannot exert their full effect on soils that are too dry or too wet, too compact, or too porous. They can furnish but one of the conditions of fertility.

8. The kind and amount to use should be determined by the value of the crop grown and its power of acquiring food.

9. A definite system or plan should be adopted in the use of fertilizers; "hit or miss" methods are seldom satisfactory, and frequently very expensive.

ABOUT SPRAYING

Cost of Spraying

Written for Farm and Garden News, by A. C. McLean

The actual cost of my spraying operations in an apple orchard of six hundred trees, approximately twenty-five years old, is about \$249. This is the average cost for the past two seasons—it varies a little each year, but can be taken for a guide. Of course in the localities where labor is cheaper the cost could be much reduced. Our labor here receives \$1.75 per day of nine hours, and we pay \$4 per day for teams.

The cost of material is reckoned on the basis of that bought by our Apple Club. We pay \$6 per barrel for lime-sulphur and 7 cents a pound for arsenate of lead. For the winter application it takes four days with a crew of three men and one team, putting out five tanks of 150 gallons each of solution per day. Itemized cost is as follows:

Man and team, four days, at \$4..... \$16.00
Two men four days, at \$1.75..... 14.00

Gasoline and oil for engine..... 2.50
Lime-sulphur, 6½ barrels..... 39.00

Total..... \$71.50

We make four summer applications—one when the blossom buds show pink; one when they fall (three weeks later), and about a month after this for second brood of codling moth and sooty fungus. It takes three days for each of these applications with a team and three men putting out six tanks per day of 150 gallons each. Cost of these sprayings:

Man and team, three days at \$4..... \$12.00
Two men three days, at \$1.75..... 10.50
Gasoline and oil..... 1.75
Lime-sulphur..... 12.00
Arsenate of lead..... 1.89

Total..... \$38.14

Expense of Spraying

This cost is for each time. The total cost of summer spraying would be \$152.56. Adding to this the cost of our winter application and the wear and tear on spraying rig, \$25 (that is 10 per cent depreciation), the total cost of a year's spraying would be \$249.06. This makes the cost per tree \$0.415. As to the profit derived from spraying, I have never left any trees unsprayed for a test. We are not running an experiment station, and I firmly believe that unsprayed trees are a serious menace as breeding places for insects and fungi, and I think they tend to make the results of spraying less beneficial. From my observation of unsprayed orchards, I should say that spraying is easily worth \$5 per tree, if properly done. In this locality about 50 per cent of apples on unsprayed trees are either wormy or marred with fungus, and the drop is also much heavier, due to codling moth and scab. Again, by spraying you keep

them at it for a longer time they wanted to look for another job. This is a consideration these days, with the scarcity of competent labor.

Another point is to get the work done when it should be. For instance, in spraying for codling moth, the time after the petals fall before the calyx leaves close, when the spraying must be done to be efficient, is often limited to five or six days, and is never over ten days for a given variety. Thus, should a stormy day or two intervene it is almost impossible to get your work done without an efficient power sprayer, unless men at the pump are changed frequently, as this spraying is one that is important to apply at a high pressure to force the spray material into the calyx cup. Again, looking at it from a business standpoint, gasoline is cheaper than labor. Two or three gallons of gasoline and a pint of oil will easily run an engine for a day at a cost of about

Power Sprayer on Ten Acre Orchard.

the foliage of the trees healthy, which greatly increases the size and quality of your fruit.

The benefit of careful spraying was shown by a talk with a neighboring fruit grower who does not spray. The variety of apples mentioned was Smith's Cider, which is a rather low-grade apple. My neighbor received \$1.50 per barrel for his apples on the open market. We are getting \$2.50 at the same time, and our yield on trees of the same age was fully 50 per cent more.

In an orchard of ten acres or more a power sprayer, in my opinion, is a very good investment. The work is not only done on time, but it is done as it ought to be done. It is very difficult to keep up a sufficient pressure on a hand pump to do good work for a considerable length of time—in fact, it is hard work on any hand pump I ever saw to keep over 100 pounds pressure for half a day. We tried using hand pumps, but our men wanted to quit after three or four hours pumping, and if we kept

50 cents. While it is advisable to have a driver who might do the pumping, he loses considerable time in changing jobs, and, besides, the pressure is apt to run down on a hand pump, and it takes time to bring it up again. A driver is desirable either with a power rig or hand pump. With a steady pair of horses the rod men on a power sprayer can drive and do their work without losing any more time than changing from driving to pumping.

Figuring the cost of a power sprayer at about \$250, for which you can buy a very good one, the actual cost for its use should be around \$25 per year. With reasonable care nearly any of the good machines now on the market, made by a reliable firm, should give good service for ten years without much expense for repairs. I firmly believe that a power machine will be worth much more than this to any orchardist with ten acres of apples who wishes to raise first-class fruit.

LOCATED
NEAR A
CITY

MARKET GARDENING

VEGETABLES
THAT SELL
BEST

How Manage a Successful Market-Garden Business

An idea of what may be done by market-gardeners near the thriving cities of the Mid-West is shown by a few extracts from an article by H. W. Doyle, in **The Country Gentleman** for June 27, 1914:

A short distance northwest of the city of Topeka, past a fine grove of maples and on a little eminence, lives F. P. Rude, market gardener. Going up the long driveway one catches a glimpse of a tennis court. Mr. Rude has sons, and those sons not only share in the business but enjoy the same pleasures that city boys enjoy. Rounding the house, you soon find yourself in a tidy barnyard with everything arranged neatly in place, all wagons and implements under cover.

F. P. Rude and Sons farm ninety-three of their one hundred and thirteen acres of Kaw Valley soil—probably as fine a soil as can be found anywhere, varying from a dark brown to a black sandy loam. This makes it possible to suit the crop to the soil. The early crops and sweet potatoes are grown on the lighter soils, the main crops and the cabbages, tomatoes and sweet corn on the darker soils.

Crop.	Acres.	Crop.	Acres.
Carrots	1½	Rhubarb	3
Sweet corn	14	Spinach	4
Cucumbers	1	Squash	4
Egg-plants	1	Tomatoes	5½
Lettuce	1½	Turnips	8
Muskmelons	½	Salsify, parsley and	
Watermelons	½	miscellaneous	1
Onions	3	Field corn	6
Parsnips	3		

These total more than ninety-three acres, but it should be borne in mind that part of the area is occupied by two or more crops a season. The yearly volume of business amounts to something like \$8,100.

Profitable Half-Acre of Hotbeds

From the half-acre devoted to hotbeds comes more profit than from any other like area on the farm. In fact, a considerable part of the income is derived from the sale of cabbage, tomato, egg-plant, pepper,

Spraying the Potato Field Against Insects

The firm does a market-gardening business exclusively, and nearly all the farm, except twenty acres that are rented to nurserymen, is devoted to vegetables. There are two dairy cows, a few pigs for meat, and some pure-bred chickens for eggs, a few of which are sold. Four acres are devoted to alfalfa, and a little fruit is raised for home use. Five acres take in the farmstead, lawns and a small pasture. Occasionally a few acres of field corn are planted. The fodder from sweet corn supplies forage during about four months of each year. All other food and supplies for both man and beast are purchased.

The Rudes grow almost everything in the vegetable line except celery. "No one crop, or even a few crops, except perhaps potatoes, would be profitable under our conditions every year," said Mr. Rude. "It does not pay us to put all our eggs in one basket. Some crops that we find it wise to grow do not pay well in themselves, but they aid materially in selling other more profitable ones. Our customers look to us for a full line of vegetables, and we think it good policy to supply them."

Principal among the vegetables grown are Irish potatoes, cabbages, sweet corn, and sweet potatoes. The annual acreage of the different crops, though they vary somewhat from year to year, are about as follows:

Crop.	Acres.	Crop.	Acres.
Asparagus	2	Peas	3
Beans	4	Peppers	2
Beets	3	Radishes	5
Cabbage	18	Irish potatoes	15
Cauliflower	1	Sweet potatoes	7

and sweet potato plants. The only crop coming to maturity under glass is leaf lettuce, of which a limited quantity is grown.

Hotbeds are started late in January. The heat is furnished by fermenting horse manure, which is obtained in large quantities fresh from the livery stables in the city. The first hotbed crop is lettuce. A little later cabbage and cauliflower plants are started. Then when the lettuce is out of the way, which is in eight or nine weeks, the seeds of tomatoes, egg-plants, and peppers are sown. Finally about 350 bushels of sweet potatoes are bedded. Glass is used as a covering for all the hotbed crops except sweet potato plants, which are covered with muslin.

The capital invested is approximately as follows:

Land and buildings	\$30,000
Sash and frames	1,000
Implements, wagons	2,000
Horses (12 head) and harness	2,000
Total	\$35,000

Mr. Rude believes that a knowledge of markets and marketing has more to do with a truck grower's success than anything else. One has to know the demands of consumers to understand the market.

For thirty years he has toiled away in the Kaw Valley, and he is well-to-do. He started by working for the other fellow, and since striking out for himself his business has grown steadily. One son, who continues in the business, is married and has made a home for himself; the other remains at home.

Surely one must call this success: Health, a competence, and the boys on the farm.

HOW DESTROY INSECTS

INSECTICIDES

HOW TO USE THESE REMEDIES

The Result of Invention and Discovery

ANT EXTERMINATOR. A non-poisonous powder which, if scattered about their haunts or runs, will kill or drive away ants from lawns, etc. Box, 25c; by mail, 35c; smaller size, 15c.

APHINE. Aphine is a powerful insecticide, in a readily soluble form, which can be easily diluted with water and applied as a spray, wash, or dipping solution. It kills all insects. Green and black fly, thrips, red spider, slugs, ants, mealy bug, scale, etc. Price, 1 gill, 25c; ½ pint, 40c; pint, 65c; quart, \$1.00; gallon, \$2.50.

ARSENATE OF LEAD. (Paste form.) A poison taking the place of Paris green. Its great advantages are that it adheres well to the foliage and does not readily wash off by rain and does not injure tender foliage. It also remains well suspended in solution so that an even distribution can be obtained. It is white in color and shows just where it has been applied. Price, 1 lb. tin, 20c; 5 lb. tin, 90c; 12½ lb. pail, \$2.00; 25 lb. bucket, \$3.75; 50 lb. bucket, \$7.00; 100 lb. keg, \$12.00; 300 lb. bbl., \$30.00.

BEECHCREOT. A wood preserving tree paint. It kills fungus and is shunned by borers and other insects. It prevents decay in the portions of trees injured by storm-torn limbs and applied after pruning it prevents bleeding. One gallon applied with a brush covers about 300 square feet. Price, 40c per quart; \$1.25 per gallon.

BORDEAUX MIXTURE (liquid or paste). The best fungicide for curing and preventing black rot, mildew, blight, leaf curl, scab, or other fungoid diseases on fruits and plants. One gallon will make 50 gallons liquid. 1 qt., 40c; gal., \$1.00; 5 gals., 4.50. (Dry.) Ready for use by simply adding water. Lb., 25c; postpaid, 40c; 5 lbs., \$1.00; 28-lb. keg, \$4.75.

BOROWAN. A complete protection against tree borers if applied in accordance with instructions, armorplates the tree at the point where the moth deposits its eggs and thus renders it immune to further infestation for several years. Quantity required: half to one pint to a tree according to size. Price, quart, 35c; half gallon, 60c; gallon can (boxed), \$1.00; half barrel, \$20.00; barrel, \$35.00.

BUG DEATH. Is a non-poisonous, insect-killing powder that is in high favor for cabbage and tomato worms, potato and cucumber bugs, etc. It is applied with a duster bellows or powder-gun, at the rate of about 12 lbs. per acre. Price, 15c lb. (Parcel Post 2 lbs.); 3 lbs., 35c. (P. P. 4 lbs.), 5 lbs., 50c (P. P. 6 lbs.); 12½ lbs., \$1.00; 100 lbs., \$7.50.

IMPORTED GERMAN CATERPILLAR LIME. A highly recommended European remedy for the prevention of crawling insects from going up or down the trunks of trees; the claim

is made that it prevents the laying of eggs on the bark, and the hatching of those already laid; prevents borers, scale, etc., and keeps all animals from gnawing the trees; it remains sticky and efficacious from 3 to 5 months, and is easily and cheaply applied. Apply with a paddle and spread evenly and thinly with a hard brush. For crawling insects, a ring of it 4 inches wide around the tree will suffice.

CLUBICIDE. An insecticide, germicide, and disinfecting fluid particularly valuable—in addition to its other uses—as a soil sterilizer. It destroys all soil insects, ants, worms, slugs, maggots, and fungous diseases and in consequence plants attain maximum root development and produce larger and better crops. It is a certain preventative of club roots, maggots, and root lice that infest carrots, onions, cabbage, asters, etc. Apply to the ground thoroughly once a week in proportion of 1 gallon of Clubicide to 1,500 gallons of water, gradually increasing the strength to one gallon of Clubicide to 1,000 gallons of water as the plants approach maturity. Price, 1 quart, 60c; gal., \$2.00; 5 gallons, \$8.00.

COPPER SOLUTION, AMMONIATED. A fungicide, the same as Bordeaux Mixture, the essential ingredient, "Carbonate of Copper," being dissolved in ammonia in this, while in Bordeaux it is counteracted by lime. Bordeaux is the cheaper and most popular for all ordinary purposes, but for late sprayings, when fruits are nearing maturity, or plants in bloom, Copper Solution is usually used, as there is no limy sediment to be washed off by rain or hand before marketing. Dilute 1 quart to 25 gallons of water; apply with sprayer, bellows vaporizer, or spray pump.

CUT-WORM FOOD. A sweetened poisoned compound alluring and palatable to cut-worms, cabbage worms, etc., in consequence when sprinkled around such newly set plants as are usually "cut off" by these depredators, they feast on cut-worm food and are destroyed. One pound is sufficient for about 100 plants. Price, 1 lb., 25c (Parcel Post 2 lbs.); 5 lbs., \$1.00.

FIR TREE OIL. Fine spray for greenhouse and house plants affected with mealy bug, scale, red spider, black and green aphids, thrip, lice, worms, and slugs; an ounce makes 1 gallon. Small bottle, 25c; ½ pint, 40c; pint, 75c; quart, \$1.25; gallon, \$4.00.

FIR TREE OIL SOAP. A formula of the above Fir Tree Oil, prepared in soap form and preferred by some. It will do all claimed for the fluid preparation. One ounce makes a gallon of non-poisonous insect-killing liquid. Apply with syringe, bellows vaporizer, or sprayer.

FISH-OIL SOAP. (Whale Oil Soap.) Makes an excellent wash for trees and plants where insects and eggs affect the bark, and for smearing on the trunks of trees to prevent worms from crawling up. Price, 15c per lb. (Parcel Post 2 lbs.); 2 lbs., 30c (P. P. 3 lbs.); 5 lbs., 60c (P. P. 6 lbs.); 25 lbs. and over at 10c per lb.

FLOWERS OF SULPHUR. Per lb., 10c; 10 lbs., 75c; 25 lbs., \$1.50.

FORMALDEHYDE. Is of pronounced efficiency in destroying disease germs affecting both animal and plant life, and is successfully employed as a preventive of such fungoid diseases as potato scab, onion and grain smuts, musty corn, and other affected seeds, damping off of seedlings, club root of roses, etc., for the restraining of decay in vegetables, fruits, etc., and as an antiseptic wash and spray for bark diseases, canker and wounds in trees, and as a disinfectant for stables, kennels, poultry houses, etc. The dilution for most purposes is 1 lb. (1 pint) Formaldehyde to 15 or 20 gallons of water and 1 to 2 gallons of this dilution is required for treatment of every bushel of seed. Price of Formaldehyde (40 volume %), 1 lb. bottle, 40c; 5 lb. bottle, at 35c lb.; 10 lb. bottle, at 30c lb.; 50 lb. demijohn, at 25c lb.; 132 lb. carboy, at 23c lb.

FOSFITE. A famous new French preparation, containing silicate of magnesia and copper sulphate, when powdered so minutely that when puffed or blown from a powder gun or bellows, it forms a cloud which settles evenly over foliage and plants, and is not only of inestimable value for all fungoid diseases—mildew, black rot, rust, leaf blight, etc.—but it is also a splendid insect destroyer. It is a powder. Blow on with powder bellows or powder gun, while the foliage is moist, either with dew or after syringing, at the rate of 10 to 25 lbs. per acre for grapevines, for each application.

FUMIGATING AND DUSTING POWDER. Formerly sold under the name of Tobacco Dust. Destroys rose bugs, lice, cut worms, vine bugs, tomato worms, cabbage lice, and parasites of all descriptions. Should be applied when foliage is wet. Also a fertilizer for plants and vines. Will not burn or injure the plants. By parcel post, 1 lb. 22c, 5 lbs. 57c. By express, lb. 10c, 5 lbs. for 25c.

FUNGINE. An effective sulphurated remedy for mildew, rust, and other blights. A spraying material which does not stain the foliage. Prices, half pint, 30c; pint, 50c; quart, 75c; gallon, \$2.00.

GRAPE DUST. Excellent for the prevention and destruction of mildew on plants. Per lb., 10c; 5 lbs., 35c.

HELLEBORE (Powdered, White). Less poisonous than Paris Green or London Purple, and safer to

Insecticides—Continued

use when fruit is nearly ripe. Dust over plants either pure or mixed with flour or plaster. If used pure, exercise care and do not dust it on too freely. If used as a liquid spray, dissolve one ounce in three gallons of water. Per lb., 30c; by parcel post, 45c; 5 lbs., \$1.40; 10 lbs., \$2.50.

HORICUM. Sulphur, lime, salt, etc., in such proportions as to make an effective wash for use as a preventive and cure for San Jose scale. Use 1 gallon to 20 gallons of water and spray trees when leaves are off. Per gal., \$1.00; 5 gals., \$4.50.

IMPORTED SCOTCH SOFT COAL SOOT. This prevents insect ravages and also acts as a stimulating fertilizer. Used in onion drills, radish beds, cabbage grounds, celery trenches, etc., it checks the attacks of grubs, cut-worms, etc. When scattered lightly, as a top-dressing around plants, it drives away insects that hide in the ground by day and lay their eggs near the roots. Supplied in 100-lb. bags only, price, \$4.00.

KEROSENE EMULSION. One of the best insecticides for all soft-bodied sucking insects, either on plants or animals, feeding openly so as to be within reach of actual contact, such as plant lice, fleas, beetles, aphids, green fly, mealy bug, also for insects of fruit trees, including San Jose scale. Per qt. can, 40c; 1 gal., \$1.00; 5-gal. can, \$4.50.

LEMON OIL. An efficient insecticide for destroying all insects and soft scales. It is applied as a spray or wash and has an agreeable odor. ½ pint, 25c; 1 pint, 40c; quart, 75c; ½ gal., \$1.25; 1 gal., \$2.00.

NICO-FUME. Strips of paper strongly saturated with nicotine. These when suspended and lighted make one of the best and simplest methods of fumigating greenhouses. Use 4 to 6 sheets for ordinary house 100 ft. long by 20 ft. wide. Price, 24 sheets, 75c, postpaid, 90c; 144 sheets, \$3.50; 288 sheets, \$6.50.

NICO-FUME (liquid). A condensed preparation of tobacco, almost pure nicotine. Best spraying and fumigating preparation for greenhouse use, since it does not injure plants or blooms and kills aphids, red spider, and mealy bugs. Use one ounce in 10 to 15 gallons of water, and it will be even better if a pound of whale oil soap is added. Price, 4-oz. can., 75c; pint, \$2.00; one-half gallon, \$7.00.

NICOTEEEN. An extract of tobacco, containing about 30 per cent nicotine. A most effective, economical, and safe remedy for fumigating greenhouses. Use a scant tablespoonful to 1½ pints of water for each pan, which is

sufficient, when vaporized by placing a hot iron in it, for 600 square feet of floor space. Price, pint bottle, \$1.50; 2 oz. bottle, 40c.

NICOTICIDE. An extract of tobacco used in fumigation. The required quantity placed in a tin dish and evaporated by a spirit lamp placed underneath. An effectual remedy for insects in the greenhouse, window garden or frames. Price, 4 oz. can, 70c; ½ pint, \$1.25; pint, \$2.50; gallon, \$18.00.

PARAGRENE. This poisonous insecticide is put on the market by a large manufacturer of Paris green, as something superior to the latter, and the claims have been verified by many who have tried it, including several Agricultural Experimental Stations. It is a compound of arsenic, sulphate of copper, and lime, while it is fully as poisonous as Paris green, it is more bulky, remains longer in suspension, making a more uniform mixture, and the lime counteracts the tendency to burn the foliage, which is such a fault with Paris green.

PARIS GREEN. A poisonous, insoluble powder indispensable on the farm or garden for preventing the ravages of potato bugs, codling moth, worms, caterpillars, slugs, and bugs. Applied as a powder, it should be mixed with plaster or flour, 100 parts to 1 part of Paris Green, in solution; mix 1 lb. in 200 to 300 gallons water. Price, ½ lb. package, 20c; 1 lb. package, 35c; 5 lb. package, \$1.50; 28 lb. bucket, \$7.00; 100 lb. keg, \$25.

PERSIAN POWDER, OR BUAHACH. (Cheap adulterated grades are worthless.) A most effective, non-poisonous impalpable powder, so fine that it penetrates the innermost crevices. For worms, flies, aphids, and almost all kinds of insects it is very effective, suffocating them by filling up the breathing pores. Dry. Blow on with a bellows or gun. Lb., 40c; by mail, 55c.

PYROX. To kill all leaf-eating insects, destroying fungous growth, and rot. Mixes easily in cold water, should spray without clogging, and sticks to foliage, vegetables, fruits, and shrubs. Price, 1 lb., 25c; 10 lbs., \$1.75; 100 lbs., \$13.50.

SCALECIDE. Oil preparation for San Jose scale. Gal., \$1.25; 5 gals., \$4.00; 10 gals., \$7.00.

SCALECIDE. The latest and best spray for San Jose scale, cottony maple scale, and Pear Psylla. It is not poisonous, being simply a mechanical preparation of petroleum oil that instantly mixes with cold water and is immediately ready to apply. 1 gallon of "Scalecide" to 20 gallons of water sprayed on your trees and bushes will

kill every scale that it reaches without injury to tree or fruit if applied in late fall, winter, or early spring while the foliage is off. Safe and easy to apply. Price, 1 gallon can, \$1.00; 5 gallon can, \$3.25; 10 gallon can, \$6.00; 50 gallon barrel, \$25.00.

SLUG SHOT. A non-poisonous powder and a very popular insecticide; it requires no further mixing or preparation, easily applied and not injurious or dangerous to animals, the person applying it, or fruits and vegetables treated. Very effective in destroying potato bugs and beetles, green and black flies, slugs, worms, caterpillars, etc. Apply with duster, bellows, or gun. 10 to 40 lbs. is sufficient for an acre.

SOLUTION OF COPPER. For trees, vines, or vegetables affected with rot, blight, or scab. Pint, 35c; quart, 60c; gal., \$1.75.

SULPHATE OF IRON. A remedy for weeds on lawns. It is claimed that it will kill dandelions without injuring the grass. To be successful, liquid should be applied with a fine spray. 5 lbs., 25c; 10 lbs., 40c; 25 lbs., 75c; 50 lbs., \$1.25; 100 lbs., \$2.25.

SULPHUR FLOWERS. Extensively used for mildew, by being blown on affected plants when moist—it is also mixed with paint applied to steam pipes. Apply with bellows or gun.

THRIP JUICE. For mealy bug, thrip, codling moth, canker worms, beetles, caterpillars, etc. Per pint, 65c.

TOBACCO DUST, Fine. For green and black aphids, fleas, beetles, etc. Splendid fertilizer and preventive for insects in the ground and around roots. Price, 10c per lb. (P. P. 2 lb.); 5 lbs., 30c (P. P. 6 lb.); 10 lbs., 50c (P. P. 11 lb.); 25 lb. bag, 85c; 50 lb. bag, \$1.50; 100 lb. bag, \$2.50.

TREE TANGLEFOOT. No crawling insect can pass a band of tree tanglefoot. Apply early in the spring—before the caterpillars commence to crawl—and again in the fall if troubled with the fall Canker worm. One pound for a six-foot band 4 inches wide, 1/16-inch thick. Prices, 1 lb. can 30c; (Parcel Post 2 lb.); 3 lb. can, 85c (P. P. 4 lb.); 10 lb. can, \$2.65 (P. P. 11 lb.); 20 lb. can, \$4.80.

WORM ERADICATOR. For immediately removing worms of every kind from lawns, garden plots, flower pots, etc., without injury to the most delicate plant or flower. Mix two tablespoonfuls with one gallon of water, and use freely with a watering can. The worms will immediately rise to the surface of the lawn or pot, and should at once be picked up and burned, as, if left about they would injure birds or fowls.

Old and Well Known Fruits. Apples and Peaches

ORCHARD BLESSING

By John G. Whittier

This day two hundred years ago,
The wild grapes by the river's side
And tasteless groundnuts trailing low,
The table of the woods supplied.

Unknown the apple's red and gold,
The blushing tints of peach and pear;
The mirror of the river told
No tale of orchards ripe and rare.

Wild as the fruits he scorned to till,
These vales, the idle Indian trod;
Nor knew the glad creative skill
The joy of him who toils with God.

O painter of the fruits and flowers!
We thank thee for thy wise design,
Whereby these human hands of ours
In Nature's garden work with thine.

Give fools their gold and knaves their power;
Let fortune's bubbles rise and fall;
Who sows a seed or trains a flower,
Or plants a tree, is more than all.

For he who blesses most is blest;
And God and man shall own his worth.
Who toils to leave as his bequest
An added beauty to the earth.

FRUIT GROWING

Among the profitable occupations of the American farmer, that of fruit-growing ranks deservedly high. In bygone days the average farmer was not a fruit grower, but the economic and hygienic importance of adding fruit to the products of the farm is now generally recognized, and an orchard or fruit garden is found near almost every farmhouse.

Whether or not the farmer can make money by growing fruit, there can be no doubt that he adds to the health, pleasure and comfort of his family by so doing. It gives a variety of occupation which is welcomed by all who live on a farm. The cultivation of the different kinds of fruit creates pleasant work for the mind, while it adds pleasing variety to manual labor. Aside from the question of profit, the farmer's family should have the benefit of a succession of fruits, large and small. Fruit all the year round is possible on every farm, beginning with the strawberry in late spring or early summer and running through the successive variations of berries, grapes, peaches and other fruits, ending with the late-keeping apples, which disappear with the coming of the strawberry again.

Farmers may either propagate their own fruit trees or obtain them ready for planting from the nurseries. The various processes of propagating fruit trees, vines and shrubs are by seed, layers, budding, and grafting. Growing from seed is chiefly for the purpose of originating new varieties, or for raising stocks to be budded or grafted with approved varieties.

Apples

Among the fruits that may well be raised on the farm, the apple is easily the leader. Its numerous varieties are freely grown in almost every State of the Union. Other fruits may be regarded as luxuries, but the apple has become a necessity.

Whether the apple of Eden resembled any modern variety is uncertain, but the British Crabapple is generally regarded by fruit growers as the original of the modern edible kinds. Scientific cultivation has produced innumerable varieties, large and small, and the apple industry is now of considerable importance in several States.

As a rule the apple tree is as hardy as most of our native forest trees and any soil that will produce good crops of grain and potatoes will be found to be adapted to the growth of healthy and vigorous apple trees. The surface of an orchard should preferably be gently rolling, with good surface drainage. But if the farm is entirely level, or made up of steep hillsides, it should still have its apple orchard. Good apples have been grown in orchards of almost every conceivable location and character. When natural advantages are lacking, however, artificial means of preparing the soil must be resorted to. If the surface be entirely level and the soil wet and heavy, the ground should be subsoiled and tile drained.

After a thorough plowing of the land, the apple trees should be carefully set out at the distance apart that is recommended by the nurseryman from whom the stock is secured. The holes should

be dug large, so that the roots will be in a natural position. The trees should be young and of vigorous growth when removed from the nursery rows. If possible they should be planted in the late autumn or very early in the spring. When planting is done in the spring and the ground is dry, the trees should be thoroughly watered once, after which the ground should be mulched with leaves or straw.

Crops Between Apple Trees

Cultivation of the orchard should begin at once after planting. For the first three or four years the plow and the hoe should be freely used and all weeds should be destroyed. Root crops or grass may be grown between the trees. The orchard should be carefully cultivated for several seasons, great care being taken not to injure the roots or bark of the apple trees with the plow.

Apple trees should be pruned sparingly. The heads or tops should be kept sufficiently open to admit sunshine and air. Pruning should be done in the early spring. During the summer much good may be done by cutting or pinching off the newly forming shoots which appear where not wanted. If, however, one grows his own trees from the graft or bud, no pruning is necessary.

Lists of varieties of apples recommended to growers in all the various sections of the United States are published in the reports of the American Pomological Society and can be obtained from the nurserymen. The society has catalogued over 300 varieties of apples grown in the United States and Canada.

Peaches

Peach growing engages the attention of a great many of those who have gone "back to the land" in recent years. Where it is engaged in as a business, the most approved methods of care and cultivation should carefully be studied in advance.

Varities of peaches should be carefully selected, to have them adapted to the section where they are to be planted. This done, good trees planted on new land with good drainage, and carefully cultivated, will bring quick returns, and are among the most satisfactory fruits that can be grown either for home use or for the market.

The types of peaches are as follows: **Persian**, commonly planted in the North; **Northern Chinese**, which includes Elberta and related varieties, generally planted in the cotton-belt; well adapted to western Florida; **Spanish**, native varieties that have originated in Florida and on the Gulf Coast; adapted to the latitude of northern Florida; **Honey**, comprising the Honey and its seedlings, adapted to northern Florida, southern Georgia and westward around the Gulf; **Peen-to**, comprising the original Peen-to and the varieties originated from it; well adapted to Florida, tropical and subtropical regions. Jewel is the most important commercial variety in the group. **Oriental Bloods**, Red Ceylon, adapted to the same range as Peen-to, and Japan Dwarf Blood to the same territory as the Honey peach.

Oranges and Other Citrus Fruits

There are so many varieties, assigned to districts of wide area, that the best plan for the novice grower is to follow the advice of a reliable nurseryman in choosing varieties to plant.

The peach requires a dry, sandy and very rich soil. Slow-growing trees are the hardest.

Pears

In recent years the pear crop has been bringing splendid returns. There has been a steady upward trend in prices until, even with a short crop occasionally, it pays to grow pears. At prices ranging from six to twelve dollars a barrel it does not take a heavy yield to pay good returns on land planted to this fruit.

The most serious drawback in growing pears is pear blight. But the oriental pears, such as Kieffer, Le Conte, and Garber, are not nearly so subject to it as the European pears. With careful attention to pruning, fertilizing and cultivation, these pears are quite free from blight. This group of oriental pears is the very best for planting, especially in the South. No cultivation should be given more than to cut down the grass and weeds around the trees. The fertilizer used should contain but little nitrogen or ammonia and should be rich in potash. This practice of no cultivation and using potash fertilizer produces hard, firm wood-growth, and such growth is not nearly so subject to injury. It is the sappy, vigorous shoots that blight. Dead or blighted branches should be cut out, cutting well below the line between dead and living wood. These prunings should be burned. Attention to these details will go a long way toward making a success of pear-growing.

Plums

Plums have been cultivated from the most ancient times. The best soil is a thick loam. The trees should be planted 20 feet apart and require but little care. They should be thinned out each spring by pruning.

In the extreme South, particularly in central and south Florida, southern Texas, and, in fact, all along the Gulf Coast, the pure-bred Japanese varieties have not been good bearers, consequently, were not generally profitable. But cross-bred varieties—Japanese varieties crossed with native varieties—have proven heavy annual bearers. These cross-bred varieties have made commercial plum growing not only possible, but worthy the attention of fruit-growers even in south Florida and northern Mexico.

Cherries

Cherry trees will thrive in almost any soil. In northern latitudes high fertilizing is not advisable, as rapid-growing trees are in danger of injury from the severe winters. The trees should be planted about 25 feet apart. Very little pruning is necessary. The central leader may be cut back at the time of planting to prevent a high heading of the tree, as a low top is greatly to be preferred.

Oranges

In planting oranges, lemons, and other citrus fruits, three things are of primary importance—soil, climate, and trees.

Good judgment must be exercised in the selection of a location, that the trees may be set in ideal surroundings, for no amount of expense and labor will overcome unsuitable conditions. Prepare the soil well; this is easier done before than after planting.

Location and Good Soil

Having selected a good soil and a suitable location, it is essential that good trees be procured. These should be well grown with clean, smooth trunks, not stunted nor bark-bound, but vigorous, thrifty trees. They should be free from insects and diseases, carefully dug and carefully packed, so as to reach the planter in good condition. Given the right sort of care, and planted properly in well prepared soil, this is the kind of tree which will give the best results.

Sour Orange Stock Preferred

For general planting in the citrus districts, Sour Orange stock will be found most satisfactory. It

is adapted to a wide range of territory and conditions, but prefers rather heavy soil and a good supply of moisture. Its habit of developing a deep root-system, its thrifty, vigorous growth, its hardiness, its immunity from foot-rot, and its general adaptability to different varieties of citrus fruits, are all strong points in its favor and well worthy of note.

Rough Lemon stock produces a very strong growth of bud placed upon it. It is recommended for plantings on dry soils and in those localities where either lack of moisture or trying soil conditions render the use of Sour stock inadvisable. It is particularly adapted to deep, sandy soils. Most shy-bearing varieties are much more prolific on Rough Lemon stock. It cannot be recommended for the colder sections.

Stock for the Satsuma Orange

Citrus trifoliata is the hardest species of citrus known in this country. It is deciduous, grows well in the open ground as far north as Washington, D. C., and withstands temperatures of 15 degrees below zero and lower.

It has become of great importance as a stock for citrus trees of all kinds. Varieties budded on it are made harder because of its dormant and hardy character, and the fruit is of exceedingly fine quality, ripening two or three weeks earlier than if budded on other stocks. For the Satsuma orange, it is the only stock to use.

Grapefruit, or Pomelo

Many of the older citrus-fruit growers in Florida can remember when pomelo fruit was not worth picking; in fact, it had no market value. Within twenty-five or thirty years the status of the grapefruit has changed materially, and, at this time, it is not too much to say that, from a commercial standpoint, it is equal or superior to the orange. It was in Florida that the pomelo as a market fruit was discovered, and the Florida product is still considered the standard of quality.

No other citrus tree will outyield the grapefruit in bulk of fruit produced. It is usually considered to be a more vigorous grower than the orange and lemon, and can take care of larger amounts of plant-food to advantage. From the grower's point of view it is a cheaper fruit to pick and pack than the orange. Fewer fruits need be picked and wrapped to fill a box, and the saving in this connection is considerable.

Outlook for Grape Fruit

The outlook for grapefruit in our markets is excellent. It is the breakfast fruit of America, *par excellence*, and its use on the breakfast-table is steadily increasing. No other fruit takes its place, because of its appetizing and refreshing qualities, and once converted to its use, a consumer wants no other fruit. Even should the price per box fall to the level of oranges, it would still be the more profitable fruit to grow, for reasons already pointed out.

In its soil requirements the pomelo, or grapefruit, does not differ from other citrus trees. The trees are grown on the same roots as the orange, and it is the root that governs. It may be pointed out, however, that on account of its large, dense, dark green foliage, the pomelo has the advantage on poorer types of soil, as it is able to prepare a larger amount of food.

The soil should be well drained, and, if it is not naturally drained, this should be provided for by ditching. The surface soil should be good, tillable earth, and if the subsoil contains some clay it will be an advantage in saving plant-food. If a hard layer is present beneath the surface soil, it should be broken up. It is best to clear the land and cultivate it for one season in cowpeas or velvet beans before planting. Such a crop, when plowed under, will do much toward starting the trees into vigorous growth.

How Plant Grape Fruit

Thoroughly plow and harrow the soil to put it in the best possible condition. Stake the ground, setting a lath or other small stake where each tree is to stand. Pomelos or small orange and rough lemon stock should be set 25 feet by 25 feet, or 25 feet by 30 feet. If on *Citrus trifoliata* stock they may be set 18 feet by 18 feet, or 20 feet by 20 feet.

Lemons and Other Sour Fruits

Have on hand enough commercial fertilizer to allow a pound or a pound and a half to each tree. This fertilizer should analyze four per cent ammonium and five or six per cent each phosphoric acid and potash.

Open the boxes of trees as soon as received, heel-in the trees in a shady place, covering the roots with soil and the tops with the packing material, straw, or a cover of any kind. Dig the holes just in advance of planting. Fill in around the roots with surface soil with which the fertilizer mentioned above has been thoroughly mixed.

In planting, spread out the roots carefully, and pack the soil about them by hand. When the hole is three-quarters filled, add a bucket or two of water, then fill up the rest of the hole. Pack the earth tight about the roots. If the soil is dry it is an advantage to bank up around the trunk to a height of ten or twelve inches with clean, dry soil. This should be removed as soon as the trees start to grow.

Pomelo and other citrus trees may be set out at almost any time, but the best seasons are November to March, and May and June, depending upon soil and weather conditions.

It is the common practice to cultivate the pomelo grove, and with few exceptions it is best to do so. The plan usually followed is to begin cultivation about the time growth starts in spring, and continue to cultivate at intervals of ten days or two weeks until the middle of June or the first of July. If the spring should be dry, cultivation should be thoroughly followed up. After cultivation has been discontinued for the season, the native grasses and weeds may be allowed to spring up and form a cover, or beggarweed may be sown.

The grove on heavy soils may be plowed once each year, in November, but on lighter soils all the necessary cultivation may be given with harrows.

Lemons

The lemon is the most valuable of the acid citrus fruits, and it is probably used in more different ways than any of its relatives. The very high prices secured for lemons raise the question, why should not more lemons be grown for home and local consumption in the southeastern citrus belt.

While not so hardy as the orange and pomelo, yet lemons can be grown over a wide range of territory. Even in north Florida growers have often been able to produce more fruit than they could use. Certainly no collection of citrus fruits for home use in the citrus belt is complete without a few lemons, and in sections most immune from cold this fruit may be grown in quantity.

Trifoliata

Citrus trifoliata is adapted for planting on alluvial lands, clay lands, soils underlain with clay and those which naturally contain plenty of moisture or to which water can be applied by irrigation. It should not be planted on high, dry, sandy lands lacking in moisture. On such soils it is a failure.

Seedlings can be used as a hedge, and it forms an impenetrable barrier to man or beast, and, with proper care, can be made rabbit-proof.

Persimmons

Since its introduction into this country in 1875, the Japanese persimmon has been slowly but steadily gaining in favor. Native persimmon seedlings are used as stocks on which to grow the Japanese sorts, hence these latter can be grown on as wide a range of soil as the native persimmon—that is, throughout the cotton-growing belt. The persimmon, or kakis, has been developed by the Japanese until it is the best fruit of Japan and the persimmon takes the place with them of our apple.

They respond generously to good care and cultivation. The fruit keeps and ships well and wherever known in the markets it meets with ready sale.

Soil for Persimmons

The soil on which the Persimmon orchard is set should be well prepared. Old field land may be used, but, if in poor condition, it should be built up before setting the trees. This can best be done by growing a crop of cowpeas or velvet beans on the land and plowing them under previous to planting.

While persimmon trees can be set out at any time between November 15 and March 1, in the lower South, preference in planting should be given to the period from December 1 to February 1.

When and How Set Persimmon Trees

They should be given a distance of 18 to 20 feet apart each way, 134 or 108 trees per acre. Great care should be exercised in setting them, and the roots should not be allowed to become dried out. The tops should be cut back to 2 or 2½ feet on the smaller sizes.

Cultivation during the early portion of the season should be frequent and thorough. This may be discontinued about July 1 or 15, and a cover crop of natural weeds or cowpeas or beggarweed should be allowed to cover the ground. To avoid danger from fire during winter, this should be turned into the soil after it has become dead and dry in autumn. Commercial fertilizers can be used to advantage, and these, with the food supplied by the cover crops, will keep the trees in a thrifty growing condition.

Quince

The quince is so easily grown, so delicious for preserves, and, ripening at a time later than most fruits, affords the busy housewife more leisure to preserve it for a winter luxury, one or more quince bushes, or trees, deserve a place in every garden. It thrives best on a moist soil, and if this is not attainable naturally, a heavy mulching of leaves and rotten wood will answer the purpose.

Of the several varieties of quinces, the apple, or orange quince is universally liked. The angus is a longer keeper than the orange. The Portugal is a strong tree but unproductive, it makes a good stock on which to graft other varieties. Rea's seedling is larger than the orange and equally good.

If raised in large quantities, the trees should be set twelve feet apart, the ground should be cultivated the first three years after planting, then seeded to clover. Sait should be sprinkled thinly about the trees each spring and stable manure applied each winter.

Guavas

The guava is a sub-tropical fruit and quite hardy. Its range of culture is almost the same as the hardy varieties of the orange. The Cattley guava is the hardest species. The bushes are very handsome, with rather thick, bright green, shiny leaves. The fruit measures ¾ to 1 inch in diameter or larger. It has a pleasant sub-acid flavor and is very highly esteemed for making jellies and preserves. It is one of the most ornamental of all fruit trees and the plants make handsome lawn specimens.

Kumquats

The kumquat is the smallest of the citrus fruits in general cultivation in this country. Usually the plants are called bushes, for they do not make trees. The plant grows to a height of 10 to 12 feet, with a spread of branches about equal to its height. The bright, dark green leaves and deep golden yellow fruits make a very pleasing combination of color. The flowers are small, sweet scented, and appear in June on the shoots produced earlier in the same season. The fruit ripens during the fall and winter, beginning with the month of November. In point of hardness the kumquat ranks with the Satsuma orange. It will withstand temperatures of 15 degrees Fahrenheit and even lower. The bushes are given considerable pruning each season.

Limes

Limes can be put to all the uses for which the lemon is adapted. The flavor is different from that of the lemon, but is highly appreciated by every one who has used the fruit. In tropical countries they are in more general use than lemons.

Lime trees are vigorous growers, and in suitable climates bloom and bear continuously throughout the year. It must be remembered that limes are very tender trees, but they grow well under very adverse conditions.

Pomegranates

The pomegranates are very hardy shrubs which can be grown throughout the Gulf States and the coastal sections of Georgia and the Carolinas. The brilliant scarlet flowers are produced in profusion, and the plants are very prolific. The fruit is used in making jellies, marmalades, and acid drinks. For this latter purpose they are highly esteemed. The fruit has a fresh crispness, delicacy and sprightliness of flavor found in few fruits. The juice-cells surrounding the seeds, the edible part of the fruit, are of a dark ruby or wine color.

Exhibit of Different Varieties of Grapes

GRAPES

How Plant,
Cultivate and
Grow Them
in the
United States

In planting grapes be particular to use strong, well-rooted, one or two-year vines. Plant in rows 8 to 9 feet apart, 7 to 8 feet apart in the rows. The soil should be well prepared and enriched. Good drainage is absolutely necessary, for the vines will not thrive in wet soil. For fertilizer, well-rotted stable manure may be used or a heavy application of raw bone meal.

If the soil is naturally poor, give a liberal application of thoroughly rotted stable manure, or raw bone meal, about 600 pounds to the acre, with about 300 pounds muriate of potash, or two tons of good, unleached hardwood ashes. Some planters put manure or fertilizer in the hole when planting, which is recommended, and helps the vines to make, a strong, vigorous growth.

Deep and thorough preparation of the soil should be made before the vines are planted. The vines may be trained on a trellis, a grape-arbor or even over a fence, but, of course, the trellis will give the best results so far as the crop is concerned. Pruning is usually practiced in the North in late fall.

Planting Grape Vines

Before planting, the tops should be cut back to within two or three buds of the previous year's growth, and the roots to six to eight inches in length, being kept constantly moist. Spread the roots horizontally in the bottom of the hole, in as nearly a natural position as possible. Cover with good, fine, surface soil two or three inches deep, then step into the hole and firm the earth thoroughly. Now put on your fertilizer, and then fill the hole full, treading it the second time, and finish with sufficient earth to cover the vine, so that only one or two buds will be above the surface. The last filling should not be trodden, but be left loose, to act as mulch. This firming or treading the soil is very essential to success, and should never be neglected.

Cultivation

During the first summer after planting, cultivate the soil thoroughly and hoe frequently about the vines, allowing no weeds to grow. Stirring the ground frequently, especially in dry weather, acts as a stimulant to growth, the finely pulverized soil forming the best kind of mulch.

The red Delaware grape is the standard by which the quality of American grapes is gauged. The berries are small, juicy, sweet and with thin but firm skin. Together with these good qualities it is able to withstand climatic conditions under which other hardy varieties fail and to adapt itself to many soils not suited to most other grapes. It is rightly considered the table grape of unsurpassed excellence. As a wine grape it is among the best; its early maturity insuring a crop; attractiveness in appearance, keeping quality on the vine and in the package, shipping excellence and comparative immunity to black rot make it also a very desirable market berry.

In the southern states, grapes belonging to two separate groups may be grown. These are the Muscadine grapes and the northern bunch grapes. The wine and raisin grapes of Europe are worthless except in dry climates.

Grapes of the Muscadine group are native to the South, and are well adapted to the soil and climate. When compared with the bunch grapes, the fruit-clusters are small, but the fruit is fine flavored and valuable as a table grape, for making unfermented grape-juice, preserves, jellies, and wine. In Virginia and North Carolina they are extensively grown for wine-making.

Muscadine vines are long-lived, reaching a healthy, vigorous old age. They require plenty of space for the best results, and should be planted 15 to 25 feet apart each way. The usual plan is to allow them to run on an overhead trellis, 6½ to 7 feet from the ground. The posts should be heart-pine, cypress, or cedar. The trellis may be made of wood and wire, or of wood alone.

The usual plan, heretofore, has been to allow the Muscadine grapes to grow without pruning, but this is a mistake. It has been shown that, to secure the best results, the vines should be pruned. This is best done in October, immediately after the leaves have fallen. They may also be pruned in summer. Pruning should consist largely in thinning out the vines to admit air and sunlight. Judicious pruning will assist materially in producing more fruit of larger size and better quality.

In the lower South, the northern bunch grapes, while not so thoroughly at home, can be grown to perfection for home use and for local market, when well cultivated, sprayed, and cared for. The leading varieties are Delaware, Diamond, Ives, Moore's Early, and Niagara.

The vines should be planted 8 to 10 feet apart. For the first season or two a post placed at each vine will be sufficient. Later cross-pieces and wires can be added, and the vines allowed to run out over them.

For best results, the bunch grapes must be carefully pruned each winter season. Cut away a goodly portion of last season's growth, leaving four or five buds on each shoot. The best spray for the canes and fruit is Bordeaux mixture. This should be applied several times each season, beginning soon after the growth starts in spring. It is also good practice to give an application in winter, just after the pruning is done.

Commercial fertilizer can be used to advantage on all grapes. Stable manure and wood-ashes are also good.

Niagara White Grape

The leading white grape of America is the Niagara white. The bunches are large, handsome, shouldered and compact. The berries are large, round, with thin but tough skin. In all, it presents a very fine appearance. The vine is vigorous and comparatively free from disease, though it responds very well to spraying.

Some of the Well Known Garden Fruits

Conditions for Producing Sure Good Crop.

Some Principles of Garden Planning

1. Rows should run north and south and, if possible, across rather than up and down a slope.

2. Perennial plants should be kept together at one end or side of the garden.

3. The rows should be as long and as continuous as possible, to effect ease and simplicity of cultivation.

4. Plant the tallest crops at the north end of the garden.

5. So arrange the crops as to keep all the ground busy all season.

6. Do not let two crops of similar nature follow one another on the same ground.

7. Keep the plants requiring the same distances between rows together, gradually increasing this distance as you cross the garden.

8. Arrange to raise quick growing crops between the rows of more slowly maturing ones.

9. In the small garden sow a little seed often rather than a large amount at one time.

10. Try to get one planting in just about when the previous sowing is appearing above the ground.

Blackberries

The best soil for blackberries is a strong clay loam that will retain moisture, though the plants will grow and thrive almost anywhere if planted in fertile soil. The plants should be set in rows 5 to 6 feet apart and 3 feet in the rows. The cultivation should be shallow, and three good canes only should be permitted to grow in each hill.

After fruiting cut out the old canes and allow the new growth to come on. Pinch the tips when about 3 feet in height, to make them grow bushy and better able to stand. Sometimes it is necessary to offer support to the canes, and for garden culture a line of chicken wire netting offers a serviceable support. In field culture it is not usual to support the canes in any way.

Gooseberries

The gooseberry is a northern plant, and seldom fruits well south of Maryland except in the high mountain sections. It grows best in a cool climate and moist soil. The plants may be set in rows from 5 to 6 feet apart and 4 feet apart in the rows and cultivated both ways for the first year or two. Little pruning is required and that is mainly to remove the stunted shoots and keep up a supply of vigorous new shoots from the base. Spraying with Bordeaux mixture will keep down mildew, but mildew may be prevented in a great measure by keeping the head of the plant open and not allowing it to get crowded with shoots that are not needed.

Little cultivation is required other than heavy mulching. This will keep down the weeds and keep the ground in a moist condition.

Currants

There are white, red, and black varieties of currants grown in the fruit garden, the most widely distributed being the red.

The red currants are more particular in regard to soil requirements than most other small fruits. They will grow in sandy soil, but they are not so productive as when set in cool, moist loam. They should be set in rows about 5 to 6 feet apart, and about 4 feet apart in the rows. A half-dozen thrifty shoots will make more and larger fruits than a crowded cluster.

The first season allow three good shoots to grow, and the next spring shorten these slightly if they have made a good growth, thus permitting the new shoots that have started to come up for the second season.

For the first five or six years after setting, a few inches of the new wood, or current year's growth, should be cut off each fall. If this is not done, the result will be a tall, barren stem with but few fruit-buds. No plant will better repay generous treatment and high cultivation than the currant. Two or three forkfuls of good stable manure around each bush every fall is desirable.

If this cannot be readily obtained, an experienced grower recommends the following special fertilizer: Pure ground bone, 600 lbs.; muriate of potash, 250 lbs.; nitrate of soda, 150 lbs. Apply the above, thoroughly mixed, to each acre every spring, sowing it broadcast and cultivating it in.

Crabapples, Olives, Quince and Sunflowers

Crab Apples

The Siberian crab is most used here for jellies; the trees of all species are ornamental aside from their fruit-bearing qualities. The blossoms in the spring are incomparable. The generally accepted theory is that all apples originally sprang from the wild crab apple, and this is indigenous to most parts of temperate United States, so the crab apple is capable of almost universal cultivation. It stands neglect but responds richly to care.

Loganberries

The loganberry is a novelty of recent growth. The vine is an exceedingly strong grower, trailing on the ground like the dewberry. The fruit is rather long, often an inch or more in length, dark red, with the shape of the blackberry and color of a red raspberry, and the flavor a combination of both. It is claimed to be a cross of the blackberry and the raspberry.

Mulberries

The Mulberry can be successfully grown wherever the cherry succeeds. The fruit is well liked by epicures. Three favorite varieties are the Downing, Persian Black, and Persian White. If silk worms are raised the mulberry is an essential to their well-being, since the silk worm is fed on the young leaves of the mulberry tree.

Nectarines

A dry, sandy, very rich soil is preferred by the nectarine, which is of the almond family and comes originally from Persia. It can be grown wherever the peach thrives, its cultivation is the same, and it differs from the peach mainly in having a thin, smooth skin where the peach skin is velvety.

Olives

According to the Italian proverb, "If you would leave a lasting inheritance to your children, plant an olive tree." The tree has been highly esteemed in all ages and both sacred and classical history are filled with references to the olive.

It is a native of Syria and flourishes best in a warm, comparatively dry climate. It will not thrive in a region where the temperature falls below 20 degrees Fahrenheit. It seems especially suited to sandy or loam soils rich in lime and potash. The olive has done so well in California in recent years that Florida and the Gulf states are introducing its culture more and more. The American oils are said to rival those of Aix, France, or Florence, Italy. The olive has been grown in California since the days of the Mission Fathers, having been brought from Spain by the Spanish owners of the land.

The olive tree is a low-branching evergreen, growing from twenty to thirty feet in height. The leaves bear a strong resemblance to those of the willow but are more delicate and of a dusky deep-green or bluish tinge above, silvery beneath. The flowers, as delicate as the leaves, are at first a pale yellow color but, opening, disclose four white petals with yellow centers. The wood is hard, compact, and brittle and is susceptible of a high polish.

The fruit is a drupe about the size of a native plum, and "olive-green" in color. The green fruit is used for pickling and from the ripe fruit is extracted the olive-oil of commerce, sometimes called "sweet oil."

Olive oil is coming more and more into use as a table oil, and in America, as elsewhere in the sections where the tree is grown, the oil is rapidly gaining popularity in cooking, taking the place of butter.

A young olive tree will bear fruit when two years old, but rarely pays the expense of cultivation till six years old; it grows slowly and is long-lived.

The tree is easily propagated either by seed, slip, or grafting. When seeds are planted the pits should be removed from the olives and the shell softened by soaking about 24 hours in a lye solution, containing about one-half pound of caustic soda to a gallon of water. If the shells are not thus softened they should be cracked before planting as they are liable to stay in the ground two years before germinating.

Blueberries

The blueberry, called in Ireland bilberry, so delicious when found wild, has been aptly characterized by J. H. Hale, in the Rural New Yorker: "The blueberry proved to be a good deal like Indians—it would not stand civilization, and was never satisfactory, although I monkeyed with it for a period of about ten years." If fortunate enough to have a blueberry patch it is well to let it have its own sweet will, merely keeping it within bounds. A new garden variety is being developed, but as yet it is in an experimental stage.

Figs

No fruit is more valuable in the southern fruit-garden than the fig. They can be closely planted—10 to 12 feet apart—and yield heavily. The fig-canning industry is gradually extending throughout the South, and since several tons of fruit can be produced on an acre of ground, it is well adapted to intensive culture. The preserved product put up at the present time in no wise supplies the demand, and a very material increase in the fig-canning industry is expected.

The fresh fig is also finding its way into the markets, and meeting with a ready sale. Carefully picked at the right stage of maturity and packed in strawberry crates, they can be placed by express in distant markets, four or five hundred miles, or even more, in good condition.

Figs come into bearing very early and for that reason commend themselves to the fruit-grower. With a proper selection of varieties, fruit may be secured from June to November. No other fruit covers so long a summer-fruited season.

Soja Bean, or Soy Bean

German Coffee Berry, the seed sometimes being parched and ground for use as coffee. Plants grow eighteen inches in height, and are immensely productive, having small round seed. The plant, being a legume, is valuable as a soil enricher, while the plant and seed make a highly nutritious forage. Sow broadcast at rate of one and one-half bushels per acre.

Sunflowers

The sunflower is largely cultivated for its seeds, which make excellent food for cattle, sheep, and poultry. Where largely grown the leaves are used for stock and the stalks for fire-kindling.

Sunflowers grow best on a light, well-drained, well-tilled, and fertile soil. When grown between the rows of potatoes they are planted only every third or fourth row, to avoid shading the potatoes too much, and are thinned to a distance of twenty to twenty-four inches apart.

The seeds may be planted two to four inches deep, in hills three feet apart, in rows three to three and one-half feet apart. If planted in rows, by drilling, the young plants should be thinned, when about ten inches high, to twelve to sixteen inches apart. An acre requires ten to fifteen pounds of seed when planted by the drill method. The seeds may be planted quite early, as they are not injured by slight freezing. The cost of raising a crop of sunflowers is about the same as for corn. The mammoth Russian variety is considered by experts the best variety for oil; single-headed varieties are favored for seed production.

Planted in swampy places the sunflower absorbs miasma and renders the region healthier. In the earlier days of the country there was a saying that where sunflowers grew there was no ague.

When the French explorer, Champlain, arrived in America in 1606 he found the Indians growing sunflowers for the oil. About 1650 the plant was introduced into Europe, where it is widely grown for its seed and oil.

The oil is used for illumination, for wool dressing, in paints, and especially in soap making; but it has not served for lubricating. The cold-pressed oil has found favor for culinary purposes.

The residue or cake remaining after the extraction of the oil is a valuable feeding stuff and can be used for fertilizer. Sunflower seed fed to milch cows has produced good results when fed in the proportion of 4 lbs. ground sunflower seed, 6 lbs. barley, 15 lbs. clover hay, and 30 lbs. silage.

PINEAPPLES

Adapted to Much of the New Territory Belonging to the United States

The time at which the main crop in the United States ripens has something to do with the popularity of the pineapple, as it comes into the market after the strawberry has become somewhat common and before the main shipping season for peaches. The main shipping season is from the middle of April to the middle of July.

A considerable area in the United States is adapted to the cultivation of this fruit, and with the increased demand for it there can be no doubt that this will be greatly extended. The State of Florida doubtless contains the largest tract of pineapple land in one body. Southern California has some land that will produce pineapples profitably.

In Hawaii and Porto Rico

All of Porto Rico and the Hawaiian Islands are free from frost, but the soil and climate are not uniformly adapted to the production of this crop. In the Philippines there is more land adapted to the production of pineapples than will be utilized for several generations. Porto Rico is thought to be especially well adapted for the locating of canneries. The pineapple plant will remain alive for months without being in contact with the soil. In contact with moist, loamy soil it soon sickens and dies.

It takes about four months from the time of blossoming to the ripening of the fruit. The main season of blooming is during January and February, though occasionally plants bloom through the entire year.

Gift of America to the World

The discovery of the pineapple, as a fruit, was coincident with the exploration of South America by the Spaniards. As early as the seventeenth century it was cultivated in Holland and in England, but its use was confined to royalty. Outdoor cultivation of pineapples in the United States dates back to 1860, though attempts to grow it in Florida were made earlier.

Soil

The pineapple thrives on a soil from which it would seem impossible for another plant to secure food. This is because of the fact that it is one of the plants that, like the orchids, grow on substances but do not derive nourishment from them.

The proper selection of soil for pineapples is the most important problem in connection with their culture. The requirements of the plant in this respect are so different from the ordinary fruits that it is hard for the would-be pineapple grower to realize that he has here a plant that demands a soil utterly intolerable to the ordinary crops of vegetables. This crop can be grown upon land that will produce ordinary vegetables, but the soil must be of a loose and open nature and not allowed to become water-soaked. It is not the fertility nor the humus in the soil that is detrimental to the pineapple, but it is the want of free drainage. The soil prepared by the gardeners who grow this crop under glass illustrates this point. Their standard formula is about as follows: Two parts decomposed fibrous loam, one part well-decayed manure, another part one-half inch bones and pounded oyster shells. From this it is seen that even where the control over temperature and moisture is the most perfect the texture of the favorite soil is open and decidedly loose. The directions for watering are fully as interesting. "Moderately in winter and freely in summer."

Philippines. In Niihu and the Philippine Islands, where pineapples succeed well, the soil is disintegrated lava covered with a layer of humus. There is but little cohesion in such soils, particularly when, as in this case, they contain considerable lime. When clay is present it is said to be important that it should not be so abundant as to hinder root penetration or to hold the soil water.

In some of the best pineapple plantations of Florida the mechanical analysis of the soil is as follows, the depth of the soil ranging from nothing to six inches: Substance—Moisture in air dried samples, 0.15; organic matter, 1.21; gravel, .23; coarse sand, 3.02; medium sand, 61.11; fine sand, 33.76; very fine sand, .54; silt, .22; fine silt, .06; clay, .50—nearly 97 per cent of sand and gravel.

How it is that pineapple plants can grow and produce a crop on a soil that seems to be so deficient in the chemical constituents that are necessary for plant growth has not been explained satisfactorily.

Climate

A sub-tropical climate whose temperature never reaches the freezing point is not all that is necessary for pineapple growing. It will rot in an atmosphere continually saturated with moisture. Pineapple plants may be shipped from the Hawaiian Islands to Florida if they be kept dry. This fact merely indicates that the healthy pineapple plant does not suffer seriously from ordinary dry weather. It is one of the class of plants that prefers an alternating dry and wet season.

Laying Off the Land

After the field has been thoroughly cleared it is laid off into "lands." In extensive fields the lands are about sixty feet wide. This leaves a distance of about thirty feet for the man who, in gathering the crop, breaks the fruit to toss it to the man in the pathway—one side of a land being picked over at a time. The lands should be laid off in various "checks," 18x22 inches for the smaller varieties up to 48x48 inches for the largest varieties.

The method of planting in beds about fifteen feet wide under sheds has been practiced for a considerable time and is gaining in favor. This allows the laborer to use the shuffle hoe without going between the plants, and also to apply the fertilizer by merely stepping among the plants of the first two rows. It is always necessary to exercise the greatest care in order to avoid breaking the leaves.

Planting

Suckers are planted for the main crop of the common varieties. Slips and crowns take too long to mature a crop to be utilized excepting when suckers are not to be obtained. Well-matured suckers will produce a crop in fourteen to eighteen months from time of setting out. The sucker should be set three to five inches deep, according to size, care being taken not to set it so deep that sand can be easily blown into the bud. Sanded plants are difficult to handle successfully, and it is easier to avoid trouble in this line than to remedy it after it has occurred.

To prevent sanding (sand getting into the bud) fill the bud with a mixture of cotton-seed meal and tobacco dust. This will form a solid cake and as the new leaves grow out the plug is lifted and no harm done to the plants. As the dews and rains dissolve the plant food it is carried into the soil and the tobacco dust furnishes insecticide as well as plant food.

Seed is used only for experimental purposes, like originating new varieties. It takes these ten or twelve years to mature a crop.

Best Time to Plant

Time of Planting. Plants may be set out at any time during the year but the best time is during the fall. To set out at this time they will make considerable growth before winter sets in.

If there should be suckers fit to set out during the spring the pineapple grower should not permit any avoidable disturbance at that time, because it is the time of fruiting, when the plants need every advantage possible to produce the finest fruit. Practically the time for setting out pineapple suckers is limited to the season from July to November.

Cultivation

In the sandy region of south Florida very little attention is directed toward the matter of cultivating after the field has been set out. This is by no means due to indifference or carelessness, but rather to the result of years of experience.

Cultivation as it is now practiced consists in agitating the surface of the soil to the depth of about an inch with a shuffle hoe three or four times a year. Some planters hoe the pines as often as once

Pineapples in Warm Regions of the United States

a month. The roots of the plants do not penetrate the soil deeply. The soil is made up of so large a per cent of sand that it cannot bake or form a hard crust.

In Porto Rico, Hawaii, and the Philippine Islands a different class of soil is utilized for producing pineapples, and more attention must be given to the cultivation of this crop. In all of these sections pineapple growing is still undeveloped, and consequently the cultivation varied and often indifferent.

Avoid Breaking the Leaves. During the growing season the leaves of the pineapple plant are very easily broken. The peculiar and complicated structure of the pineapple leaf makes it very resistant to drought, but if the outer skin is broken it soon loses moisture to an excessive extent, and damage to the plant results. Whatever implements are used or whatever operations are performed in the field, special care must be exercised to avoid breaking leaves.

Pineapple Sheds

For thirty years growers have practiced the use of a sort of a protection built on posts in the form of an elevated platform and covered with palm (palmetto) leaves to protect pineapples against cold. It was discovered that the pineapples grown in partial shade were more tender and juicy than those grown in the open. The desire to protect this plant from the winter's cold seems to have been the origin of our present pineapple sheds, though the protecting of pineapples by sheds has now extended to the region where there is little danger of freezing. The value of the half-shade condition in improving the quality of the fruit is now so generally recognized that this is the important consideration by many for building sheds. The cover should not be less than six and one-half feet from the ground, and it is preferable to have about seven feet in the clear. If plastering laths are used the cover may be six inches lower than when boards are used.

Trees for Shade. Growers have discovered the beneficial effect from the presence of cabbage palmettoes, which not only seem to protect the pineapple plants from the cold of winter, but to be an advantage to the crop in the summer. Its native haunts appear to be in the shade of dry forests in some of the tropical countries of America.

Pineapple Fibre

The plant after maturing a fruit gives rise to one or more suckers and later in the season dies, to remain in the field where it is beneficial, as it forms a slight covering as a mulch, but during the dry season it may become a source of danger from accidental fires.

Growers are learning that these leaves may be put to a more profitable use. The fibre yields readily to machine manipulation and comes out white and clean without washing by simply drying in the sun after being extracted. There are said to be about sixty pounds of fibre in a ton of green leaves—about double the amount in a ton of green ramie stalks. The fibre has many qualities that give it superior merit, and is used in the textile industry.

Many of the soldiers serving in the Philippines and travelers in the Orient have brought home beautiful embroideries worked on pineapple cloth.

Gathering

It is not an unusual experience for the agriculturist to do all that is necessary to bring a crop to excellent maturity and lose it all or in part for the want of proper handling at the time of gathering. It is necessary to pay the closest attention to details in gathering. This is the operation in which judgment plays the most important part. It cannot be learned except by experience.

The Fruit Should Be Dry When Gathered. After that, care in handling, care, and more care is the watchword. The pineapple, though enduring the most trying conditions of temperature and rough handling as long as the skin remains unbroken, deteriorates rapidly after the slightest break.

Ordinarily there are but two grades, fruits and culms, but besides the culms the grower has often three grades on his hands: Ripes, greens, and mediums.

In sizing, the fruit is known by the number it requires to fill a half barrel crate, viz: 18's, 24's, 30's, 36's, 42's, 48's, and 54's. The last-named size is not crated unless the crop is very short.

Starting Without Capital

To produce good fruit, such as is demanded by the fancy markets, the cost per acre cannot be reduced below \$100. If the soil be fertile enough to grow a crop without fertilizer the cost of clearing will be greatly decreased. From the figures here given it will be seen that it requires considerable capital to grow pineapples extensively.

The Outlay per Acre

Cost of land.....	\$ 1.50	to \$ 80.00
Cost of clearing.....	20.00	60.00
Cost of plants.....	25.00	800.00
For fertilizer.....	20.00	150.00
Freight, express, etc.....	20.00	80.00
Labor	25.00	75.00
Shed	325.00	600.00
Total.....	\$436.50	\$1,845.00

This estimate does not include the salary of the superintendent.

The figures seem almost prohibitive to many farmers, but it has been demonstrated repeatedly that a willing laborer may become a pineapple grower. The absolute outlay in money may be reduced to the cost of the plants, the cost of the fertilizer, and the cost of the land. This puts the cost for the first year at about \$50, and to carry this forward to the ripening of the first crop about \$20 more should be added, making an outlay of \$70 to produce the first crop on an acre. In the pineapple-growing section of Florida there is sufficient demand for labor to more than keep a man while he is growing his first crop. Another plan adopted is for two persons to form a partnership, one working to supply the needed cash while the other grows the crop of pineapples. After the first crop has been produced the increase in the number of plants will permit the extension of the area as rapidly as financial conditions will allow.

BANANAS

The banana is produced only in sub-tropical America, the Canal Zone, the Philippines, etc. It is an herbaceous plant with an underground stem, the apparent stem, which sometimes attains a height of thirty feet, is only the sheath of the leaves, closely compacted. The leaves themselves are six to ten feet long and one or more broad.

The fruit is 4 to 10 or 12 inches long and 1 inch or more in diameter. It grows in large bunches

weighing often from 40 to 80 pounds. The pulp is soft and of a luscious taste. When ripe, it is eaten raw or fries in slices. The banana is grown only in a warm, tropical or sub-tropical climate and is an important article of food.

It requires a rich soil with a large amount of moisture. Is propagated by cuttings, known as suckers. It gives an enormous yield per acre.

PAPAWS

The name is applied to two different kinds of fruit, one purely tropical, the other North American and especially belonging to the middle states. While it grows in warm climates, as a tree, 20 and 30 feet high, in the northern states it is a shrub. The fruit, ripening usually in September, is 3 or 4 inches long and about a third as thick, with tender yellow skin when quite ripe. The fruit is considered too sweet by many, while some prefer it to the banana.

In warm climates, adapted to its growth, the fruit grows as a berry about 10 inches long and

half as broad and is of a dull orange color. It is sometimes eaten raw with pepper and sugar, but is more generally cooked with sugar and lemon juice. The unripe fruit is boiled and eaten as a vegetable and is also pickled. The juice of the ripe fruit is said to be used as a cosmetic to remove freckles and that of the green fruit is a remarkably efficient vermifuge. The leaves are used in the French West Indies as a substitute for soap in washing linen. Cultivated as a shrub in rich soil.

Variety of Farm and Garden Production

Broomcorn

The soil should be plowed in the fall or as early in the spring as possible, so that it will retain moisture. The land should be disked and harrowed about two weeks before planting, and after planting requires repeated cultivation to keep down weeds. The plants are tender and grow most rapidly in warm weather, not standing the early spring cold as corn will. Great care must be exercised in the selection of seed; one bushel of seed will plant about twenty acres. Broomcorn is a good sod crop. Two good varieties are the Dwarf and the Standard; the former grows only about six inches high with a brush from twelve to twenty inches; the Standard must be bent in order to make the heads easier to cut. Broomcorn demands prompt attention when it is ready to harvest, as it will not stand in the field without great damage. It must be cured in sheds in order to retain its green color. The price per ton ranges from \$50 for the lower grades that have been damaged by weather, to over \$200 for the superfine grades.

Cranberries

Swampy ground on the farm can be made very profitable by the cultivation of cranberries. The berry is a native of the colder regions of the Northern Hemisphere and grows as far south as Virginia. It is cultivated in twenty of the States. The yield is a million bushels a year, half of this coming from Massachusetts. Low, moist ground forms the cranberry bog. It should be planted in hills 18 inches apart and 6 inches apart in the rows. A thick coating of swamp muck may be applied with benefit before planting. The cranberry marsh should be kept free from weeds, grass, and moss, as clean, well-drained, and sanded bog renders the crop less liable to injury by frost. In case of berries rotting, the bog is generally found to contain less clay and silt (and iron), and more nitrogen than necessary. Potash and phosphoric acid applied to the soil, with some lime, will generally correct this. The berries should be picked late in September or early October and should not be picked in a wet condition nor stored in a moist place.

The cranberry has a very high keeping quality if reasonably cared for.

Apricots

A fruit of the plum genus which was introduced into Europe from Asia more than three centuries before Christ, and into England in the first half of the 16th century. It is a native of Armenia and other parts of Asia and also of Africa. The apricot is a low tree of rather crooked growth, with somewhat heart shaped leaves and sessile flowers. The fruit is sweet, more or less juicy, of a yellowish color about the size of the peach and resembling it in delicacy of flavor. The wood is coarsely grained and soft. Apricot trees are chiefly raised against walls and are propagated by budding and grafting. Its care and cultivation is the same as the peach, the crown gall, produced by a small parasitic organism, being the same disease which afflicts the peach, is liable to attack the apricot. As with the peach, there is no cure. The only remedy is to dig up and destroy the trees.

Dewberries

The dewberry is a species of low blackberry plant. The fruit ripens both before and after the blackberry varieties and is much grown for market.

Do not plant dewberries on too rich garden soil, as they go too much to vine, with a corresponding loss of fruit. For fertilizer use a small percentage of ammonia and a large percentage of potash. The plants may be set in rows 5 to 6 feet apart and about 3 feet in the row.

Some growers let their dewberries trail on the ground and keep the vines cut back to 2 or 3 feet in length; but much better results are obtained if the vines are given some support, either by trellis or by stakes driven between every alternate hill, tying one hill from each side to the top of the stake, which should be notched at the top to prevent slipping down. Cut off all surplus vines 18 inches beyond where tied.

Emmer

Emmer is a sub-species of wheat, cultivated in regions of little rainfall, under the name of spelt. It is valuable as a hardy forage plant.

Raspberries

Raspberries are divided into three general classes: The reds, blacks, and purples. The red raspberries thrive best in a strong soil which is inclined to hold the moisture. They have been grown successfully on sandy soil when highly cultivated and liberally manured with stable manure so that the moisture may be retained. It is customary to set the plants in rows 6 feet apart and about 3 feet in the row; but, in highly fertilized soil, it may be necessary to give a little more space between the rows.

The best fertilizer is well-rotted stable manure, but if this cannot be obtained, a high-grade commercial fertilizer may be freely used. Bone meal seems to be especially suited to the needs of the plants.

Clean cultivation through the whole season is especially important, and the cultivator should be set rather high so as to prevent the formation of too many suckers. In cold climates it may be necessary to protect the canes in winter, and the simplest plan is to bend them down along the row and cover with soil. This can be done late in the fall.

Black raspberries should be planted in rows 5 to 6 feet apart, and 3 1/4 to 4 feet apart in the rows. They are more hardy than the red raspberries and seldom need winter protection. The ends of the long canes should be pinched back to promote the production of side shoots and an increased crop of fruit.

The cultural directions for the other class will apply equally well to purple raspberries; but the canes need not be pinched back in the spring. They are very vigorous and, if permitted to grow, will often produce a good crop when both the red and black varieties fail.

Gherkin

The burr, or gherkin, is a distinct species of cucumber which comes from the West Indies. It is used exclusively for pickling. It is very small, two to three inches in length. The vines should be planted five feet apart, and cultivated as other cucumbers.

Hemp

The region for hemp growing in the United States is comparatively limited. It is raised here for its fibre used in making ropes and also as strong warp for carpets. Any soil adapted to corn can be used for growing hemp. It is sown broadcast and is ready to harvest in a trifle over three months. It is cut by hand in the same manner corn is cut. If retted or rotted by the dews or rains where it lies on the ground, the fibre is gray and harsh. If retted in water the fibre is soft, lustrous, and creamy white. It is a most exhaustive crop, unless the waste products are returned to the soil. Four to six pecks of seed to the acre is the amount usually sown if a crop of fibre is desired. If grown for hempseed it should be planted like corn, using half the amount of seed.

Horseradish

No more profitable market-garden crop can be found, as a second crop, than horseradish. It is a hardy plant, makes its main growth in the fall, and usually need not be dug until December. To secure roots for planting, all small roots are broken off of the main root when it is prepared for market in the winter. The rootlets, or sets, should be cut in pieces about five inches in length and a quarter to half inch in diameter. If the top end is cut square and the root end slanting it will guide one in planting to insure the right end being placed uppermost in the ground, developing a more symmetrical root. The sets may be tied in bundles and stored in a cool cellar or pitted in the open ground. Early in May the horseradish sets may be planted between the rows of early cabbage or beets, placing the top of the set two or three inches under the surface of the soil, so that it may not come up until after the cabbage has been harvested.

TABLES OF WEIGHTS, MEASURES, WOODS, HEAT, COLD, WAGES, Etc.

Value of Indian Meal.

As a food, **100** pounds of Indian meal is equal to the following:

Name of Article.	Amount in Pounds.
White Turnips	1,200
Beets	900
Cabbage	700
Carrots	700
Rye Straw	666
Ruta Bagas	625
Wheat Straw	500
Oat Straw	400
Corn Stalks	333
Timothy Hay	200
Earley	111
Rye	90
Oats	83
Wheat	76
Beans	60
Oil Cake	40

Decay of Stumps.

Kind of Stump.	Time of Decay in Years.
Pine	200
Cedar	9 to 18
Hemlock	9 to 15
Spruce	7 to 14
Hickory	6 to 10
Maple	5 to 18
Oak	5 to 8
Ash	5 to 8

Weight of Lumber.

Different kinds of seasoned lumber contain the following number of pounds in 1,000 feet.

Kind of Lumber.	Pounds.
Pitch Pine	4,150
Maple	4,000
Beech	4,000
Hickory	3,960
Locust	3,800
Dogwood	3,960
Cherry	3,720
Walnut	3,690
Oak	3,675
Ash	3,550
Cypress	3,350
Elm	3,220
Chestnut	3,170
Red Pine	3,075
Poplar	3,056
Birch	2,950
Cedar	2,925
Yellow Pine	2,890
White Pine	2,880
Willow	2,780
Norway Spruce	2,670
Hemlock	2,350
Butternut	1,900

Per Cent. of Sweet.

Name of Article.	Per cent of Sweet
Sugar Cane	18
Sugar Beet	10
Sorghum	9½
Corn in Tassel	3¼
Maple Sap	2½

Lumber Required

To build a mile of board fence, ordinary width of board:

1 board high.....	2,640 feet
2 boards "	5,280 "
3 " "	7,920 "
4 " "	10,560 "
5 " "	13,200 "

Pounds Per Acre.

The following is about the number of pounds of each which may be grown on an acre:

Name.	Pounds Per Acre.
Mangel Wurzel.....	22,100
Parasnisps	11,100
Cabbage	10,800
Turnips	8,500
Apples	8,500
Potatoes	7,600
Carrots	6,900
Pears	5,100
Hay	4,000
Onions	2,700
Cherries	2,000
Plums	2,100
Beans	2,200
Peas	1,900
Oats	1,800
Barley	1,650
Wheat	1,200
Hops	400

Age Attained by Birds.

Name.	Age Attained in Years.
Heron	60
Pelican	50
Sparrow Hawk.....	40
Skylark	30
Crane	24
Linnet	23
Nightingale	18
Lark	18
Blackcap	15
Goldfinch	15
Partridge	15
Pheasant	15
Robin	12
Blackbird	12
Thrush	10
Wren	3

Constituents of Milk.

Of **1,000** parts of milk there are various constituent substances as follows.

Constituents.	Number.
Water	840
Milk-Sugar	45
Butter	40
Casine	40
Phosphate of Lime.....	17
Chloride Potassium.....	9
Phosphate Magnesia.....	4
Free Soda	3
Common Salt	3

A Quartette of the Newer Fruits

Alligator Pear

The alligator pear, also known as aguacate, avocado, midshipman's butter, etc., is the fruit of a tree native to tropical America, but now widely grown throughout tropical countries. There is an increasing production of this fruit in southern Florida, both on the mainland and the Keys; also in the milder regions of southern California. The West Indian type, which is the only one found in the markets of eastern United States, yields a fruit about the size of the largest pears. The varieties differ considerably in form, and range from deep purple to light green in color. Generally speaking, they are not unlike a medium-sized egg-plant fruit in form and appearance. The portion eaten is a pulp which surrounds a single large seed. In texture the pulp is soft and somewhat like butter, and is perhaps most commonly used for salad making. The Mexican type of alligator pear, which is now grown in California and Florida, is a smaller tree and yields a much smaller fruit. It is, however, reported to endure several degrees of frost, whereas the West Indian

type is injured by a temperature of 32 degrees Fahrenheit. The average weight of the avocados is about three-fourths pound each. The edible portion or pulp constitutes on an average 71 per cent, the seed 20 per cent, and the skin 9 per cent of the entire fruit.

Peen-to Peaches

The Peen-to peach belongs to a group of peaches that is essentially adapted to sub-tropical conditions. The group is limited in its adaptations in this country to the States of Florida, Louisiana, Mississippi, Alabama, and the coast regions of Texas. It seems especially suited to Florida conditions, and is therefore of unusual value to that State, since the varieties of peaches which flourish in orchards farther north are nearly always failures when grown in Florida.

Roselle

The roselle is the fruit of Hibiscus sabdariffa, a widely distributed tropical plant, which yields the roselle fiber of commerce. As grown in Florida and California it is an herbaceous an-

nual. The plants are grown from seed in spring, and require a long season free from frost to mature. Under favorable conditions they produce a very heavy, continuous crop of blossoms in the latter part of the summer and autumn. The fruits, which somewhat resemble okra or gumbo in form, though they are much shorter in proportion to their size, are a dark, magenta red in color and are used for making jellies and preserves, which are of a beautiful red color and have a flavor suggesting that of the cranberry. The roselle may be grown in conditions where the ordinary hibiscus flourishes.

Surinam Cherry

The Surinam cherry, sometimes called pitanga, is the fruit of a tropical shrub, native to Brazil and other tropical regions of South America. This shrub, which attains a height of about 20 feet, is grown to a limited extent in southern Florida and southern California. The fruit is about the size of an ordinary cherry, is roundish oblate in form, ribbed, bright red in color, and of a sharp but pleasant acid flavor. It is somewhat used for domestic jelly making.

Angora Goats

The raising of Angora goats has become one of the distinctive industries of Texas, where it is found most profitable. In Iowa and other States this goat is introduced on land to be cleared, as it will clean up all underbrush and shrubbery in two years.

Average Period of Incubation

Chickens	20-22 days
Geese	28-34 days
Ducks	28 days
Turkeys	27-29 days
Guinea fowls	28 days
Pheasants	25 days
Ostriches	40-42 days

Plant One Acre

Currants and Gooseberries	
6 by 3 feet apart.....	2,420
6 by 4 feet apart.....	1,815
Raspberries and Blackberries	
6 by 3 feet apart.....	2,420
7 by 3 feet apart.....	2,075
Strawberries	
3 by 1½ feet apart.....	9,658
3½ by 1½ feet apart.....	8,260

The Most Profitable Berry Plant

STRAWBERRIES

How to Plant Cultivate And Grow Them

Of all the small fruits the strawberry is probably of the greatest commercial importance in this country.

During early Colonial days the wild strawberries of the field were abundant in North America and furnished a much-prized article of diet. Later on the plants were transplanted to the garden and under cultivation gave fruits of increased size.

The garden strawberries now so common in this country have come chiefly from the so-called Pine type of berries, imported plants of this type having been crossed with native American berries. The Pine type sprang from *Fragaria chiliensis*, a plant originally introduced into Europe from Chile, but now known to be native to the western mountain regions of both North and South America. The first native strawberries to be brought under cultivation, however, were those of eastern North America, which belong to the scarlet class, the species being known to botanists as *Fragaria virginiana*.

The garden strawberry is an American product which adapts itself to a wider range of latitude than any other cultivated fruit. It is universally liked as well as commercially important. As it will grow on almost any soil and is easily cultivated, no farm should be without its strawberry patch.

Many growers find the strawberry a very attractive subject for the propagation of new varieties. It is a plant which is readily propagated by seeds, which is, of course, the only means of securing new forms. And, fortunately for the breeder, the strawberry is provided with a means of self-preservation through the agency of stolons, or runners, which enables the grower to propagate any plant he may develop.

The commercial propagation of the strawberry naturally proceeds along two lines: (1) The production of standard and novel sorts in large numbers to be sold to local or distant purchasers; and (2) the production of a few standard kinds for the fruit crop.

In the first instance fruit production is only a side issue. The main crop is the plants. The aim is to get these as large and strong as possible, and to this end the ground is made rich and put in good tilth by frequent cultivation early in the season.

The home production of runners for one's own planting is another matter; here the fruit crop is the chief object and the production of runners prior to harvesting the fruit is discouraged. The difficulty with this method is to secure strong, well-developed plants for August and September planting. When the main planting is done in the spring the earliness of the plants is of less importance. In favorable seasons, however, strong plants for August and September planting can be secured even in the New England states.

When to Set the Plants

Field practices in the cultivation of strawberries vary in different sections of the country to conform to climatic and soil conditions. The factor most influenced by conditions of soil and climate is the time of setting. In some sections the rainfall will permit of either spring or autumn planting, while in other equally good strawberry-producing regions, plants can only be successfully set during the fall. The demands of the market also influence the date of field planting.

The land to be devoted to the growing of strawberries should, if possible, be planted in a cultivated crop, such as potatoes, beans, or corn, at least one year previous to setting the plants, in order that the larvae of such insects as wireworms, white grubs, cutworms, etc., may be as completely eliminated as possible. Sod land is a favorite breeding ground for such insects, and should therefore be avoided unless it be new clover sod, which can be turned under with good results.

In general there are only two seasons for planting—spring and fall—but in some localities spring planting should be done in April or May by the use of the preceding season's plants, while in others

Sample Strawberry

it may be done in June from the crop of runners of the same season.

In irrigated regions planting can be done at whatever season the work will give best results in future crop production. In humid regions rainfall is a determining factor.

Suggestions for Planting

There is no plant that adapts itself so well as the strawberry to all conditions and to all sorts of soil, whether loam, sand or clay. Good drainage is absolutely essential, but the plants should have a reasonable amount of moisture.

Avoid setting the plants in land that has been for a long time in grass, for in such places you will find the larvae of the May beetle, which are extremely destructive to small plants. The soil cannot be made too fertile, and the richer it is made, and the more humus you can get into it, the better will be the crop. Stable manure is probably the best fertilizer that can be used, although there is an objection on account of the grass seeds which may be brought in. If commercial fertilizer is used it can be made at home, and the following formula is probably the best: Acid phosphate (16 per cent), 900 lbs.; nitrate of soda, 100 lbs.; fish-scrap, 600 lbs.; sulphate of potash, 400 lbs. This will make a ton. This fertilizer should be applied broadcast and worked well into the soil before plants are set, or applied as a top-dressing and worked into the soil after the plants have started to grow. Don't put directly under the plants when setting, as thousands upon thousands of strawberry plants have been killed in this way.

Depth to Set the Plants

No plant which the gardener has to handle is more exacting in regard to depth of planting than the strawberry. As the plant is practically stemless, the base of the leaves and the roots being so close together, care is required to avoid setting the plant so deep that the terminal bud will be covered or so shallow that the upper portion of the roots will be exposed, either being a disadvantage which frequently results in the death of the plant.

System of Planting

There are two general systems of planting strawberries. In the first the plants are set in hills and can be cultivated in both directions; the other allows more freedom and the plants spread and form a broad belt or row called a "matted row."

In the hill system of culture the strawberry plants are set singly either 3 by 3 feet apart, or with the rows 4 feet apart and the plants 2 feet apart in the row, depending upon the character of the soil and the length of time the plantation is to be maintained.

In Florida a common practice is to lay the land off in broad beds 8 to 12 feet wide, the rows of plants to run lengthwise of the beds, the rows 24 inches apart, with the plants 18 inches apart in the rows. Such beds afford sufficient drainage and hold the mulch better than narrow beds or raised rows, and the space between the plants admits light to all sides of the plant, which is an

Protect Strawberries in Winter

advantage in coloring the fruits. The hill system raises the plant somewhat and admits of more intensive cultivation than does the matted row.

Planting in Matted Rows

In order to maintain a belt of plants 12 to 18 inches wide (a convenient width), and still have space between the belts for cultivation and the other operations necessary to the successful management of a plantation, the rows at planting time should be much farther apart than is necessary with the hill system.

A common practice is to set the plants in single rows 4 feet apart, with the plants 12 inches apart in the row. The runners which develop from these plants are then allowed to take possession of the area for 6 to 9 inches on either side of the original plants, thus making a matted row 12 to 18 inches wide; this leaves 30 inches between the rows, which allows ample space for cultivation and gathering the fruit. This space can be reduced from 30 inches to as little as 18 inches where land is valuable and it is necessary to secure maximum returns; on thin soil, however, the greater distance is most satisfactory.

There is one advantage in the narrow cultivated space. After the second crop has been harvested the runners can be allowed to take possession of the cultivated middle, and when the young plants become thoroughly established the original rows can be broken up with a narrow turning plow or sharp cultivator. In this way a patch can be very satisfactorily and cheaply renewed and by the liberal use of suitable fertilizers the rotation can be kept up on the same soil for several years.

Some planters prefer to set the plants for the matted row in a double row at planting time. The practice is to establish two rows 12 inches apart, 6 inches on each side of the center of the matted belt, setting the plants 2 feet apart in each row and alternating the plants in the row, so that the plants actually stand a little over a foot apart.

Cultivation

Clean and shallow culture are the watchwords of successful cultivators. Growers have come to realize that cultivation means more than the destruction of weeds. Cultivation has a beneficial influence upon the soil by loosening it and making it more easily penetrated by moisture in the form of rain or dew. A better stand of plants can be maintained during a dry period on well-tilled ground than upon ground that is poorly cultivated.

Mulching

Covering the surface of the soil with dead or decaying vegetable matter is the meaning of the term mulching as here used.

Mulching in strawberry culture serves different purposes, depending upon the locality in which the plants are grown. A mulch acts as a protection from cold, prevents freezing and thawing and the consequent lifting of the plants ("heaving out"); it retards growth in cold regions by shading the crowns and maintaining a low soil temperature longer than in soil not mulched; it acts as a conservator of moisture, discourages weed growth by smothering the young seedling, and finally protects the fruit from contact with the soil.

The materials which can be used in mulching are various, but their value depends largely upon their freedom from weed seeds and their fitness to protect the plants without smothering them. Whole or cut straw free from grains, strawy manure from the horse stable, and pine straw from the forest are among the more common mulching materials. In certain sections marsh hay, either from fresh or salt water marshes, is a common and very satisfactory mulching material.

Protect in Winter

It is advisable in the middle states and in the North in general to protect the plants in winter. A mulch in the late fall should be applied, just enough to cover the crowns of the plants. With the earliest start of the leaves in the spring, the mulch should be pulled back from the plants and left on the beds to keep the fruit clean. After the mulch is off, and before the fruiting season, keep a sharp lookout for weeds that will start in the rows. After the plants have fruited, the space between the rows should be cultivated to prevent evaporation of moisture, keep the plants growing, and kill weed growth. And this loose mulch should be maintained through the remainder of the season.

The varieties of strawberries best adapted to any particular locality can be readily ascertained by inquiry of the nurserymen who supply strawberry plants. The question of the adaptability of varieties for the various fruit sections of the United States has been carefully worked out by the experts of the American Pomological Society and their recommendations can be easily secured by anyone desiring to grow strawberries on a commercial basis.

The government is making extensive experiments at Sitka as to the strawberries which flourish best in Alaska.

VARIOUS FERTILIZERS

Pure Animal Manures—Pulverized

Convenient, compact, high grade natural manures dried and ground or pulverized, very nutritious, immediate and lasting in effect. Excellent for mixing with the soil for plants. In the vegetable garden they promote a rapid, steady growth until maturity. They make a rich Liquid Manure.

Quantity Required. For garden and field crops, 1 to 2 tons per acre— $\frac{1}{2}$ before plowing; the balance before harrowing. For top-dressing grass, use 1 ton per acre, applied in fall or early spring.

Sheep Manure Pulverized. Price, 50 lb. bag, \$1.25; 100 lb. bag, \$2.00; per ton of 2,000 lbs., \$30.00; in packages of 2 lbs., 15c. (P. P. 2½ lb.), 5 lbs., 30c. (P. P. 5½ lb.); 10 lbs., 50c. (P. P. 11 lb.).

Horse Manure Dried and Ground. Price, per 100 lb. bag, \$2.50; 500 lbs., \$10.00; per ton of 2,000 lbs., \$36.00.

Ashes—Canada Hard Wood

Drives away insects and improves the texture of the soil; indispensable for all crops requiring potash; very beneficial for garden and field crops, grass lands and lawns. (Guaranteed Analysis).—Total Potash, to 5%; total Phosphoric Acid, 1 to 3%. Apply 1 to 2 tons per acre, as one heavy application is better than the same quantity put on in fractions.

Price per bbl. of about 200 lbs., \$2.75; per ton of 2,000 lbs., in bbls., \$25.00. Special prices in bulk.

Nitrate of Soda

Valuable solely for the nitrogen it contains. It is chiefly a stimulant, used in addition to other fertilizers. It is quick in action and hastens crops to maturity, being extremely soluble, it is easily applied after the plants are above ground. Price per 5 lb. package, 35c. (P. P. 5½ lb.); 10 lb. package, 60c. (P. P. 11 lb.); 25 lb. bag, \$1.25; 50 lb. bag, \$2.25; 100 lb. bag, \$4.00; 200 lb. bag, \$7.00; per ton, \$65.00. Quantity required, 100 to 500 lbs. per acre. Liquid, 5 lbs. to 80 gals. of water.

Lime and Land Plaster

Land Plaster or Gypsum. Valuable for soils requiring lime and sulphate; also good on grasslands and sour soils. Price, 100 lb. bag, \$1.00; \$16.00 per ton. Quantity required. One to two tons per acre.

Lime Air Slaked. Price, 100 lb. bag, \$1.00; per ton of 2,000 lbs., \$16.00.

Fertilizing Constituents

Basic Slag. Price, 200 lb. bag, \$2.75; per ton of 2,000 lbs., \$21.00.

Kainit or German Potash Salt. 12½% actual potash and 33% common salt. Used chiefly for its potash value. Price, \$1.60 per 100 lbs.; 200 lbs., \$2.35; ton of 2,000 lbs., \$19.00.

Acid Phosphate or Dissolved S. C. Rock. 14% available phosphoric acid. 100 lbs., \$1.50; 200 lbs., \$2.75; per ton, \$20.00.

HOW KILL
THISTLES

CANADA THISTLES

TELLS HOW
IT IS DONE

Herewith Is Given the Method for Extermination

The Greatest Weed Pest

Diagram showing the characteristic growth of the Canada thistle. The shoots are illustrated in various stages of development, from the most advanced down to buds just starting from the roots.

Methods of Distribution and Means of Preventing It

The Canada thistle spreads into new localities, from farm to farm, and even from field to field on the same farm, largely by its seeds. These seeds are smooth, brown, about one-eighth of an inch long, and nearly cylindrical, being a little pointed at one end. Each seed has a tuft of hairs called a pappus. The time of seeding extends from July to October. The principal ways in which the seeds are scattered are as follows:

Wind and Water

After the seeds mature they are easily detached from the heads by the wind and are scattered over the surrounding country. They are also carried by run-off water down hillsides and by streams. Water transportation becomes a special danger in irrigated districts.

Small Grains and Straw

Mature thistle seeds are often harvested with small grains, but are usually separated from them in thrashing. It is often advisable, however, to reclean such small grain as is to be used for seed, especially in the case of oats. The thistle seeds are carried over into the straw stacks and from them through the manure to the fields; but if such manure is left in piles for several months practically all the seeds will be decomposed. Harvesting machines often carry the seeds to other fields and thrashing outfits carry them from farm to farm.

Hay

If hay is cut sufficiently early, when the thistles are just starting to bloom, there will be no danger of their maturing seed. If farmers let their hay stand too long, they not only diminish its value but permit the thistle to form seed.

Grass and Clover Seed

Although of infrequent occurrence, the seeds of Canada thistles are sometimes found in grass and clover seed, especially in alsike clover and Canada bluegrass. It is not difficult to detect their presence by the use of a hand lens after a little practice. If in doubt a farmer may send a sample to his State experiment station or to the United States Department of Agriculture, Washington, D. C., for analysis. Farmers' Bulletin 428, entitled "Testing Farm Seeds in the Home and in the Rural School," is of great assistance to farmers in detecting the presence of weed seeds in commercial seed.

Methods of Killing Canada Thistles

After this weed has obtained a foothold the best way to eradicate it is to prevent it from sending up top or above-ground growth, which finally causes the roots to die. This is the basic principle which must be kept in mind at all times. The top of the plant serves much the same purpose as the lungs of animals, so that if the plant is continually deprived of that vital part it must soon die.

There are a number of ways of keeping down the top growth. The best method for each case will depend on the farmer's rotation and convenience. Any practicable method will do. The man is of far more importance than the method. Many farmers make a start to kill the thistle, but abandon their efforts too soon. It is probably no exaggeration to say that 95 per cent of the efforts to kill thistles are failures.

An Experience in Killing Thistles

Mr. Oscar Montgomery purchased a farm in Fulton County, Ohio, at a comparatively low price because it had become badly infested with thistles; every field contained patches of the weed.

It was the general opinion in the community that the thistle had come to stay—that it was a dispensation of Providence that could not be altered. The new owner, however, knew the situation and prepared to meet it.

He wrote to the Department of Agriculture for information on the control of the thistle and was supplied with a statement giving the experience of various farmers in killing this weed. With this, supplemented by his own experience, he outlined a plan of attack. As the efforts of most farmers to kill this weed are unsystematic and lack persistence and the insufficient treatment usually given it, far from reducing its vigor, actually stimulate it to increased growth, he directed all his effort toward the prevention of top or above-ground growth, since only a little top growth is usually sufficient to prolong the life of the thistle until the next year.

The various fields were to be devoted to corn, oats, wheat, hay, and pasture. The first field, of which about 3 acres were thickly set to thistles, was planted in corn in check rows, so as to permit thorough cultivation.

He replaced the cultivator shovels with 9-inch sweeps, thus having an instrument which acted as a series of knives run just under the surface. This is effective, if the edges are kept sharp, in cutting

Canada Thistles May Be Eradicated

off the stems of weeds. Mr. Montgomery found this implement largely responsible for the work of killing out the thistles in his cultivated crops. Some soils are too stony or otherwise unsuitable for this implement. In such cases reliance will have to be put on the ordinary cultivators, and such thistle tops as slip through between the teeth should be cut down with a hoe.

Mr. Montgomery could use this tool only until the corn was laid by, however, and since at that time many thistles were still growing, he modified his plan of attack, but never lessened its vigor. Having the locations of the thistle patches well in mind, he went over them with a hoe, cutting all the tops below the surface of the ground. At the start it was necessary to visit the patches rather frequently (about once a week), but as the season advanced the intervals became less frequent. Assisted by his two children he would attend to it at some odd hour when other work was not pressing. It required about an hour's work each time. He considered it as one of the numerous chores about the place.

Thistle Killed in One Year

After the corn crop was taken off this field was plowed. In the spring it was again planted in corn for the purpose of locating and killing any stray plants that might have persisted, but somewhat to his surprise not a thistle top appeared in the field. The weed had been killed in one season with a little extra work.

A second field was left in pasture during 1911. On the advice of the Department of Agriculture about two acres of this field that were most thickly infested, together with a small infested area in an adjoining meadow, were plowed in June just before the thistle blossomed. After that this plowed area was gone over frequently with a disk and no tops were permitted to appear. About two diskings a week were required at the start, but gradually they became less frequent, until toward the close of the season one in two weeks was sufficient. In 1912 this area was allowed to come up to a volunteer growth and not a thistle top appeared—a second example of eliminating the weed entirely in one year. Since this area was originally so full of thistles as to be practically worthless, the owner did not consider that the following cost him the use of the land. This following is best done in the latter part of the season, beginning about the time thistles start to blossom. It may be done on pasture land or may immediately follow hay or grain harvest. It is usually best to follow this treatment with a cultivated crop the next year to kill any of the weeds that may persist.

To Prevent the Thistle Seeding

A third field was planted to oats. Before they started to blossom the owner cut the most thickly infested patches, oats and all; where the thistles were less numerous he cut down the tops with a sharp hoe. The result was a crop entirely free from thistles. Early in the spring this field was seeded to grass and clover. The same procedure was followed in this case as with the oats, and a clean crop of hay resulted. Mr. Montgomery did not expect that this treatment would kill the thistle. His object was to produce clean crops, prevent the thistle from seeding, and weaken its vitality as much as possible. He intended this treatment to hold it in check until the field should be planted to a cultivated crop.

Though a great deal of labor was required the first year, the result was so successful that the work the second year did not amount to more than two days' work for one man.

The principal point in the extermination of Canada thistles is one that it seems hard for many farmers to grasp—that is, that it must be kept in mind and attended to on time and faithfully. Once begun, it must be continued till the thistle tops cease to appear.

Several other methods are recommended by the United States Department of Agriculture. In using any of them the farmer should never lose sight of the all-important point of keeping down the top growth at all times, in order to exhaust the root.

Growing Smother Crops

Among the crops adapted to the purpose of smothering Canada thistles are alfalfa, clover, the grasses, millet, sorghum, hemp, buckwheat, and small grains. Their effect is not only to restrict the top growth of the thistles by shading them, but also to crowd the roots. The land should be occupied by such crops at all times, so that the thistle has no chance to make a recovery. This method seems to be the best adapted to the deeper and more productive soils, where such crops grow well and where the thistle is apt to persist for a longer period than on the shallower and less productive soils. Alfalfa is probably best for this purpose. Good grass and clover stands have also been known to rid fields of thistles. This method is not as sure in its results as clean cultivation, and seems to be of most value in giving the weed a setback more or less severe, which renders easier the work of clean cultivation that should follow.

Salting Thistles in Pastures

The method of salting thistles in pastures is adapted to small patches accessible to live stock, especially sheep. In their effort to get the salt the stock nibble the thistles and trample them to death. It seems best to let them grow until they start to bloom and then cut off the tops close to the ground and apply a small handful of salt to each new shoot that springs up.

Spraying With Chemicals

Experiments for the purpose of permanently eradicating this weed by the application of plant poisons have not proved very practicable. Although the tops may be injured more or less, the plants make a renewal growth at once. Hence, it appears at present that about the only value of this method is in preventing the thistle from maturing seed in grain fields, thereby being a substitute for cutting. It may be that under certain conditions spraying would be better than cutting, as in the vast grain fields of the semi-arid West. The best materials for this purpose seem to be solutions of common salt, iron sulphate, and arsenite of soda, which is poisonous to man and live stock.

Methods on Waste Lands

The Canada thistle commonly occurs along roadsides and fences, in woodlands, and on other uncultivated lands, where it matures seeds, thus being a menace to the surrounding country. In many cases about all that can be done is to prevent seed from maturing by cutting off the tops at or below the soil surface just as blossoming starts. It will usually be necessary to make two cuttings a year to prevent seeding. Thistles in such locations can be entirely eradicated, however, by continually cutting off the tops until the roots are exhausted.

Summary

Canada thistles can be eradicated in a comparatively short time with little or no loss in the use of the land. The length of time required varies inversely with the thoroughness of the work.

In dealing with this weed the following three rules must never be lost sight of:

Easiest Way to Kill Thistles

(1) The easiest way of killing Canada thistles is to deprive them of their tops continually, thus exhausting the roots. There are various methods of keeping down the tops; there is no one best method. Each field presents a problem in itself and must be handled according to circumstances. Usually some form of clean cultivation is the best, either with a crop or by bare fallow.

Follow Systematic Plan

(2) Outline a systematic plan of attack.

(3) Keep the plan in mind at all times and follow it faithfully.

Farmers Should Acquaint Themselves with Farm Subjects

Bulletins in this list will be sent free, on application to the Secretary of Agriculture, Washington, D. C. Because of the limited supply, applicants are urged to select only a few numbers, choosing those which are of special interest to them. Residents of foreign countries should apply to the Superintendent of Documents, Government Printing Office, Washington, D. C., who has these bulletins for sale. Price, 5 cents to Canada, Cuba, and Mexico; 6 cents to other foreign countries. The bulletins entitled "Experiment Station Work" give briefly the results of experiments performed by the State experiment stations.

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27.	Flax for Seed and Fiber.	155.	How Insects Affect Health in Rural Districts.	233.	Experiment Station Work.
28.	Weeds: And How to Kill Them.	157.	The Propagation of Plants.	234.	The Guinea Fowl.
30.	Grape Diseases on the Pacific Coast.	158.	How to Build Small Irrigation Ditches.	236.	Incubation and Incubators.
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51.	Standard Varieties of Chickens.	169.	Experiment Station Work.	243.	Fungicides and Their Use in Preventing Diseases of Fruits.
52.	The Sugar Beet.	170.	Principles of Horse Feeding.	244.	Experiment Station Work.
54.	Some Common Birds.	172.	Scale Insects and Mites on Citrus Trees.	245.	Renovation of Worn-out Soils.
55.	The Dairy Herd.	173.	Primer of Forestry. Part I: The Forest.	246.	Saccharine Sorghums for Forage.
56.	Experiment Station Work.	174.	Broom Corn.	248.	The Lawn.
61.	Asparagus Culture.	175.	Home Manufacture and Use of Unfermented Grape Juice.	249.	Cereal Breakfast Foods.
62.	Marketing Farm Produce.	176.	Cranberry Culture.	250.	The Prevention of Stinking Smut of Wheat and Loose Smut of Oats.
64.	Ducks and Geese.	177.	Squab Raising.	251.	Experiment Station Work.
65.	Experiment Station Work.	178.	Insects Injurious in Cranberry Culture.	252.	Maple Sugar and Syrup.
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73.	Experiment Station Work.	181.	Pruning.	254.	Cucumbers.
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81.	Corn Culture in the South.	186.	Experiment Station Work.	258.	Texas or Tick Fever and Its Prevention.
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85.	Fish as Food.	190.	Experiment Station Work.	260.	Seed of Red Clover and Its Impurities.
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88.	Alkali Lands.	193.	Experiment Station Work.	263.	Practical Information for Beginners in Irrigation.
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93.	Sugar as Food.	196.	Usefulness of the American Todd.	267.	Experiment Station Work.
96.	Raising Sheep for Mutton.	197.	Importation of Game Birds and Eggs for Propagation.	269.	Industrial Alcohol: Uses and Statistics.
97.	Experiment Station Work.	198.	Strawberries.	270.	Modern Conveniences for the Farm Homes.
99.	Insect Enemies of Shade Trees.	200.	Turkeys.	271.	Forage Crop Practices in Western Oregon and Western Washington.
101.	Millets.	201.	Cream Separator on Western Farms.	272.	A Successful Hog and Seed-corn Farm.
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120.	Insects Affecting Tobacco.	213.	Raspberries.	280.	A Profitable Tenant Dairy Farm.
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126.	Practical Suggestions for Farm Buildings.	220.	Tomatoes.	283.	Spraying for Apple Diseases and the Codling Moth in the Ozarks.
127.	Important Insecticides.	221.	Fungous Diseases of the Cranberry.	284.	Insects and Fungous Enemies of the Grape East of the Rocky Mountains.
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133.	Experiment Station Work.	224.	Canadian Field Peas.		
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137.	The Angora Goat.	227.	Experiment Station Work.		
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139.	Emmer: A Grain for the Semi-arid Regions.	229.	The Production of Good Seed Corn.		
140.	Pineapple Growing.	231.	Spraying for Cucumber and Melon Diseases.		
142.	Principles of Nutrition and Nutritive Value of Food.				
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150.	Clearing New Land.				
152.	Scabies of Cattle.				

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287.	Poultry Management.	358.	A Primer of Forestry. Part II. Practical Forestry.	421.	The Control of Blowing Soils.
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290.	The Cotton Bollworm.	361.	Meadow Fescue: Its Culture and Uses.	424.	Oats: Growing the Crop.
291.	Evaporation of Apples.	362.	Conditions Affecting the Value of Market Hay.	425.	Experiment Station Work.
292.	Cost of Filling Silos.	363.	The Use of Milk as Food.	426.	Canning Peaches on the Farm.
293.	Use of Fruit as Food.	364.	A Profitable Cotton Farm.	427.	Barley Culture in the Southern States.
294.	Farm Practice in the Columbia Basin Uplands.	365.	Farm Management in Northern Potato-growing Sections.	428.	Testing Farm Seeds in the Home and in the Rural School.
295.	Potatoes and Other Root Crops as Food.	366.	Experiment Station Work.	429.	Industrial Alcohol.
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298.	Food Value of Corn and Corn Products.	368.	The Eradication of Bindweed, or Wild Morning-glory.	431.	The Peanut.
299.	Diversified Farming Under the Plantation System.	369.	How to Destroy Rats.	432.	How a City Family Managed a Farm.
301.	Home-grown Tea.	370.	Replanning a Farm for Profit.	433.	Cabbage.
302.	Sea Island Cotton: Its Culture, Improvement and Diseases.	371.	Drainage of Irrigated Lands.	434.	The Home Production of Onion Seed and Sets.
303.	Corn Harvesting Machinery.	372.	Soy Beans.	435.	Experiment Station Work.
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306.	Dodder in Relation to Farm Seeds.	375.	Care of Food in the Home.	438.	Hog Houses.
307.	Roselle: Its Culture and Uses.	376.	Game Laws for 1909.	439.	Anthrax.
309.	Experiment Station Work.	377.	Harmfulness of Headache Mixtures.	440.	Spraying Peaches for the Control of Brown-Rot, Scab, and Curculio.
310.	A Successful Alabama Diversification Farm.	378.	Methods of Exterminating the Texas-fever Tick.	441.	Lepedeza, or Japan Clover.
311.	Sand-clay and Burnt-clay Roads.	379.	Hog Cholera.	442.	The Treatment of Bee Diseases.
312.	A Successful Southern Hay Farm.	380.	The Loco-weed Disease.	443.	Barley: Growing the Crop.
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320.	Experiment Station Work.	386.	Potato Culture on Irrigated Farms of the West.	448.	Better Grain-Sorghum Crops.
321.	The Use of the Split-log Drag on Earth Roads.	387.	The Preservative Treatment of Farm Timbers.	449.	Rabies, or Hydrophobia.
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331.	Forage Crops for Hogs in Kansas and Oklahoma.	396.	The Muskrat.	458.	The Best Two Sweet Sorghums for Forage.
332.	Nuts and Their Uses as Foods.	398.	Farm Practice in the Use of Commercial Fertilizers in the South Atlantic States.	459.	House Flies.
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335.	Harmful and Beneficial Mammals of the Arid Interior.	401.	The Protection of Orchards in the Pacific Northwest from Spring Frosts by Means of Fires and Smudges.	462.	The Utilization of Logged-off Land for Pasture in Western Oregon and Western Washington.
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		419.	Experiment Station Work.	479.	Experiment Station Work.
				480.	Practical Methods of Disinfecting Stables.
				481.	Concrete Construction on the Live Stock Farm.

* Bulletins being steadily increased in number. Write to Government for list of later bulletins.

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483.	The Thornless Prickly Pears.	497.	Some Common Game, Aquatic, and Rapacious Birds in Relation to Man.	514.	Experiment Station Work.
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487.	Cheese and Its Economical Uses in the Diet.	501.	Cotton Improvement under Weevil Conditions.	518.	Winter Barley.
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489.	Two Dangerous Imported Plant Diseases.	503.	Comb Honey.	521.	Canning Tomatoes at Home and in Club Work.
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491.	The Profitable Management of the Small Apple Orchard on the General Farm.	505.	Benefits of Improved Roads.	523.	Tobacco Curing.
492.	The More Important Insect and Fungous Enemies of the Fruit and Foliage of the Apple.	506.	Food of Some Well-Known Birds of Forest, Farm and Garden.	524.	Tile Drainage on the Farm.
493.	The English Sparrow as a Pest.	507.	The Smuts of Wheat, Oats, Barley and Corn.	525.	Raising Guinea Pigs.
494.	Lawns and Lawn Soils.	Washington: Government Printing Office: July, 1914.		526.	Mutton and Its Value in the Diet.
495.	Alfalfa Seed Production.	508.	Market Hay.	528.	Hints to Poultry Raisers.
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				531.	Darkspur, or "Poison-Weed."
				532.	Experiment Station Work.
				533.	Good Seed Potatoes and How to Produce Them.
				534.	Durum Wheat.
				535.	Sugar and Its Value as Food.
				536.	Stock Poisoning Due to Scarcity of Food.

INFORMATION FREE

Our readers will do well to send for booklets and circulars which advertisers in agricultural papers offer to send without charge. The literature they send, on application, contains a great amount of practical information which leads to an understanding of agriculture and kindred subjects.

We do not publish the entire list of Government Bulletins. They come out in large number during the year. Send to the Agricultural Department, Washington, D. C., for the later issues.

On our table are many valuable publications.

Among them are "The American Poultry Journal," Bowsfield's "Making the Farm Pay," "First Principles of Agriculture," "Gardening for Pleasure," "Gardening for Profit," Henderson's "Henderson's Picturesque Gardens," "How to Choose a Farm," "Soils and Crops," Hunt & Burkett's "Agriculture," "Success with Hens," Robert Joos; "The Back Yard Farmers," J. Willard Bolte; "Three Acres and Liberty," Bolton Hall; Mrs. Berry's "Golden Rule Poultry Journal," and other publications.

WE INTEND TO GIVE CREDIT

It is highly probable, in the many subjects we treat, that we have failed to give credit for passages quoted and illustrations we have used, as we cannot always recollect whence they came. As our attention is called to any omissions of this kind we will endeavor to rectify mistakes in subsequent editions.

To appreciate the liability to error in the preparation of this work let the reader consider the difficulty of so arranging the 43,000 towns mentioned in this work that the location of any one of these can be found in ten seconds; that the copy must be found and each one of the great variety of flowers

must be made true to nature and, as never before done, the description of planting, cultivating and color all placed before the reader in such brief space.

And further consider the task of getting forty-five different breeds of dogs together, the over seventy different breeds of domestic fowls and all the leading breeds of horses, cattle, sheep and swine, with descriptions of how to successfully care for them; and all the grains and fruits, alfalfa and bee-keeping. But see the index and then please carefully examine the book and see how highly probable it is that we have made some mistakes.

HOW TO PREVENT FLOODS

In 1888, Thomas E. Hill excavated a swamp to a depth of three feet, made of it a charming little three-acre lake and reclaimed several acres adjoining this body of water on a farm he owned at that time. This lake was filled with surface water from the first spring rains and from that time to this has been a feature of value and beauty on the premises.

The supposition had been that this water might become stagnant, but, agitated by winds blowing across it, it is always clear and fresh.

An important discovery was made following the making of this lake. During the dry weather, while the evaporation of moisture caused a falling in depth of water, it was not sufficient to make the lake dry, but it was sufficient to give a heavy second crop of hay on all the surrounding land.

Since the construction of this body of water many have been the values and pleasures resulting from it. Though small in area, it was immediately appropriated for boating; it became the home for warm water fish; it made a place for winter skating, a reservoir from which water could be obtained for watering trees and plants, and it has for years supplied a town of several hundred people with ice.

This little body of water is full of suggestions, among them being an admirable place for keeping waterfowl, the increased size of crops resulting from evaporation of moisture; the holding of water falling upon the soil, preventing its escape into

flood waters which devastate the lower lands; the reclaiming of low, wet, waste land and the beautifying of all properties where such lakes may be constructed.

How to secure the making of these water reservoirs is the question.

As yet no practicable method has been devised for preventing floods. Various plans are proposed, including principally the dredging and enlargement of rivers, but with the putting in of thousands of miles of drain tile every year, increasing the rapid outflow with every long rain, it is seen that unless some method is adopted that will hold the water where it falls upon the uplands, floods will become more and more a danger.

The description herewith given of this little lake is merely a suggestion. Mr. Hill does not tell how the thousands of water reservoirs in the uplands may be obtained. He rests his case by saying that the thousands of miles of tiling put in by farmers in draining their land is one cause of floods, and the remedy is to hold the water where it falls upon farm land.

Whether it would not be less expensive for the government to co-operate with farmers in making reservoirs to hold rainfall, rather than to annually spend millions of dollars in repairs after floods which do nothing to prevent floods in coming years, is a subject for consideration.

KIND TREATMENT OF ANIMALS AND TREES

Nosebag Abolished.

When ready to eat the noon meal the kind, thoughtful master of the horse provides opportunity whereby the animal may eat in comfort. The humane sentiment of your town should abolish the cruel nosebag.

American Elm

The streets about your premises may be bordered with American elm trees. The experienced forester of the town will trim those trees into graceful form. The necessity of his attention is seen in the lower part of the tree herewith.

CONSERVATORY WITH WINGS ATTACHED.—*From Lord & Burnham's Book of Plans.*

Inferior.

These two ears of corn represent the two types of farmers, one who is satisfied to produce the inferior.

Two
Kinds
Farm
Products

Superior.

The other is not content unless he exhibits the best. Determines always to excel, to do better.

Lessons for Thousands of City Families

FARMERS' BULLETIN 432, U. S. DEPARTMENT OF AGRICULTURE

By J. H. Arnold, Scientific Assistant, Office of Farm Management, Bureau of Plant Industry

Introduction

This is a record of the experience for 18 years of a city family that moved onto a farm in 1892. The father had been a lawyer by profession, the manager of a well-established business firm in one of the principal cities of the Middle West, and was earning a salary of \$3,000 a year. At 60 years of age, having been in business about twenty-five years, he was compelled on account of ill health to abandon his profession and business. There were 10 children in the family, ranging from 2 to 21 years of age, of whom 7 were boys.

Under these conditions, with available capital amounting to about \$10,000, which had been partly saved in business and partly received by inheritance, the family decided to buy a farm and attempt to solve the problem confronting them, namely, "to make a living, educate the children, and make a pleasant home." This paper tells how they satisfactorily solved the problem, and while this is not a story of typical farm life, it shows what courage, energy, business ability, and moderate capital may accomplish on a farm. The fact that this farmer has been successful without previous experience or special training, following systematically the ordinary cropping system and methods of tillage, with the exercise of good judgment, shows that the chances for success in farming are as good as in most business enterprises.

An attempt is made to present such facts about this farm as will enable the reader to comprehend under what conditions and by what means the results were accomplished; hence, a description of the farm and the methods of operating it will be given in some detail. It is not intended to indicate in this description ideal methods of farming. As a model of farm management from the standpoint of maintaining soil fertility and thus obtaining large crop yields this bulletin will have no special interest. The methods of keeping accounts have been the instruments through which this farmer has kept track of his business, but they are not given as model forms. The description given is rather for the purpose of enabling the reader to get the point of view and spirit of the family in meeting the problems of life and realizing their ideals on a farm.

It is believed that this farmer has, by his experience, answered the chief objections to farming as an occupation and to a farm as a place for establishing an ideal home. These objections, as usually stated, are that farming is not as remunerative as other occupations for the same ability and effort expended, that the family is deprived of desirable educational and social opportunities, and that the labor is too hard and uninspiring, especially for the women. The record will also show how some important social, economic, and technical farm problems have been worked out; for instance, the farm-labor problem, the household problem, the training of children in responsibility in management, and the doing of farm work in a way to meet the requirements of a normal social life and of cultivated intellectual tastes. It is also believed that a narrative of American farm life, such as this, will demonstrate not only the possibilities but the desirability and dignity of farming as an occupation.

While the owner of the farm wishes to avoid publicity, he is willing that the results of his experience be made known in order that other city men may feel safe in attempting to support and educate their families in this manner.

A diary and a financial record were kept on this farm for a period of seventeen years. The facts here given are based upon these records.

Description of the Farm

When the family began country life in 1892 the farm consisted of 300 acres in a much run-down condition. About 80 acres were added to the farm a few years later, making the entire farm consist

at present of 380 acres. It was an old farm, having been located and surveyed about the middle of the eighteenth century. The old house, which had been built about 100 years ago, was still substantial. In a remodeled form it is now the kitchen of a modern house. Much of the land had been allowed to grow up in bushes and young trees. The barns and fences were out of repair, so that the place as a whole presented a dilapidated appearance. The farm had been rented out and had produced a gross income of about \$700 a year.

The location is in the beautiful and fertile region known as the Shenandoah Valley, the middle section of the great Appalachian Valley which extends from the northeast corner of Pennsylvania to central Alabama. It is about 100 miles from a seaboard city and is accessible to railways leading to New York and to the large cities of the Ohio and Mississippi valleys. In this section there are now good turnpike roads. One of these passes the farm and leads to a shipping point 3 miles distant and to the county town of 3,500 inhabitants, $3\frac{1}{2}$ miles distant.

The soil here is residual, formed from a limestone of the Cambro-Silurian age, having a rich brown color and, according to the classification adopted by the Bureau of Soils of the Department of Agriculture, is a clay loam of the Hagerstown series.

Capital and Other Resources

The inventory taken January 1, 1892, showed that the land with improvements was valued at \$55 an acre, the whole farm and equipment being worth \$19,707. The debt on the farm, \$8,459, and money borrowed for fertilizer, \$220, made the total liabilities \$8,679, which, deducted from the above assets, left a balance of \$11,028, which constituted the "present worth" of farm and equipment at that date.

Arrangement of the Fields

The general management of the farm seems to have been well thought out from the first. The farm was laid out originally about as it appears at present, and with slight changes to fit conditions the cropping system was the same as now. It is divided into ten fields ranging from 18 to 44 acres in size, with 15 acres of woodland, and these fields are located on either side of a lane.

Special attention was given to laying out the farm. All the fields except one may be reached within 650 yards of the barnyard, and the last field is within half a mile. The fields are as long as can be arranged in accordance with the general farm plan. This is regarded as an important feature in the arrangement, since the time saved during the year in turning corners when plowing and in doing other farm operations is considerable. The gate to each field is placed at the corner nearest the barn, and workmen are required to leave implements at the gate when coming in from the fields. The lane leading to the fields is 30 feet wide; except for the wagon track it is grown up in bluegrass, so there is practically no waste on its account. A well, 80 feet deep, located in a farther field, supplies water by windmill to a cement trough, which is so placed that it furnishes water in two fields and may be reached easily through the lane from other fields.

Cropping System

The general crop history of each field has following system of rotation: Corn, wheat, wheat, grass for hay, pasture, corn. Usually two wheat crops follow in succession, and now and then if the stand of grass is not good it is plowed up, put into corn, and reseeded the next year to wheat. The crops raised on each field during 1910 being as follows: 1, pasture; 2, corn; 3, hay; 4, wheat; 5, wheat; 6, pasture; 7, wheat; and 8, pasture. This gives the following acreage of crops: Wheat, 95

The City Family's Help on the Farm

acres; corn, 40 acres; hay, 49 acres, including alfalfa; pasture, 78 acres, besides the permanent pasture.

There are thus 262 acres which have been farmed in the five or six year rotation for nearly seventeen years. During this time the division of crops, which have been run in rotation, has been on the average as follows: Corn, 47 acres; wheat, 80 acres; and hay and pasture, about 135 acres. It is to be added, however, that a field of 30 acres, which is now in orchard, was put in some field crop up to the time the trees were six or seven years old. The bearing orchard, 15 acres, is now 14 years old, and the remainder, 15 acres, is in 1 and 2 year old trees. The young orchard is in corn, making the total acreage of corn 55 acres.

On one field alfalfa was sown in the fall. The alfalfa was not able to crowd out weeds, especially the sorrel, which for a time threatened to take the crop. During the next spring and summer the field was disked twice and harrowed two or three times with a spring-tooth harrow, and in September a heavy coating of lime was applied as a top dressing. On September 23 the alfalfa was vigorous and the indications were that it would continue to thrive.

Water Supply and Sewerage

The barn lots, dwelling, and permanent pasture fields are supplied from a well near the premises. By means of a steam engine the water is lifted into a tank and distributed through pipes where needed. The dwelling is equipped with modern conveniences, such as bathroom, water-closet, lavatories, and hot water. The sewage is distributed through tiles in the orchard. The entire system was planned by the owner and the work done by labor on the farm.

Buildings

The buildings have been constructed from the point of view of economy in expense and convenience in use. There are good, substantial horse and cow barns. Their location has been planned in accordance with principles of economy in getting to the fields on the farm. The cow barn and lots are so placed that all the fields may be reached directly. Stock cannot interfere with other buildings and premises. Horses may be taken to the fields by opening one gate. The wagon shed is so constructed that the teams are simply driven through the shed and the wagons left standing in their proper places. No labor and time are consumed in pulling or pushing the wagons into place.

Labor

The System of Employment

The farm laborers, who are hired by the year, have families, and live in houses built especially for their use. One acre of ground goes with each of the houses for a family garden. Barn room and the necessary outbuildings for stock belonging to the laborers are also furnished.

The plan of housing laborers in separate quarters is followed, first, to secure privacy and freedom in the home and to relieve the household from extra labor. Second, experience shows that it is possible to secure better service by having men with families. This plan has been followed with but few exceptions from the first and has been quite satisfactory to the family and to the men. As a rule these men have been recruited from factories, railroads, and mines. They are secured by offering inducements not usually given on farms. Ten hours of labor, for instance, is all that is required, and usually a part holiday on Saturday. Sometimes a whole day is given as time off to work their gardens, etc. Any special service or extra good work is rewarded in some way.

The standard money wages paid is \$200 a year. In addition a dwelling, 1 acre of garden, one cow and pasture, and firewood are furnished. Remuneration beyond this is dependent upon the quality of service. If satisfactory service has been given during the first year \$25 extra is paid in cash and 5 barrels of corn to fatten hogs. After two years of satisfactory service \$50 in cash and 10 barrels of corn are given at the end of each year. If wheat is put in satisfactorily and the crop is good, 30 bushels of wheat in the mill is added to the income of the laborer's family. The laborer may keep as many fowls as he chooses, inclosed. He has the same area of garden as his employer's family and may sell as much as he likes from it.

This plan has enabled the majority of the laborers who have lived on this farm to accumulate a suffi-

cient amount of capital to take up farming for themselves. Some have become owners of farms. The employer takes pains to teach his men good farming methods.

At least one of the laborers is expected to have sufficient mechanical ability to do all needed repairing and to help with the construction of buildings on the farm. For this purpose there is a well-equipped blacksmith and carpenter shop. This provides work on rainy days and in the winter.

Relation Between Owner and Laborer

The proprietor takes a personal interest in the welfare of the laborer and his family. He holds that work cannot be secured unless the laborer is contented and gives his services cheerfully. Mutual goodwill develops when the employer is careful in the selection of his men and permits them to share in the general success of the farm. In 1909 the best laborer on the farm, the man longest in service, concluded to begin farming for himself. The employer bought 20 acres of land for him, which will be paid for in small sums, as he can afford to make payments.

Economical Use of Labor

The economical use of labor is one of the most serious problems in farming. This farmer has plans drawn for the remodeling of buildings, the changing of fences, and the erection of new buildings. "I make these plans as they come into my mind," he says, "and when labor cannot be profitably used in the fields it is employed in carrying out these plans. As a rule, I plan ahead for my farm work and find that it pays, since we lose no time, and labor can always be profitably employed."

During the winter of 1909-10 a new tenant house was planned by the owner and largely constructed by the regular farm labor, with such other help as could be obtained in the community. The large barn on the farm was built entirely by the men and boys of the family and two laborers.

Family Discipline and Occupation

The occupations and labor of the family are not arranged from the standpoint of economic results, but in accordance with the principle stated in the introduction—that of properly training the children and making the home pleasant.

In the home the children, from the time they were old enough to perform any service, have been required "to do something for the profit or welfare of the family before having any breakfast." The work done by the family in the house was systematized in such a way that each member when old enough assumed responsibility for some of the work. This system of training is adapted to the requirements of farm life. There have been developed on the farm, industries such as dairying, poultry keeping, gardening, orcharding, and general farming. At the present time one son makes the apple orchard his specialty. A daughter is responsible for the poultry and another for the marketing of produce and the bookkeeping. The mother does the cooking and superintends the dairy. The father superintends the whole farm, sees that crops are properly put in and cultivated, and that the stock is well cared for. He is in touch with every operation on the farm and inspects all the work that is done.

Special attention is given to the care of work-horses. Every evening the shoulders of work-horses are bathed with cold water. At noon in summer the laborers are given an extra half hour to unharness and re-harness the horses. As a result of this special care, sore shoulders on horses are seldom known on this farm.

The Housework Problem

No regular house servants are kept in the home. The work of housekeeping is done by the mother and two daughters. The laundry work is done outside. All heavy work, and such labor as caring for the garden, etc., is done by the men. The cooking arrangements are planned to economize labor and make it as easy as possible. A hot water tank is connected with the plumbing system, so that plenty of hot and cold water can be had at any time. This arrangement, combined with a large sink from which waste is carried to the sewer, eliminates most of the conditions which tend to make housework drudgery. Utensils are kept in their proper places, so that they can be reached with the fewest possible steps.

What Was Raised in the Garden

The Farm Garden

The garden, consisting of about 1 acre of land, is an important feature in the management of this farm. Besides the vegetables and small fruits for family use, the garden brings an income of about \$200 a year, the products being exchanged for groceries. This pays the expenses of the table. The principal money crops from the garden are kale, spinach, winter onions (sold in early spring), tomatoes, and cantaloupes. Kale and spinach are not common crops in this section and a ready market has always been found for them. Others, however, are beginning to raise kale on their own account, so that more spinach is now being raised on this farm. Prices have ranged from 40 to 60 cents a bushel for kale and 60 to 80 cents a bushel for spinach. From 250 to 300 bushels an acre is considered a good crop. Besides being raised for the market, kale is used as a general winter cover crop in the garden. On September 23 kale was coming up in all places not in regular garden crops. It is found that kale plowed under in the spring puts the ground in fine condition for cantaloupes.

A specialty has been made of raising late tomatoes to be put on the market when this fruit is scarce. Tomatoes are sold from this garden about the last of October and in November. Most of the products are sold by telephone to the merchants in the town and villages in the county.

What Grows in Garden

The acre of garden is sown each year about as follows, with the permanent small fruit and the asparagus bed, all in rows 160 ft. long:

- 1 row of grapes.
- 15 rows of spinach.
- 6 rows of kale.
- 10 rows late corn in roasting ear, to be followed by kale as a cover-crop.
- 4 rows cantaloupes, followed by cover-crop of kale.
- 1 row oyster plants.
- 3 rows of late tomatoes for October and November markets.
- 1 row of kale or spinach.
- 2 rows lima beans.
- 1 row celery.
- 2 rows early tomatoes.
- 1 row cabbage.
- 7 rows sugar beets.
- 11 rows winter onions.
- 2 rows late corn.
- 2 rows new strawberry bed.
- 3 rows cuthbert raspberries.
- Old strawberry bed 20 feet wide.
- 30 feet asparagus bed.
- 20 rows early potatoes.

A row of grapes occupies the space along the fence at one end of the garden. There are also four short rows outside. The vines are trimmed in winter, but receive no other special care. When the fruit is formed in early spring the bunches are bagged with 2-pound grocery bags, tied securely with a string about the base of the stem. It is stated that these bagged bunches will stay well preserved on the vines until frozen off. The bunches still hanging on the vines unbagged were badly diseased and rotted on September 23.

The Orchard

The 30-acre field now planted in orchard has 15 acres in the bearing stage. With the exception of a few old trees near the house this orchard is 12 to 14 years old. The trees were planted in the ordinary manner about 30 feet apart, cultivated in crops for six or ten years, then seeded to grass and clover. At two different times a bushel of wood ashes was put around each tree. This year manure was hauled between the rows and spread about 10 feet from the trees. Since it has been in grass the orchard has been pastured by sheep and hogs. The branches are thinned out in the dormant season, being trimmed mostly at the top. The trees are sprayed four times a year, twice for the San Jose scale and twice for the codling moth. There is a space of about half an acre with no trees. The orchard had become infested with the San Jose scale and the infested trees were cut out before the proprietor learned how to deal with this pest.

Reference to the table of receipts and expenditures shows that this orchard has been bringing in a substantial income for three years. Last year 800 barrels of apples were marketed at \$2.10 a barrel. The varieties grown for market are the Ben Davis and York Imperial. It is planned to increase the size of the orchard until it reaches about 100 acres.

Woodland and Permanent Pasture

About 30 acres of the farm in one tract is in forest, containing many large and valuable oak, hickory, elm, and walnut trees. One field, in which are many of these trees, is known as "The Refuge." Squirrels play without fear in this field. Where the trees have been thinned out in the woodland, bluegrass has come up luxuriantly, so that the greater part of three fields on the farm furnish fine pasture in the early spring.

Stock

In the inventory of January 1, 1905, 182 head of live stock were recorded, and on January 1, 1909, there were 200. Averaged for five years the proportion of different kinds of live stock is about as follows: Horses, 10; cows and stock cattle, 40; young cattle, 10; hogs, 35; and sheep, about 100. On the average about 160 acres remain in pasture. To show that this farm has about the right area in pasture, the following estimate of pasture area for each class of stock is given:

40 cows and stock cattle.....	80 acres
10 young cattle.....	15 acres
35 hogs	10 acres
100 sheep	40 acres
10 horses and colts.....	15 acres

160 acres

The dairy department of the farm maintains on the average 8 to 10 cows. Butter is made and sold in the local markets. It is found to be more profitable to buy young steers and keep them a year than to buy and feed the same year.

Sheep have always been kept on the farm and the profit in them is very satisfactory.

Ten horses and 2 or 3 colts are kept on the place. Seven horses are used for farm work and 3 for driving.

Tillage

Three-horse plows are run from 9 to 10 inches deep for both corn and wheat. No guessing is allowed on this point, since the furrows are measured frequently to see that the required depth is maintained. The ground for wheat is prepared in the following manner: As soon after harvest as possible the stubble ground is plowed. It is harrowed, then rolled and harrowed again, the second time with a spike-tooth harrow. A spring-tooth harrow precedes the drill. The wheat is sowed about September 25. Wheat to follow corn is put in as soon as possible after the corn is cut, the land being prepared by running a disk harrow over the field and then a spring-tooth harrow. Sometimes the spring-tooth harrow alone is deemed sufficient. The land is then drilled the same as the plowed ground.

Corn is planted on land which has been in pasture. Before plowing, the ground is covered with stable manure. After plowing it is pulverized with a disk harrow and cross-harrowed before the planter. It is harrowed once after planting and then cultivated with two-horse cultivators, the last time or two very shallow.

Fertilizers

The manure spreader is regarded as one of the most important implements on the farm. By means of it, it has been possible during the past few years to cover about 75 acres of the farm each year with stable manure.

It is a common practice in this section to use commercial fertilizers when sowing wheat and grass. The fertilizer is mixed on the farm. It consists of a mixture of one-half of ground raw bone, containing 22 per cent of phosphoric acid and 24 per cent of nitrogen, and one-half of South Carolina ground rock, containing 16 per cent of phosphoric acid. It has not been the practice on the farm to plow under green crops, although the benefit of such practice is recognized. A straw mulch has been put on part of a field at different times and plowed under. The results have been good. One year the plowing under of straw alongside of land well manured gave about the same results as manured land. In the year 1909 a part of the wheat stubble was mowed soon after harvest to serve as a mulch. On the ground that was mowed the clover was taller and more vigorous on September 2. The difference was to be seen also on September 23. The year 1909 being very dry, this covering no doubt prevented the evaporation of moisture and thus aided the clover in making a better growth.

What City Family Gained by Going to the Farm

Financial Record of the Farm

Inventories

A simple but quite complete record of results on this farm has been kept from the time the farm was purchased until the present time. This is in the form of a diary and a bookkeeping record. On January 1 of each year an inventory was made.

In 1892 the value of the plant was \$18,167; in 1905 it was \$32,365; in 1909 it amounted to \$41,972. It will be seen that the value of the plant has more than doubled during the seventeen-year period. The net income has more than doubled also, so that the increased valuation of the real estate could properly be based on the income.

Receipts and Expenditures

Businesslike records of receipts and expenditures are kept each year, the receipts covering: Cattle; including fat cattle sold; sheep, lambs, and wool; wheat; corn; oats; hay; pork products; live hogs; poultry, dairy, and garden products; wood; apples. Under the expenditures are classified: Labor; taxes; farm supplies; interest on debt; fertilizer; seed; grain and hay for stock (produced on farm and fed); cattle bought for feeding; hogs for feeding; extra labor picking apples, etc. The total receipts for 1909 were \$8,097; the expenditures, \$2,899; the net income \$5,197.

Corn and Wheat

The average yield of wheat during these years was 18 bushels an acre; that of corn nearly 40 bushels (eight barrels) an acre. These were fair yields, somewhat above the average for this region. The average cost per acre of raising wheat was \$6 an acre. In this estimate the rent of land and the cost of superintendence are not included. It is believed that these figures fairly represent the cost of raising wheat in this region.

No record is shown of the cost of raising corn. The owner estimates, however, that it costs more to raise corn than wheat.

Hay on this farm is handled by modern machinery. It has produced on the average about 1½ tons per acre.

What the Farm Has Been Made to Accomplish for the Family

An attempt has been made to set forth the actual operations of the farm. They are not set forth as models. On the whole, however, they represent good farm practice.

To just what degree this family has been successful depends upon the point of view taken. The financial record might seem to some disappointing, considering the amount invested and the number of people taking part in the labor producing these results. In terms of dollars and cents it might not be considered a paying business. On the other hand, if we consider the results produced through the use made of the net income, the farm tells a different and a more satisfactory story. As has been stated, the intention in going on the farm was not primarily to increase the income, nor were money profits more than a secondary consideration. In the first place, the father was ill and was told by his physician that he could not live another year in the city if he continued his business. Some of the children were very young, while others were ready to enter the university. In order to measure success from the standpoint of the father and the mother we must know about the family and what it has accomplished and is doing.

The boys have graduated from a State university and the girls have been educated by private tutors and in girls' schools. At the present time two sons are lawyers, one a minister, one a professor, one a civil engineer, and one a farmer. The education of the children has cost the farm about \$10,000. During the time the children were being educated there was no income except from the farm. At the present time these sons and daughters are profitably employed in honorable and useful occupations. While but three remain on the farm, one son and two daughters, all are following their present callings with the end in view of buying farms on which to make their homes.

Each year all members of the family, including grandchildren, spend their vacations on the farm. This is usually in harvest and haying time, so that no extra labor is hired during these farm operations.

The father declares that he has improved in health every year since coming on the farm. Now

76 years of age, he superintends all farm operations and knows the details of everything that is going on. He still enjoys good health and is fairly strong, being able to walk to every part of the farm. It must be remembered that he came on the farm long after most farmers begin to think of retiring, being then 60 years of age.

The farm work is not regarded as drudgery, and there is an atmosphere of refinement about the home that indicates a wholesome life on the part of the family. Everyone on the farm is occupied with some kind of work, and the farm operations go on in a businesslike manner, but no one is rushed or overworked. The mother is well preserved and vigorous, with no trace of overwork, though she has always been active in the management of the home and farm. She believes that the farm life, on the whole, has been easier for her and more enjoyable than the life in the city. Every member of the family is in love with farm life and expects to live on a farm when conditions permit.

Social and Agricultural Problems Satisfactorily Solved

(1) A professional man, with no previous experience as a farmer, with a large and expensive family, is able to rear and educate his children on the income of a well-located farm of 380 acres of good land with a modernized dwelling upon it. On a salary of \$3,000 in the city the same amount of money could not have been expended on their education and a fair standard of living maintained. This fact is indicated in the inventory of 1892, which showed the present worth of the family to be \$11,028, about \$5,000 of which represented the savings of 22 years, the remainder being inherited. The present worth of the family, as represented by the farm in 1909, was \$37,662. About \$15,000 of this increase in present worth is due to increase in land values. This leaves nearly \$12,000 to represent savings during the period when the children were receiving their education.

Business training and experience have been important factors in the success achieved. The father, who, at the age of 76, still keeps in touch with all the farming operations, says: "My life as a soldier taught me how to obey and command, how to economize and endure. My life in the city as a lawyer in charge of a title and trust company taught me system and business methods, all of which were valuable to me on the farm."

A fact of special importance is that these results were accomplished by following the established methods of farming. The yields are a little above the average for the community, because of more thorough tillage methods, but no extraordinary yields are recorded. The diary kept by the farmer and the history as written show keenness and foresight in adjusting crop and stock products to market conditions. The management of farm operations, although adjusted to the comfort and tastes of the family, have been conducted strictly on economic principles. From this standpoint a problem of great interest and importance has been worked out on this farm.

Better Opportunities

(2) The members of the family believe they have had more opportunities in the way of general culture gained by travel, etc., than would have been possible for them in the city. Socially, they think there has been no essential loss; in fact, it is quite probable that the farm life has given better opportunities for culture of the most wholesome kind than the city would have afforded.

(3) The labor problem has been satisfactorily solved on this farm. With such wages as the farm could pay, the laborers have been able to accumulate sufficient property in a few years to take up farming for themselves. At the same time the women of the family have been relieved of extra work and responsibility necessarily attending the boarding and lodging of laborers; also the family life has been more homelike. The service secured in this way has been good, and on the whole the relations between employer and employed have been remarkably satisfactory.

An Acre Garden Pays Table Expenses

(4) It has been found practicable and beneficial to train the children through occupations which require them to assume responsibility. As an inducement to make the chosen line interesting and as an incentive to industry, the profits of the industries on the farm went to the children managing these de-

Condition of Farm—Plain Statement

partments. It is the testimony of all who know the family that the children are all efficient managers.

(5) It has been demonstrated on this farm that an acre garden, without any particular specialization in crop methods, can be made to pay the expenses of the table for a large family.

(6) The value of agricultural literature to the farmer is clearly demonstrated on this farm. Asked what benefit such literature had been to him, the father replied: "I would have been blind without it." The knowledge of spraying for San Jose scale saved a valuable orchard which is today the most profitable part of the farm. Fifteen or twenty well-chosen works on farming, with selected bulletins from State experiment stations and from the United States Department of Agriculture, constitute an important part of the farm library. Several standard agricultural papers are also taken.

A Serious Problem

Since 1905 there has been a marked increase in the income of this farm, due principally to the apple crop. About the same time a sharp advance took place in the price of field crops and of live stock, and these prices have advanced since. As a result of these conditions the net income for 1909 was \$5,197.50, the largest in the history of the farm. That the advance in income is not due, however, to increased productivity of the soil is disclosed by the records of the farm. An examination shows that wheat has decreased in yield per acre to a marked extent during the last half of the seventeen years. The average yield of this crop during the first half of this period was 21 bushels, and during the last half 15 bushels per acre. Corn, however, made an average of 35 bushels per acre during the first period of eight years and 43.5 bushels during the last nine years. On the other hand, clover and timothy have about held their own in yield during the entire period, the average being about 1 1/4 tons per acre. The increase in the yield of corn may be accounted for largely by an important change in the method of tillage. The proprietor of the farm now gives corn shallow cultivation during the last two times, whereas formerly he followed the usual custom of cultivating deep at all times and "hilling up" the corn at the last cultivation. This method of cultivation together with an increase in the depth of plowing, which is now 9 to 10 inches, has greatly increased the yield of corn. It is to be noted also that a small quantity of lime, 300 to 400 pounds per acre, was put on the land at intervals with beneficial results to clover and thus indirectly to corn.

A statement in a letter received from this farmer shows that the soil has been held up to a normal standard of productivity with great difficulty and is in danger of decline. He says: "We are not getting the results for our labor and land that we should. I think we must work out a rotation that will give us larger yields of wheat. This, I think, can be accomplished by getting rid of the sorrel in our land and growing more clover and other leguminous crops. The wheat crop is the measure of all other values as a rule, and if we can grow more and cheaper wheat it will do more to reduce the cost of living than almost anything else."

This farm has a very good financial record, due to intelligence and the application of business methods in management. But one of the essential factors in the management of a farm is maintaining or strengthening those soil conditions which are favorable to the production of such value-producing crops as it seems desirable to raise.

If such conditions are not maintained certain weed pests, which find the soil favorable, come in and take the place of cultivated crops. The farmer is often misled by this fact and regards the presence of weeds as the direct agent preventing the vigorous growth of crops, whereas the real cause may be the lack of a proper environment for the crops. For this reason attempts are often made to subdue weeds by cultivation alone, which is only partially successful and adds unnecessary expense.

The fact that sorrel is a persistent and troublesome weed on this farm is evidence that fundamental conditions of soil are defective and that other methods besides cultivation must be planned to subdue it and allow the desirable crops to take its place.

It is suggested, therefore, that a rotation of crops and some system of cultivating the soil be adopted which will build up and maintain the land in a condition which will better enable the cultivated crops to combat the weed enemy in the struggle to possess the soil.

The practice of liming the soil is found to be beneficial in this region, stimulating the growth of

clover and thus tending to eliminate the sorrel. On this farm lime could be applied at little expense, since in many places limestone rock crops out at the surface. This rock could be blasted out and either ground or burned to be scattered on the land. This could be done at shorter intervals than formerly, or a heavier application made of 1,000 or 2,000 pounds to the acre.

Besides the use of lime and commercial fertilizer the following rotations are suggested, the practice of which would speedily supply humus and nitrogen, materials which are essential in maintaining the soil in a condition favorable to field crops:

Corn plus crimson clover or rye and hairy vetch.

Cow-peas.

Wheat.

Hay (6 pounds of clover seed the following spring).

Pasture.

Crimson clover has not generally proved successful here and should be tested on a small area before sowing a large quantity. Three conditions at least are essential for a satisfactory growth of crimson clover. The soil must be inoculated with the proper bacteria, it must contain a fair amount of humus and nitrogen, and the seed must be sown sufficiently early in order to make a vigorous growth before winter.

Lessons Learned on This Farm

Rye and hairy vetch are adapted to more general conditions, may be sown later than crimson clover, and will grow under conditions that will not produce crimson clover. It is essential that the land be artificially inoculated for hairy vetch unless the bacteria are known to be in the soil. The 6 pounds of clover seed to be sown the spring following the hay crop are essential in getting a stand of clover to plow under the next year for corn.

Alfalfa may be grown successfully on clean and fertile land in this region. When these conditions can be met, the following rotation is advised:

Corn plus crimson clover or rye and hairy vetch.

Cow-peas.

Wheat.

Alfalfa.

Alfalfa.

Alfalfa.

On land that is fairly rich in nitrogen and humus, if the problem were simply to maintain fertility, a shorter rotation could be adopted by cutting out one year of wheat on this farm, making it a four-year rotation, which would have the effect of growing more legumes. It has been demonstrated that such a rotation as this would gradually increase the nitrogen and humus content of the soil. Minnesota Agricultural Experiment Station gives the results of experiments carried on in several places through a series of 10 years with a rotation of corn, wheat, hay, and pasture, and it was found that the humus and nitrogen could not only be maintained but increased.

Farm Implements and Their Cost

The following is a complete list of the machinery and implements used on the farm described and their cost:

1 seven-foot-cut wheat binder.....	\$ 135
1 six-foot-cut wheat binder—old—for use in case the other gets out of repair.....	100
1 five-foot mower.....	35
1 four-foot mower.....	30
1 manure spreader.....	80
1 ten-spout wheat hoe drill.....	75
1 eight-spout wheat disk drill.....	60
2 disk harrows (one tongueless).....	50
2 spring-tooth harrows.....	27
2 spike-tooth harrows.....	24
2 two-horse chilled plows.....	12
2 three-horse chilled plows.....	18
2 walking wheeled double cultivators.....	50
4 double-shovel plows.....	10
1 double smoothing harrow.....	12
1 two-row disk corn planter.....	40
1 single-row corn planter.....	12
1 iron roller.....	12
1 plank drag.....	2
1 hay loader.....	60
1 side-delivery horseshake.....	40
2 single-horse cultivators.....	14
2 four-horse wagons.....	120
1 two-horse wagon.....	50
2 road beds for wagons.....	40
2 hayracks.....	20
1 steel spring-tooth hayrake (10 feet).....	20
1 spring-tooth weeder.....	9

\$1,157

**HASTENS
THE HARVEST
FINISH**

BINDER AND LOADER

**DO WORK
OF SEVERAL
MEN**

These Are Among the Larger of Farm Implements

A modern self-binding harvester. One man cuts and binds all of the grain and carries the bundles into windrows. One man can shock the grain after the harvester. Two men in this way do the work of the six that were required to operate the old style reaper.

Illustration from Keystone Loader Company.

VALUE OF VARIOUS FOODS COMPARED WITH HAY

Value of Hay as Food

Table showing amount of hay or its equivalent per day required by each 100 pounds of live weight of various animals:

	Pounds
Working horses.....	3.08
Working oxen.....	2.40
Fatting oxen.....	5.00
Fatting oxen when fat.....	4.00
Milch cows.....	2.25 to 2.40
Dry cows.....	2.42
Young growing cattle.....	3.08
Steers.....	2.84
Pigs.....	3.00
Sheep.....	3.00

It has been estimated that one hundred pounds of good hay will possess the same feeding value as

	Pounds
Wheat	44½
Corn	62½
Clover, Red, Green.....	373
Beets	669
Beans	28
Barley	58
Carrots	371
Oil Cake, linseed.....	43
Buckwheat	78½
Oats	59
Rye	53½
Potatoes	360
Peas, dry	37½
Oat Straw	347
Clover, Red, Dry.....	88
Turnips	469
Carrot leaves (tops).....	135
Rye Straw	429

Average Period of Gestation

The period of gestation in animals varies considerably, but the following is an average period based on a long series of observations:

Elephant	2 years
Camel	11-12 months
Ass	12 months
Mare	11 months
Cow	9 months
Sheep	5 months
Goat	5 months
Pig	3½ months
Blitch	9 weeks
Cat	8 weeks
Guinea pig.....	65 days
Rabbit	30 days

DOES NOT
TEAR SOIL

NEW FARM IMPLEMENT

CUTS SOIL
IN PIECES

Unlike Tooth Harrow, the Disk Pulverises Soil by Cutting

The Disk Harrow

By Henry Wallace. Editor "Wallace's Farmer," Des Moines, Iowa

The to us unknown man who invented the disk, which slices the plowed soil instead of tearing it to pieces with the harrow, deserves a monument higher than erected in Washington in memory of the Father of his Country. He ranks with that other unknown man who invented the knife to cut his meat, rather than tear it to pieces with his fingers and his teeth. Each of them builded better than he knew, and deserves the thanks of posterity while grass grows and water runs. The disk implements, whether harrow, cultivator, grain drill or roller, are revolutionizing modern agriculture.

The disk harrow, properly used on corn-stalk ground, at once acts as a stalk cutter, levels the surface, and forms a proper seed-bed for spring grain in the states that are subject to deep winter-freezing, without breaking the capillary connection between the seed-bed and the undersoil. In corn-stalk lands which need plowing for spring grain, previous disking prevents clod formation and restores capillary connection by providing a mulch of loose dirt, which fills up the spaces made by the plow, espe-

cially if disking follows the plow, which it should always do. If corn is to be followed by corn, the disk should always precede the plow, thus cutting the corn-stalks, preventing clod formation by conserving moisture, and providing a mulch of loose dirt that will fill up the air spaces left by the plow and germinate the weed seeds near the surface, to be killed when plowed under. The disk should follow the plow; and if the harrow follows at right angles you have the best seed-bed for corn possible on that kind of land.

Where sod is to be plowed for corn in the fall, running the disk perpendicularly or straight, thus slitting the sod, renders the plowing much easier and in the spring requires less work to settle the furrow and restore contact with the under furrow, thus restoring capillary connection with the undersoil. Whether plowing in the fall or spring, the disk should run with the furrow. In preparing the seed-bed, if a second disking is necessary it should be at right angles.

Antidotes for Poisons

The first thing to do in most cases is to induce vomiting, if possible. Give an emetic; a tablespoonful of powdered mustard in a tumbler of warm water is good. Warm water and salt is also efficacious.

For Poisoning from Opium, Laudanum, and Morphine: An emetic should be followed by strong coffee or the white of an egg. Keep the patient walking for two or three hours.

For Poisoning from Arsenic, Corrosive Sublimate, Verdigris,

Blue Vitriol, and Vegetables Kept in Copper Vessels: Give an emetic and the white of an egg, sweet oil and milk.

For Sugar of Lead Poisoning: Give an emetic and epsom salts.

For Poisoning from Hemlock, Aconite, Belladonna, and Foxglove: After emetic give tannin and stimulants.

Strychnine: First give an emetic, and then large dose of bromide of sodium (60 grains in solution). Repeat every hour until three or four doses have been taken.

Toadstool Poisoning: Give emetics promptly and then castor oil and stimulants. Apply heat.

Poison Ivy or Oak: There are three generally effective remedies for poison ivy or mercury. One is to apply hot water to the poisoned surface. Another is peroxide of hydrogen. The third is to apply a solution of sugar of lead, about 40 grains to a pound of water. Two other remedies that are more or less effective are baking soda and dry starch.

Terms Used in Consideration of Fertilization, Grains, Etc.

Acid phosphate or **superphosphate** of lime, is finely-ground, raw, rock phosphate mixed with about an equal weight of sulphuric acid. The acid phosphate is more soluble in water and thus more readily assimilated by plants than raw phosphate applied as a fertilizer.

Aftermath. A second crop of grass in the same season; rowen.

Albuminoid nitrogen is nitrogen in the form of albuminoids, which is the name given to one of the most important groups of substances classed together under the general term protein. The albumen of eggs is a type of albuminoids.

Albuminoids is the name given to one of the most important groups of substances classed together under the general term protein. The albumen of eggs is a type of albuminoids.

Alkali soils.—Soils found in arid or semi-arid regions, which contain an unusual amount of soluble mineral salts (alkali), which effloresce or bloom out in the form of a white powder or crust in dry weather following rains or irrigation. Two distinct classes of alkali are known: White alkali, composed largely of sulphate of soda and common salt, which is comparatively harmless; and black alkali, composed largely of carbonate of soda, which is highly corrosive and destructive to vegetation.

Alkaloids are a class of bitter, nitrogenous constituents of plants which have active medicinal or poisonous properties. Quinin, morphin, strychnin, etc., are alkaloids.

Amid nitrogen is nitrogen in the form of amids, one of the groups of substances classed together under the general term protein. Amids, unlike albuminoids, are usually soluble in water, but are generally considered of less value as food than albuminoids.

Ammonia is a compound of nitrogen more readily available to plants than organic nitrogen. The most common form is sulphate of ammonia, or ammonium sulphate. It is one of the first products that results from the decay of vegetable or animal substances.

Ammoniated superphosphate is the trade name for a mixture of a superphosphate with some material supplying nitrogen.

Analysis is a separation into constituent parts.

Annuals are the plants which last but a year. The seed, planted in the spring, in one season develops into a mature plant which produces its flowers, fruit, and seed, and dies in the fall. The annuals must be renewed each year, and most of them thrive best where there is no shade. Sweet peas and Indian corn are samples of the annuals. The word annual comes from the Latin word for year—*annus*; the name biennials—two-year plants—is from the same word with “bis,” twice; while the perennials—living on from year to year—have the same root-word with “per” in the sense of through all the years.

Ash is what is left when the combustible part of a feeding stuff is burned away. It consists chiefly of lime, magnesia, potash, soda, iron, chlorin, and carbonic, sulphuric, and phosphoric acids, and is used largely in making bones. Part of the ash constituents of the food is stored up in the animal's body; the rest is voided in the manure.

Atomic Theory is the doctrine that an element is composed of infinitesimally small particles to which the name *atom* is given. The atoms of different elements combine in certain definite proportions to form molecules. Thus water, which chemically represented by the symbol H_2O , meaning that oxygen and hydrogen combine to form water in the definite proportion of two parts of hydrogen to every one part of oxygen.

Available phosphoric acid is the soluble and reverted taken together.

Babcock test. A method for rapidly determining the fat contents of milk by the aid of chemical reagents. Invented by Dr. S. M. Babcock, of the Wisconsin Agricultural Experiment Station. The little machine for applying this test is made in several patterns, the principle applied in all is the use of centrifugal force aided by some chemical agents, notably sulphuric acid. The handling of the machine can be readily learned by a careful person.

The milk or cream to be tested is measured in a pipette and placed in a bottle which has a long, slender, graduated neck; sulphuric acid is then added, and the bottle shaken a few moments until the mixture becomes dark colored. The acid, without affecting the fat, dissolves the other milk solids, which keep the fat globules apart. The bottle is then placed in the machine by which it is rapidly revolved with the neck toward the centre. The fat is thus forced toward the neck by the other contents of the bottle, which are heavier and therefore thrown away from the centre.

Bacterium (plural, *Bacteria*) is the name applied in common to a number of different or closely related microscopic organisms, all of which consist of single short cylindrical or elliptical cells or two such cells joined end to end and capable of spontaneous movement. Many kinds of bacteria are harmful and cause diseases and other injurious effects, but many are beneficial. Among the latter are those which give aroma to tobacco and flavor to butter and cheese and those which enable leguminous plants to use the free nitrogen of the air.

Barkbound. Having the bark too firm or close, as trees; this disease is usually cured by slitting the bark.

Biennials. A biennial plant is one which takes two years to develop flower and fruit. The first year the seed is planted the root and leaves are formed; the second year, flower and seed; the plant then dies down. The hollyhocks are an illustration of the biennials.

Boll weevil. A small insect which in its larva state feeds within the bud or boll of cotton. This grub is less than a quarter of an inch in length, is of white color, and without feet; developing in two weeks into the adult state, when it becomes a hard-shelled insect with a head prolonged into a slender snout that conceals the jaws with which the weevils puncture the surface of their food supply.

Bordeaux mixture is a mixture of copper of sulphate, freshly slaked lime and water. It is used as a fungicide and also to prevent attacks of some insects.

Brown rot is a disease which appears first as a small, dark-brown decayed spot on any half-grown stone fruit such as the peach or the plum, usually causing the fruit to shrink and wither. The disease is caused by a fungus growth and the twigs of apricots and peaches may be blighted by this disease entering from the affected flower or fruit.

Budding. The insertion of a bud of one tree under the bark of another, for propagation. It must be done during the growing season.

Butter-fat.—The oleaginous globules in milk surrounded by casein, from which butter is made in the process of churning. A pound of butter contains about 14 oz. of butter-fat.

Buttermilk.—That part of milk which remains after the butter is extracted.

Calyx.—The outermost series of leaves (called sepals) of the flower, usually green, but sometimes colored.

Carbohydrates.—The nitrogen-free extract and fiber are often classed together under the name of carbohydrates. The carbohydrates form the largest part of all vegetable foods. They are either stored up as fat or burned in the body to produce heat and energy. The most common and important carbohydrates are sugar and starch.

Cat's Tail Grass. Another name for timothy or herd's grass, so called from the shape of its heads.

Cellulose is the chief constituent of crude fiber.

Chard Beet. A variety of which only the leaves are used, boiled as Spinach. The Swiss Chard is one of the principal vegetables of the laboring classes of Europe.

Chemical Analysis of Soils. An analysis to find the constituent elements in any given soil which may indicate what the soil needs, if a very marked differences exist—as in a soil derived from limestone and a soil derived from sandstone. In soils of similar character analyses are seldom of much value because difference of fertility is either due to variations too minute for ordinary analysis to determine, or else is due to causes not connected with the amount of plant food.

Chlorophyll.—The green coloring matter of plants. By the combined action of chlorophyll and sunlight plants are able to

Technical Terms—Continued

build tissue from the carbon dioxide and water of the atmosphere.

Citrus fruits. The citron tree is a tree bearing fruit resembling a lemon; it gives its name to the family of citrus fruits which comprise the lemon, lime, orange, grapefruit, shaddock, and citron.

Clay. The name given to various earths.

Complete fertilizer is one which contains the three essential fertilizing constituents, i. e., nitrogen, phosphoric acid, and potash.

Conidium (plural Conidia) is one form of spore or reproductive body of fungi.

Corn is the name used in Europe as a general term for all cereals. This is the sense in which the word is translated in the Bible when it speaks of Jacob's sons saying, "There is corn in Egypt." The word originally meant any hard, edible seed, grain, or kernel. The colonists found this plant, properly called maize, cultivated by the Indians, and used the name Indian Corn to distinguish it from other corn of the mother country. In Latin America—Mexico, Porto Rico, etc.—"maiz" is the term generally used.

Corn Smut. A cancerous outgrowth with a thin covering over black, dust-like masses that occur on various parts of the growing corn, notably the ear and tassels. Well manured soil favors the growth. Frequent spraying of stalks and ground with a fungicide will prevent spreading but is expensive. The most efficient and economical method of prevention is by the collection and burning of all smut masses before they ripen and scatter their spores.

Corn tassel. The pendent inflorescence at the top of a stalk of corn; also the silk protruding from an ear of corn. Corn is fertilized by the pollen from the tassel on the stalk applied to the silk. The tassel at the top is formed of many flowers which usually contain only stamens—the young ears bear the pistils, which are the so-called silk.

Corolla.—The inner circle or set of leaves (called petals) of a flower, usually bright colored.

Corrosive sublimate is a very poisonous compound of mercury and chlorine, used as a fungicide.

Cotton boll. The large capsule into which the pistil of the cotton flower develops. It is about the size and somewhat the shape of a hen's egg, except that it is distinctly pointed at the free end. When ripe the bolls open, disclosing the dark seeds covered with the pearly white fibres for which the cotton-plant is cultivated. Different varieties of cotton require from 50 to 65 bolls to make a pound of cotton.

Cream.—The richer and butyrateous part of milk, which, when the milk stands unagitated in a cool place, rises and forms a scum on the surface.

Cream Separator. A machine so constructed that the butterfat or cream in milk, by rapid agitation, will be thrown to one side so separated from the milk that it will flow in separate stream from the milk from the machine flowing in another stream. See illustration elsewhere of cream separator.

Cross-pollination, as here used, means the conveying of pollen to pistils of flowers of a plant of an-

other variety. In case of plants propagated by seeds it also means the transfer of pollen to a pistil of another plant of the same variety.

Culm.—The stem or straw of grains and grasses.

Culture, as here applied to bacteria or other organisms, is the product of their growth under artificial conditions.

Deciduous trees. Trees that shed their leaves in the autumn.

Denitrification is the process, due to microorganisms, by which the readily available nitrates are converted into less valuable forms of nitrogen.

Dent corn. A variety having the kernel furrowed or depressed at the large end; the common kind.

Diffusion residue, or beet chips, consists in the residue of the beet after extraction of sugar at the sugar factories under pressure in the diffusion batteries.

Digestible matter is that portion of the food eaten which is actually digested. The rest is excreted and is of no aid in nutrition.

Drupe.—A fruit consisting essentially of a hard-shelled nut or stone surrounded by a fleshy pulp, as the peach, plum, cherry.

Dry Matter is the portion remaining after excluding the water.

Eau celeste is a solution of copper sulphate in water to which ammonia is added, and it is used as a fungicide.

Ether extract is the same as the fat or crude fat of feeding stuffs.

Euonymus. The botanical name for the burning bush or spindle tree; the native American species is the well-known Waahoo tree with its red berries which stay on the tree all winter.

Excochorda (Pearl Bush). The name refers to the cords by which the seeds are suspended. A beautiful hardy tall-growing shrub or tree, introduced from China, as yet comparatively little known. It is propagated by seeds, layers, and suckers, and is suitable for parks and private grounds in sections east of the Mississippi and north of the Ohio.

Exogens. Plants that increase their growth by adding successive layers to the outside, as the oak tree, whose annual growth can be noted when the trunk is sawn across, by the distinctly marked series of rings, each of which marks a year's growth. Most of the primary plants are exogens.

Fat, or the materials dissolved from a feeding stuff by ether, is a substance of mixed character and may include, besides real fats, wax, the green coloring matter of plants, etc. The fat of food is either stored up in the body as fat or burned to furnish heat and energy.

Feeding standards are statements of the approximate amounts of digestible protein, fat, carbohydrates, etc., adapted to animals under different conditions.

Fecundation is the action of pollen upon the ovules, rendering them capable of becoming seeds.

Fiber, sometimes called crude cellulose, is the framework of plants, and is, as a rule, the most indigestible constituent of feeding stuffs. The coarse fodders, such as hay and straw, contain a much larger proportion of fiber than the grains, oil cakes, etc.

Flow pipes and returns.—In the heating systems of greenhouses it is a common practice to have one or two main pipes, known as flow pipes, to supply the steam or hot water to the house. These pipes frequently run the full length of the house and then unite with smaller pipes known as return pipes, or "returns," which carry the hot water or steam through the house and back to the boiler.

Fodder, when applied to corn, is the plants, including the ears, which have been cut and field-cured. The residue, after the ears have been removed is properly termed **Stover**.

Formalin is a 40 per cent solution of formic aldehyde, used as a disinfectant, preservative, etc.

Fungus (plural, Fungi) is a low form of plant life destitute of green coloring matter; molds and mushrooms are familiar examples. Many diseases of plants are due to fungi.

Fungicide is a substance used to destroy fungi or prevent their growth.

Garden bed. A plat or piece of ground in a garden, usually a little raised above the adjoining level.

Gluten is the name given to one of the most important of the nitrogenous substances classed together under the general term "protein." "Wheat gum," obtained by carefully chewing wheat, is a familiar example. It is the gluten of flour that gives consistency to the dough.

Heavy Soil. A soil that is moist, deep, soft, or miry, as a clay soil.

Hessian fly. One of the most destructive of the 100 species of insects which prey upon the wheat. Its ravages may be recognized if in the early spring the wheat is noticed falling down unaccountably. This small, two-winged insect, belongs to the same order as the mosquito and the common house-fly—known as Diptera. It deposits its eggs between the sheath and the stem of wheat at the base of the stock, and the puparium, which resembles a flaxseed in form and color, hatching out in a few weeks' time, feeds on the tender wheat stem, cutting it off near the ground.

Humus is the name applied to the partially decomposed organic (animal and vegetable) matter of the soil. It is the principal source of nitrogen in the soil.

Hygroscopic water. The water lost and gained by a soil through artificial drying. Not the moisture naturally removed by drainage or by evaporation; these are called the first "drainage water," the last "capillary water" since it finds the surface by capillary attraction.

Indian Meal is the meal of maize, or Indian corn; cornmeal.

Inoculation is the introduction of bacteria or other organisms into surroundings suited to their growth with a view to producing the effects which are the result of their activity.

Internode.—The part of the stem between the nodes.

Intercultural tillage means tilling the soil while the plant is growing, it is done primarily to kill weeds, it also lets in air and rain more freely to the roots of the plant, and, in dry periods prevents the evaporation of water

Technical Terms—Continued

from the surface. The inter-cultural tillage of corn should be shallow, not more than two inches deep near the plant, since any breakage of the roots of corn is injurious and the most of the roots lie from two to four inches below the surface and six inches from the plant. Three to five cultivations of corn are usually enough; nothing is gained by cultivating corn after the plant is three to four feet high, provided the land is free from weeds. Farmers refer colloquially to this stage as "when the corn is laid-by."

Kainit is an impure form of potassium sulphate and ordinarily contains about 12 to 20 per cent of potash.

Lactation.—The formation or secretion of milk. The "period of lactation" as applied to cows means the length of time since calving that they have been giving milk.

Lard is obtained from the fat of swine when it is heated to a boiling point and then strained.

Layering. Method of propagating woody plants by bending down branches and burying in adjoining soil.

Legume. Any plant belonging to the pea family, including the leguminous forage crops, alfalfa, Japan clover, the soy bean, cowpea, velvet bean, and vetch. The leguminous crops, including the clovers, are valuable as fertilizers in that they add nitrogen to the soil in a form easily available for the crops that are planted after them.

Legume seeds are always found in a pod which contains one or more seeds; their peculiarity is that while other seeds have a small embryo the seed-coat of the legume is entirely filled by the large embryo. They are exceedingly rich in nitrogen.

Leguminous plant is a plant of the botanical order Leguminosae, the more common representatives of which are clover, peas, beans, etc.

Light Soil. One that is loose, easily pulverized.

Lime is, strictly speaking, calcium oxide, a combination of calcium and oxygen.

Liquid-ambar. A genus of trees of the witch-hazel family. It is found in Mexico and the United States and is known as the sweetgum, in this country. Its home extends from the Rio Grande to the Potomac.

Loafer Land. The Agricultural Department name for stump-land, where the trees have been felled and the stumps left.

Loam. A natural mixture of sand and clay with organic matter (decayed vegetable or animal substances); a species of earth or soil readily fusible in water.

Melilotus. A genus of the leguminous plants, the sweet clovers. They are natives of southern and central Europe and western Asia. White melilot has been recommended as a fodder plant under the names of Bokhara clover and Cabul clover. This variety (*Melilotus alba*) is common along our roadsides and is sometimes cultivated as a forage crop for bees. The very name *melilotus* comes from the Greek word for honey, "meli" and "lotos."

Micro-organism, or **microscopic organism**, is a plant or animal too small to be seen without the aid of a compound microscope.

Milo maize. A name given in some localities to Kafir corn, which is also known as Egyptian rice corn, dhura, African millet, Jerusalem corn, and Guinea corn.

Mulching, covering the surface of the soil by a layer of straw, shavings, leaves, tanbark, manure, or other matter, to reduce evaporation and so keep the moisture beneath the surface.

Narrow ration is one in which the ratio of protein to other constituents is narrow, i. e., one comparatively rich in protein.

Nitrates furnish the most readily available forms of nitrogen. The most common are nitrate of soda and nitrate of potash (salt-peter).

Nitrification is the process by which the highly available nitrates are formed from the less active nitrogen of organic matter, ammonia, salt, etc. It is due to the action of minute microscopic organisms.

Nitrogen exists in fertilizers in three distinct forms, viz., as organic matter, as ammonia, and as nitrates. It is the most expensive fertilizing ingredient.

Nitrogen-free extract includes starch, sugar, gums, and the like, and forms an important part of all feeding stuffs, but especially of most grains.

Note.—That part of the stem (usually somewhat enlarged and hardened, especially in grains and grasses) to which the leaves are attached.

Nutritive ratio is the ratio of the digestible protein (taken as 1) to the other digestible materials of the food. Thus, if a ration contains one part of protein for every five parts of the other digestible materials, the nutritive ratio is 1:5.

Oleomargarine is made from various mixtures of oleo oil, cottonseed oil, neutral lard and milk or butter. Is nutritious and sometimes passes under the head of "butterine."

Organic matter is the dry matter less the ash.

Ovules are bodies which, when acted upon by pollen, become seeds.

Osmosis is the impulse or tendency of fluids to push their way through porous matter which separates them, and mix together. Exosmosis is the passage of liquids or gases or vapors from within outward and endosmosis is the similar passage of a fluid substance inward. Largely used in speaking of the passage of fluids, whether watery or gaseous, through the separating tissues of plants.

Pasteurized milk or cream is that which has been heated to a temperature (about 155° F.) which does not kill all the bacteria, but only those which are in a vegetating condition and ready to begin their activity at once.

Perennial, literally, lasting through all the years. The perennial plants, once planted, continue their growth year after year, as the lilacs, or the garden sage. Those perennials which shed their leaves in autumn are called deciduous; those which keep their leaves through the winter, evergreen.

Perennial grasses are, practically, the meadow grasses. They propagate themselves from year to year, increasing by new culms which soon become independent

plants. Timothy is not, strictly speaking, a perennial, but an annual. However, under favoring circumstances, by seeding itself yearly the same result is attained.

Peruvian cotton, as its name implies, originated in Peru, but it is raised largely also in Brazil. It is a perennial plant; however, only the growth of the second and third years is utilized. The staple lint is mostly shorter, coarser, and more wiry than American upland cotton.

Phosphoric acid, one of the essential fertilizing ingredients, is derived from materials called phosphates. It does not exist alone, but in combination, most commonly as phosphate of lime in the form of bones, rock phosphate, and phosphatic slag. Phosphoric acid occurs in fertilizers in three forms—soluble, reverted, and insoluble phosphoric acid.

Pistil is the ovule-bearing organ of the flower. It is often called the fertile or female organ.

Pollination of corn. Corn is wind-fertilized, since the extremely abundant pollen—estimated 9,000 pollen grains for each grain of corn—is carried long distances by wind and often is deposited on silks remote from the tassel bearing the pollen.

Potash, as a constituent of fertilizers, exists in a number of forms, but chiefly as chlorid or muriate and as sulphate. All forms are freely soluble in water and are believed to be nearly, if not quite, equally available, but it has been found that the chlorids may injuriously affect the quality of tobacco, potatoes, and certain other crops. The chief sources of potash are the potash salts from Stassfurt, Germany—Kainit, sylvinit, muriate of potash, sulphate of potash, and sulphate of potash and magnesia. Wood ashes and cotton-hull ashes are also sources of potash.

Process butter is made by treating old or rancid butter by melting, skimming and allowing the brine and curd to sink to the bottom, whence it is drawn off. Air is then blown through the melted butter-fat and the product is churned with milk or cream. It is then considered "renovated," by which name it is sometimes known.

Protein (nitrogenous matter) is the name of a group of substances containing nitrogen. Protein furnishes the materials for the lean flesh, blood, skin, muscles, tendons, nerves, hair, horns, wool, casein of milk, albumen of eggs, etc., and is one of the most important constituents of feeding stuffs.

Pure culture is a culture containing one kind of organism. Pure cultures of yeasts are used in wine making, and pure cultures of bacteria are used in butter and cheese making, and for other purposes, to insure a uniform product.

Rice birds are the same bobolinks which in the earlier months of the summer delighted the ears of Northern farmers with their song, and gladdened his eye with their bright plumage; in their Southern migration they reach the rice fields in time to glut their appetite on the ripening grain and prove themselves a pest in the paddy-field; so much so that men and boys, called "bird minders," are hired to drive them away. They are called reed-birds, also, from their feeding-grounds.

Technical Terms in Agriculture—Continued

Rowen. A stubble-field left unplowed until late in the autumn, that it may be cropped by cattle. The second growth of grass in a season after the hay has been mown.

Sainfoin is a valuable forage plant of the order of legumes; it is a small perennial shrub, native of western Asia and northern Africa, hence thrives in the light, dry, sandy, or calcareous soil found in our Southern or Western States. Its long taproots, descending deep for moisture, enable it to withstand long-continued droughts at the same time bringing up from the depths nutriment for the crops that follow and rendering the subsoil loose and porous for subsequent cultivation. The sainfoin is very nutritious and whether fed green or made into hay is greatly relished by all domestic cattle. It is said to be the favorite food of the ass and from this takes its botanical name, *Onobrychia*—onos, the ass, and brycho, to bray. Sainfoin will crop seven to ten years, according to the nature of the soil, but its yield is greatly increased by top dressing.

Sea Island Cotton is a variety of cotton found in the West Indies when Columbus discovered America. The plants differ from the upland cotton in their larger growth, 3 to 8 feet high, with longer and more flexible branches and more deeply lobed leaves. Instead of being white the flowers are bright yellow, the bolls are sharp-pointed and have three instead of four lobes. It is grown in the U. S. chiefly on islands and adjacent mainlands of South Caro-

lina and Georgia. Sea Island Cotton commands a higher price in the market, but it yields less an acre and costs more to pick and gin than ordinary varieties.

Setting Hen. A hen which gives attention to incubating eggs.

Specific gravity of solid substances is the ratio of the weight of a given bulk of the body to that of an equal bulk of water; or stated in another way, the ratio of the weight of the substance in air to its weight in water.

Spore is a minute body, borne by a fungus, which is capable of reproducing the fungus directly. It corresponds in function with the seed of higher plants.

Stamen.—Part of a flower which produces pollen.

Staminate, producing stamens.

Soluble phosphoric acid is that form which is soluble in water and readily taken up by plants.

Subsoil. The bed or stratum of earth lying next below the surface soil. It does not usually contain plant food in a form ready to be taken by the plant.

Subsoil plow. A plow adapted to follow the common plow, and loosen the subsoil at the bottom of the furrow without raising it to the surface, in this way forming a porous foundation for the mold which will be turned upon it by the ordinary plow in its next furrow.

Sulphuric acid; oil of vitriol. A heavy, oily, very corrosive liquid (H_2SO_4) produced commercially by

burning sulphur in atmospheric air and passing the sulphurous acid formed into a lead chamber along with the vapor of nitric acid. It is the most extensively used of all the acids, and is the primary agent for obtaining almost all the others by disengaging them from their saline combinations. It is used in breaking up organic substances into their element, as sugar; applied by Dr. Babcock in the standard "Babcock test" for separating the butterfat from milk.

Superphosphate.—In natural or untreated phosphates the phosphoric acid is insoluble in water and not readily available to plants. Superphosphate is prepared from these by grinding and treating with sulphuric acid, which makes the phosphoric acid more available to plants. Superphosphates are sometimes called acid phosphates.

Thrip. A genus of small, spotted flies, many of them destructive to plant life. One species is specially pernicious in the onion bed.

Tilth is the state of being prepared for a crop; tillage. In rare instance that which is tilled; tillage-ground.

Viscosity.—Stickiness; gumminess; the quality of matter having a thick or sticky consistency.

Water is contained in all foods and feeding stuffs. The amount varies from 8 to 15 pounds per 100 pounds of such dry materials as hay, straw, or grain to 80 pounds in silage and 90 pounds in some roots.

HYDROPHOBIA

Although this is not, strictly speaking, a technical term, it is a term often applied to a dog which, frothing at the mouth, is supposed to be dangerously mad.

Often times this frothing is the result of exhaustion and over-heat. While it is necessary to be cautious and careful in confining the dog that exhibits these

symptoms, it is well not to kill the animal until the cause of its peculiar action is perfectly understood.

A frequent cause of unusual action on the part of the dog may be, and probably is, lack of water to drink.

Dog keepers should always keep a dish of fresh water accessible to dogs on the premises.

The Family Dog on the Farm

The origin of the dog is a much debated question, some considering the breed derived from the wolf, an opinion which is based on resemblances, the susceptibility which the wolf shows of being domesticated, the readiness with which the two animals breed together, the equal period of gestation, and their general appearance and similarity in structure.

Various attempts have been made to make a systematic classification of the varieties of dogs but without much success. One authority divides dogs into six groups, as follows: 1. Wolf dogs, including the Newfoundlands, Esquimaux, St. Bernard, shepherd's dog, etc. 2. Watch dogs and cattle dogs, including the boar-hound, the Danish dog, etc. 3. Greyhounds, the Irish hound, etc. 4. Hounds, the bloodhound, staghound, foxhound, setter, pointer, spaniel, cocker, poodle, etc. 5. Cur dogs, including the terriers and their allies. 6. Mastiff, including the different kinds of mastiffs, bull-dog, pug-dog, etc.

The female has six to ten pups, and goes with young nine weeks as a rule. The young are born blind, their eyes opening in ten or twelve days. Their growth ceases at two years of age. The dog commonly lives about ten or twelve years; at the most twenty.

The dog's fidelity and affection endear him to the human family. As pets, dogs are highly valued. They are agreeable companions for children, a boy

playing with his dog getting a great deal of pleasure and a great deal of healthful exercise.

With careful training and under rigid restriction the dog may be of service on the farm; if rightly restrained and kept at home he may be allowed in suburban towns, but in cities and thickly settled regions he is out of place.

Wherever he is kept he should have a comfortable doghouse and be taught to stay there at proper hours. He should be regularly and so abundantly fed that he will not be compelled to wander about the neighborhood in search of food.

He should not disturb people by barking, and particularly should he not bark at pedestrians or passing teams.

To teach him not to chase cats, rabbits, squirrels or any little animals on the premises the master will break this habit with the aid of a handful of small pebble stones vigorously thrown with a sharp command to "stop it." Assisted by a quart of pea-sized pebbles, a dog's bad manners and the quarrels of cats in the neighborhood may be abolished in a short time.

On the farm especially the dog may be trained to be of much service in watching property and guarding and driving animals. To be of use, he should never be allowed to form the habit of killing sheep and doing other mischief, the result of wandering away from home after dark.

VIEW OF GLASS FRAME

HOTBED

TOOLS IN USE ON THE FARM

Directions for Making a Hot Bed

A **hotbed** consists of a frame covered by a glazed sash. Heat is secured from a bed of fermenting manure set in the frame below the ground level. The plants are grown in soil placed to a depth of five to eight inches over the manure.

A **cold-frame** consists of four boards joined together to form a frame which is set upon the ground and covered with sash. The heat secured comes from sunlight only.

Hotbeds should be placed free from walls so there will be space on all sides. The pit is usually six feet by six feet, the frame requiring two sash, each three feet by six feet. A location facing the south or southeast should be selected, protected on the north and west by buildings, walls, or bushes. Frames should face the south and be placed so that no shade will fall upon them during the day. It is usual to dig the pit about eighteen inches deep and to use a subframe. Fresh horse manure containing plenty of straw is most desirable for use in the pit, as it gives a quick, intense heat. Before placing it in the ground it is best to prolong fermentation as long as possible by mixing it thoroughly every two or

three days while in the pile. When ready place it in the pit and tramp down thoroughly.

Before adding the soil the sash should be placed over the frame for three or four days while the manure reaches a good condition. When the soil is finally placed in the frame to a depth of from five to eight inches it should be allowed to remain for about four days until it becomes warm and the weed seeds germinate. It should then be carefully raked and pressed down and your hotbed is ready.

The hotbed should be made about two weeks before the seeds are sown. The sash should be raised a little every morning for ventilation, but not overdone in cold weather. To retain the heat the sash should be closed at night, and when it is extremely cold it is best to cover the beds with boards or old blankets to prevent the plants from becoming chilled. This precaution, however, is unnecessary when double glazed sash are used.

Bank the frame above ground with straw, manure, or other litter, with a little soil thrown over to hold in position.

THE LARGE FARM TOOLS

Comprising Reaping Machine, Manure Spreader, Motor Wagon, Hay Loader, Hay Press, Mowing Machine, Horse Rake

WARMEST REGIONS IN UNITED STATES

TEMPERATURES

HOW LOW THERMOMETER GOES IN U. S.

The Records Here Given Include Long Periods, Ten Years or More

Explanation.—Water freezes at 32 degrees above zero. We designate zero on the thermometer by a cipher, and in this table we designate zero by a dash before figures. Thus the table shows that cold does not reach below 29 degrees at San Francisco, whereas the record shows 29 degrees below at Denver.

	Aver- age	High- est	Low- est		Aver- age	High- est	Low- est
Alabama—Birmingham	64.	104.	—10	Missouri—Kansas City	60.	104.	—10
Mobile	64.	102.	—1	St. Louis	56.	107.	—22
Montgomery	66.	107.	—5	Montana—Great Falls	46.	106.	—38
Alaska—See below.				Kalispell	43.	92.	—19
Arizona—Flagstaff	45.	92.	—18	Miles City	45.	111.	—40
Phoenix	70.	116.	—22	Nebraska—Fremont	50.	106.	—29
Yuma	72.	120.	—22	Lincoln	58.	107.	—35
Arkansas—Fort Smith	61.	107.	—15	North Platte	48.	107.	—29
Little Rock	62.	106.	—12	Nevada—Carson City	40.	100.	—22
California—Los Angeles	62.	109.	—28	Winnemucca	48.	104.	—28
San Diego	61.	101.	—32	New Hampshire—Concord	46.	100.	—35
San Francisco	56.	100.	—29	Plymouth	43.	102.	—38
Colorado—Denver	50.	105.	—29	New Jersey—Cape May	52.	99.	—7
Grand Junction	53.	104.	—16	Trenton	52.	103.	—15
Pueblo	52.	104.	—27	New Mexico—Mesilla Park	60.	106.	—1
Connecticut—New Haven	50.	100.	—14	Santa Fe	49.	97.	—13
Delaware—Hillsboro	55.	104.	—17	New York—Albany	48.	100.	—25
Washington, D. C.	55.	104.	—15	Buffalo	47.	95.	—14
Florida—Jacksonville	69.	104.	—10	New York City	52.	100.	—14
Key West	77.	100.	—41	North Carolina—Asheville	55.	94.	—9
Tampa	69.	104.	—10	Charlotte	60.	102.	—5
Georgia—Atlanta	61.	100.	—8	Raleigh	60.	103.	—2
Columbus				North Dakota—Bismarck	40.	106.	—44
Toccoa				Devils Lake	38.	101.	—41
Idaho—Boise	51.	111.	—28	Ohio—Cleveland	49.	99.	—17
Lewiston		106.	—16	Cincinnati	55.	105.	—17
Pocatello	48.	102.	—19	Columbus	52.	104.	—20
Illinois—Chicago	58.	106.	—16	Oklahoma—Chandler			
Springfield	48.	103.	—23	Muskogee			
Indiana—Bloomington	52.	107.	—22	Stillwater	59.	107.	—17
Indianapolis	53.	106.	—25	Oregon—Baker City	45.	101.	—20
South Bend	50.	103.	—22	Portland	53.	102.	—2
Iowa—Des Moines	40.	109.	—30	Pennsylvania—Philadelphia	54.	103.	—6
Dubuque	18.	106.	—32	Pittsburgh	53.	103.	—20
Sioux City	48.	107.	—31	Rhode Island—Providence	50.	103.	—9
Kansas—Fort Scott				South Carolina—Charleston	66.	104.	—7
Manhattan				Greenville	58.	97.	—5
Topeka	54.	106.	—25	South Dakota—Pierre	47.	110.	—39
Kentucky—Bowling Green	55.	102.	—20	Tennessee—Memphis	62.	104.	—9
Lexington	57.	107.	—20	Nashville	59.	104.	—13
Louisville	60.	107.	—20	Texas—El Paso	70.	103.	—5
Louisiana—New Orleans	60.	102.	—7	Galveston	70.	98.	—8
Shreveport	66.	107.	—5	Utah—Logan	47.	100.	—19
Maine—Orono	43.	100.	—36	Salt Lake City	52.	102.	—20
Portland	46.	97.	—17	Vermont—Burlington	46.	96.	—21
Maryland—Baltimore	55.	104.	—7	Northfield	41.	95.	—32
Princess Anne	57.	99.	—10	Virginia—Charlottesville	56.	100.	—9
Massachusetts—Boston	49.	101.	—13	Hampton	59.	98.	—4
Wooster	47.	100.	—16	Washington—Tacoma	50.	99.	—2
Michigan—Detroit	49.	89.	—4	Spokane	48.	104.	—30
Saginaw	48.	101.	—24	West Virginia—Elkins	50.	94.	—21
Minnesota—Minneapolis	45.	104.	—41	Parkersburg	54.	102.	—27
Winnebago				Wisconsin—Madison	45.	104.	—29
Mississippi—Biloxi	67.	100.	—1	Milwaukee	45.	100.	—25
Vicksburg	65.	101.	—1	Wyoming—Cheyenne	45.	100.	—38
				Lander	42.	99.	—36

These records have been taken by the United States Government and cover quite long periods of time, in many cases ten years.

It will be noticed that Key West, Florida, has the warmest temperature throughout the year. While the killing frost comes with the thermometer down to 32 degrees, the temperature at Key West, Florida, never gets lower than 41 degrees.

It is observed that the coldest section in any territory in the United States is in Alaska, north of the Yukon River. The great growth of strawberries, grasses and other plants in summer in northern Alaska results from the long days of sunshine, when the days of sunshine are about twenty hours long.

Having no ocean breeze to cool the air, Yuma, Arizona, is steadily in one of the warmest regions of the United States. Yuma, 120 above, Alaska, 80 below.

Alaska Temperatures.—The range of climate in Alaska is greater than the range between Maine and Florida. The southernmost point on the coast will average about the same as Washington, D. C., only the winters are slightly warmer and there is

less snow. There are naturally eight climatic provinces in Alaska, with temperatures ranging as follows:

- 1—Pacific coast: 90 degrees above to 4 below.
- 2—Alaskan Peninsula.
- 3—Aleutian Islands: 78 degrees above to 5 below.
- 4—Behring Sea: 70 degrees above at Mt. Carmel Mission; 30 below at Ft. Alexander.
- 5—Behring Sea Islands.
- 6—Arctic Coast: 65 degrees above to 55 below at Pt. Barrow.
- 7—Interior: 112 degrees above (Circle City) to 80 below at Ft. Reliance.

Government Agricultural Stations are located at Sitka, Rampart, Fairbanks and Kodiak. A score of varieties of strawberries suitable for the climate have been developed at Sitka. Rampart has made successful experimental tests in grain, notably barley and oats. The Kodiak station has been devoted principally to dairying and livestock; the native grasses have proved almost as good as alfalfa for stock. Fairbanks station is little more than fairly under way; experiments in raising potatoes, oats, hay, winter wheat, celery, rhubarb, cauliflower and cabbage.

WHEN INJURIOUS

FROSTS

HOW PREVENT

Temperatures at Which Fruits Are Injured by Frost

The total damage wrought in the United States by the frosts of spring and fall runs into many millions of dollars. Naturally most of this is unavoidable, but a knowledge of the conditions governing frosts, and where possible the use of proper measures of protection, would reduce this sum materially and for the individual may easily mean the difference between profit and loss.

What Is Frost?

Frost, as we all commonly recognize it, is a condensation of moisture on plants in the shape of small ice crystals. Usually the air a short distance above the earth is several degrees above the freezing point at the time that frosts occur. The plants and the earth itself, however, radiate heat very rapidly after sunset and may reach a point where the surface is below the temperature of freezing. Immediately the moisture in the air is deposited on these surfaces in the form of ice crystals.

Location

In setting out to plant a given area, or in searching for a suitable piece of ground on which to place a given crop, the danger of frost should receive careful study. Many crops can stand heavy frosts. Naturally these may be raised in areas that are not particularly free from spring and fall frosts. Other crops which are especially tender should never be attempted except in suitable locations.

Any valley within the temperate zone that is more or less shut in at its lower end is likely to prove a settling point for cold air. On the other hand, hillsides sufficiently elevated above such valleys are protected by the very fact that the cold air drains away from them and are likely to be comparatively free from damaging frosts. Due recognition of these two facts should be made in deciding what crop to grow or what land to choose.

Factors That Influence Frosts

It is everywhere recognized that clear, still nights are particularly apt to be frosty. The reason for this is easily found. Clouds serve as a blanket to the layer of atmosphere just above the earth and hold the heat. The radiation of heat from the earth and from plants goes on very much more slowly when the sky is overcast with clouds.

Winds tend to prevent frosts, because they stir up the air and keep it from forming in layers. If the air is kept constantly stirred by winds, the cold air next the earth will be mixed with the warmer air above and the freezing temperature at the surface of the earth will not be reached. Thus large fans, propelled by gasoline or electric power, may produce a breeze that will prevent frost.

Protection Against Frosts

Anything that will serve as a blanket to assist the earth and the plants to retain the heat they have absorbed during the day will tend to prevent frost. This blanket may be water vapor, a heavy cloud of smoke, or such artificial coverings as straw, boards, earth, etc. With low-growing plants like the strawberry, straw may be used to great advantage as a protection against frost. The value of one crop saved in this way will pay for the labor and cost many times over. Garden vegetables of tender varieties may often be protected by plowing so as to cover their tops with earth.

No practical means have yet been devised for protecting extensive areas of field crops such as potatoes from frost, but in vine and tree fruits, where the value of the crop is so much greater, protective measures may profitably be employed.

A common plan is to build fires or smudges at frequent intervals through an orchard, thereby creating a dense cloud of smoke, which hangs over the orchard and blankets it. These fires may be made of any suitable material that is at hand, or special orchard heaters may be purchased. Several makes are now on the market.

It is important that the fires be rather small in size and distributed at frequent intervals. This is because it is undesirable to create a heavy and strong draft such as a large fire gives rise to, since this draft will carry away to the upper atmosphere the heat and smoke that is needed next to the earth.

Some orchardists have followed the plan of using

bags of manure to create a smudge. The manure is tightly packed into the bags and these are distributed through the orchard so as to be ready for use if needed. When frost threatens kerosene is poured on the bag and it is set on fire. It will burn slowly, giving off a dense smoke and adding moisture to the air, which will assist in forming an effective blanket.

Temperatures Injurious to Plants

The following table shows the temperatures at which the plants mentioned are liable to receive injury from frost. The temperatures are, as nearly as possible, those of the air in contact with the plant itself. Frost usually comes when the sky is clear, the wind dies down at sunset, and the air has a crisp, sharp feeling. Plants may often be saved if given very slight protection—a cover of cheese-cloth, branches of trees or even newspapers. In small sheltered gardens frost may sometimes be warded off by building a smudge fire or by placing shallow pans of water near the plants:

Plant or Fruit—	In Bud	In Blossom	In Fruit	At Setting	At Other
Almonds	28	30	30	28	28
Apples	27	29	30	26	26
Apricots	30	31	32	30	30
Asparagus	29	29	29	26	26
Bananas	31	31	32	31	31
Barley	29	29	29	25	25
Beans	31	31	31	25	25
Beets	28	28	28	25	25
Cabbage	27	27	27	15-27	15-27
Cantaloupes	32	32	32	30-31	30-31
Cauliflower	29	29	29	20-27	20-27
Celery	28	28	28	28	28
Cucumbers	31	31	31	32	32
Cymlings or squash	31	31	31	30	30
Flowers*	31	31	31	30	30
Grapes	31	31	31	28	28
Grape-fruit	30	31	31	28	28
Lemons	30	31	31	28	28
Lettuce	28	28	28	12-28	12-28
Mandarins	31	31	31	28	28
Oats	31	31	31	31†	31†
Okra	31	31	31	31†	31†
Olives	30	31	31	24	24
Onions	28	28	28	26†	26†
Oranges†	30	31	31	29§	29§
Parsnips	27	27	27	27	27
Peaches	29	30	30	29	29
Pears	28	29	29	28	28
Peas	29	30	30	25	25
Plums	30	31	31	29	29
Potatoes: Irish	30	30	30	31	31
Potatoes: Sweet	31	31	31	31	31
Prunes	30	31	31	29	29
Radishes	28	28	28	25	25
Shrubs, trees, or roses	26-30	28-32	28-32	30-25	30-25
Spinach	28	28	28	27	27
Strawberries	30	30	30	30	30
Tangerines	31	31	31	28	28
Tomatoes	31	31	31	31	31
Turnips	31	31	31	26	26
Watermelons	31	31	31	28-31	28-31
Wheat	31	31	31	31	31
Walnuts, English	30	31	31	28	28

*Depends on variety.

†Injured at 2 higher if continued 4-6 hours.

‡Ripe. §Green.

Fruit-bearing Table

	Time to Bear, Years.	Good Crop, Years.	Length of Bearing Season, Years.
Apple	6	10	25-40
Blackberry	1	1	6-14
Orange and Lemon	3	6	50
Currant	1	3	20
Gooseberry	1	3	20
Peach	3	5	12
Pear	4	12	75
Quince	2	4	15
Raspberry	1	3	12
Plum	3	6	25
Strawberry	1	2	3

HOW NATURE PREPARES FOR SPRING

No Change in a Thousand Years

S. Edward Paschall, in Farm and Garden News

The rush and haste and hurry of spring work, when a score of things sometimes demand attention at once, can be avoided by imitating Nature.

Nature never hurries. The secret of her achievement is that she never halts. Springtime is merely one of her several annual culminations. Well-devised and long-pursued plans have produced their due results. It is like a play on the stage. The actors have been rehearsing for months and know their parts well. The curtain rises on a performance that is perfect in every detail. The scenery is fresh each season, though the plot is as old as the hills.

Nature begins her spring work just about twelve months in advance. No sooner are this year's leaves open than next year's buds begin to form. By August the axillary buds of the apple are mature and may be transferred by human agency to another tree. Leaf buds and fruit buds are alike formed and finished before the close of summer. Witch hazel opens its yellow flowers in October and November and perfects its seeds late the following summer.

Underground work is completed before the advent of winter. All the bulbs, corms, tubers, rootstocks, and suckers are developed and made ready for quick action when spring comes striding northward at the rate of thirteen miles a day.

The so-called weeds and wild flowers sow their seeds in autumn. The freezing of winter does not injure them. Indeed, the seeds of certain plants require freezing before they will germinate. Nature scatters the smaller seeds gently on the surface of the ground, to be covered with sand or loam by the action of rain, snow, or wind. The larger seeds must be placed deeper in the soil, and the work devolves upon squirrels, mice, and birds. Human beings, copying Nature's methods, have adopted the following rule: Plant seeds about four times their own diameter in the soil.

In winter the trees, shrubs, and herbs appear to be asleep, but in reality they are more or less awake and active, at least part of the time. The sap of trees begins to flow freely in February and March, with the increase of daylight.

Nature does a vast amount of effective manure-spreading in autumn, when she coats every field and forest with decaying organic matter, including leaves, dead grass, and the stems of weeds. The rain and snow compost this material and convert it into plant food.

In addition to this annual supply of organic plant food, there is a considerable amount of inorganic fertility separated each year from the rock particles of the soil. Nature employs frost and ice to lift, pinch, expand, and tear apart the upper layer of the earth, thus affecting the soil to a depth of five or more inches. Often the ground is pulverized as though stirred by harrow teeth. No small amounts of lime, potash, and phosphoric acid (called mineral fertilizers) are thus set free and made available. Freezing and thawing produce both mechanical and chemical results, just as summer cultivation of the soil produces results of two sorts.

At the close of winter, with long days and warm rains, Nature is ready with her moving pictures.

Her land has been fertilized, cultivated, seeded and rested, and everything set in order. Results are certain to be quick and spectacular. How can humanity compete with such conditions? There is going to be a sudden release of energy on a world-wide scale. How can the farmer hope to keep step with the rapid march of events?

The answer is simple. It is only needful to imitate Nature—that is, to be prepared. The secret is in beginning long in advance—a year, if need be. To work for tomorrow as well as for today, is called cumulative action; it gains force as it proceeds. Some people call it taking time by the forelock. A well-broken horse can be led by the forelock or tuft of hair growing above the forehead. Time, to be led by the forelock, must be under control. Thorough cultivation of the soil is cumulative in its effects because the process benefits more than one crop. Nature's work is conspicuously cumulative, for she is ever making plans for the morrow. She hoards her resources and lives within her income.

Operations in field and garden can be hastened and valuable spring days saved by observing Nature's methods of preparing and applying plant food not only in autumn but at all seasons of the year. Immediate destruction of waste material is the rule. The old becomes the new. Death is at once followed by life.

Nobody has yet found a better place to store the natural manures than on the surface of the garden, lawn, or field. Some farmers follow the system of immediate disposal during the entire year, never permitting heaps to accumulate at the stables. When the ground is covered with snow they set up stakes to mark the area that has been top-dressed. People who oppose this plan speak of a loss of fertility by leaching when the ground is frozen, but those who practice it say that the waste is trifling as compared to any known method of storage and that the results are highly satisfactory.

It will be observed also (and this is not a stretch of the imagination) that Nature sharpens her tools during the so-called rest months of winter. There is a keen cutting edge on the frost and ice and even on the air and the sunshine of early spring, though soft, is still suggestive of cold. Men's sharp tools make for haste and speed. Nature's sharp tools prevent hurry and check progress that would otherwise be too rapid.

Nature's working plans have not changed one iota in a thousand years. Her master word is preparedness. Good farmers are those who are prepared. Preparedness enables workers to keep pace with their work and to push things instead of being pushed by things. This spring, therefore, is the time to get started on next spring's work.

Remember Nature's sequences: Plans made long in advance; continuous and cumulative work; entire preparedness without haste or hurry. It is not argued that a farmer's spring work can be done in advance of the season's arrival, but only that it can be so planned and executed that there will be no need of worry or waste of energy.

Spraying Calendar

The necessity of spraying is acknowledged by all authorities as being one of the requirements of successful fruit growing. Spraying not only insures better fruit, but more of it, greatly increasing its quality and value.

Grapevines (Fungus diseases; flea-beetle)

First application: In spring when buds swell, copper sulphate solution. Paris green for flea-beetle.

Second application: When leaves are 1 to 1½ inches in diameter, Bordeaux. Paris green for larvae of flea-beetle.

Third application: When flowers have fallen, Bordeaux. Paris green as before.

Fourth application: Ten to 14 days later, Bordeaux.

Currant (Mildew; worms)

First application: At first sight of worms, arsenites.

Second application: Ten days later, hellebore. If leaves mildew, Bordeaux.

Third application: If worms persist, hellebore.

Gooseberry (Mildew; worms)

First application: When leaves expand, Bordeaux. For worms, as above.

Second application: Ten to 14 days later, Bordeaux. For worms, as above.

Raspberry, Blackberry, Dewberry (Anthracnose; rust)

First application: Before buds

break, copper sulphate solution. Cut out badly diseased canes.

Second application: During the summer, if rust appears on leaves, Bordeaux.

Third application: Repeat second, if necessary. (Orange or red rust is treated best by destroying entirely the affected plants.)

Strawberry (rust)

First application: As first fruits are setting, Bordeaux.

Second application: After last fruits are harvested, Bordeaux.

Spray materials are now sold by all leading seedsmen, drug and hardware stores, and are put up in concentrated form with full directions for use.

PECAN AND OTHER NUTS

NUTS

FACTS ABOUT NUT TREES

Conditions Favorable for Growing Nuts

Almonds

The almond is of the same family as the peach and the nectarine, and the cultivation is similar to that for those fruits. It is a native of Asia and northern Africa and flourishes in America in those regions where the olive thrives. The tree grows to about 20 feet in height, has delicate pinkish blossoms that appear before the leaves, which are a long oval, pointed, with delicate saw-toothed edges.

Chestnuts

The chestnut is profitably grown for market and as a shade tree makes a beautiful ornament. The native chestnut produces a comparatively small, but sweet-flavored nut, while the Spanish nut, introduced by the early Spaniards, has spread through the South and is larger, if coarser. A new species recently introduced from Japan, grows on tall shrubs, it makes a good hedge-row plant besides producing a profitable crop. The pounded chestnut paste is used in confectionery here but the nut has not yet become a staple article of diet as it is among the peasantry of Italy and Spain, though American epicures have learned to use chestnuts in stuffing roast poultry.

Pecans

In recent years the pecan has become a very important nut, particularly in the Southern States, and it may be said that there is no other fruit or nut tree which fits so well into the general farming of this region as the pecan. Cotton, corn, cowpeas, and other farm crops can be grown to advantage among the trees when they are young, and even until the trees have begun to bear well.

When Start a Pecan Orchard

The region in which the pecan may be grown, with a proper selection of varieties, extends from Virginia to Florida, thence west into Texas and Oklahoma. It is destined to become the most important horticultural tree in this whole region, and the pecan orchards of the South will rival the apple orchards of the North and Northwest. The pecan, under proper conditions, will continue to bear fruit long after other trees planted at the same time have ceased to grow; in fact, a pecan orchard is equal to many peach orchards—for instance, in length of life and fruitfulness. As shade trees they make handsome specimens and they are well adapted for street, road, and yard planting.

How Plant Pecan Trees

Pecan trees should not be set closer than 40 feet apart each way, and from this distance up to 50 feet will be found about right for most soils. The best season for setting the trees is immediately after the leaves fall in autumn. December and January are good months, though the planting season may be continued through February or even March if there is good moisture in the soil. In planting, it will always be found best to set trees of good size, provided they are vigorous and thrifty. Preference should be given to trees of 4 to 5 and 5 to 7 feet grades, as they will give better satisfaction than smaller sizes.

The ground should be carefully staked out, a stake being set for each tree. The holes should be dug wide and deep. In planting the trees, set them at the same depth as they stood in the nursery rows. Pack the earth close and tight around the roots with the hands. The roots must be well covered with damp sacks or burlap to keep them from the sun and wind. Any broken roots should be cut back or cut off before planting. The tops of young trees need not be cut back, but trees grading 4 to 5 feet and up should have the tops cut.

How Soon Yield Crop

In six to eight years after planting, the trees will begin to bear light crops, and by ten years they should be yielding fairly well. A good fertilizer for young trees is one containing about 4 per cent nitrogen and 6 to 7 per cent each of phosphoric acid and potash. For bearing trees increase the potash to about 10 per cent. Stable manure and woodashes can also be used to advantage.

Walnuts

English Walnut or Persian Walnut, sometimes called the Madelra-nut tree, is a native of Persia, is beautiful as an ornamental tree and will grow as far north as New York but produces fruit only in the warmer sections of the country. As a profitable industry the raising of English walnuts is confined to about the same localities as the raisin grape. The tree has flourished in California for years.

In the development of the nut industry, the Japan walnut is well worthy of a place in every planting, and no home orchard should be without a few trees. They should be planted on well-drained land—a sandy or clay loam with a clay foundation is well adapted. The tree is a vigorous grower, and comes into bearing early. In habit of growth they are low and spreading, reaching a height of 15 or 20 feet, with a spread of branch of about the same distance. The leaves are large and handsome. The nuts are borne in clusters of fifteen to twenty. They have rather thick shells, with sweet, plump kernels of very fine quality. They make beautiful lawn or shade trees.

The black walnut is one of our most noteworthy native trees. At one time common throughout the whole of the Eastern and Central United States, it has become a comparatively rare tree in most parts of its native home. Its timber, highly prized for cabinet work, is more valuable than any other native timber. It is also coming into prominence as a stock on which to graft and bud the English or Persian walnut. The nuts, though thick-shelled, are rich, oily, and sweet. The trees grow to a large size with wide-spreading branches, making it a noticeable tree in any landscape. It is well worth planting for its nuts, for its timber, and for its beauty as an ornamental shade tree. It succeeds best on well-drained land, and should not be planted on wet soil.

Peanuts

The peanut plant is a "trailing annual," growing from 1 to 2 feet high, with pale green, hairy stems and spreading branches. It has the peculiar habit of maturing its fruit underground.

Two general varieties are known, the larger termed "Virginia hand-picked," and the smaller variety called Spanish. The former are generally sold for roasting and the latter used, shelled, for the manufacture of peanut butter, salted peanuts, the many candies, and the peanut oil of commerce, which is considered preferable to olive oil for table use, and is used also by watch-makers and others for delicate machinery.

A long, hot, moist summer, at least five months without frost, is demanded by the peanut, and to reach perfect condition it should have little rainfall at harvest time. It wants a well-balanced soil; too much humus makes an excessive growth of vine at the expense of the root, while if the soil is poor in lime, one will harvest only a crop of empty pods; in such case, a ton of quick-lime or three tons of marl may be applied to an acre with good results; phosphoric acid and potash may be used liberally.

The peanut should follow a cultivated crop, as corn or cotton, and for the benefit of the peanut, stable manure should be applied to this previous crop. The Spanish peanut is recommended as a forage crop, being especially raised for swine. It should be harvested before frost, even if grown only for fodder.

Peanuts are sometimes planted in hills, so that they may be cultivated both ways; the usual way, however, is to plant them in furrows, 3 feet apart, dropping the seed by hand at distances of four inches to two feet apart in the row. Two bushels of seed in the pod will sow an acre. It is best to remove the pod before sowing the larger varieties, taking great care that the skin is not broken. Surface cultivation should be given to kill the weeds and also to let in the air and rain more freely to the roots.

In harvesting, the tap-root should be cut, using a special plow adapted to this purpose, the vines may then be carefully lifted with pitchforks and later stacked around short poles, where they are left for perhaps a fortnight; the pods are then picked off by hand and placed in bags to be stored in dry, well-ventilated sheds.

TOOLS REQUIRED BY THE NEW SETTLERS

Iron Beam Plow to Break Ground, Followed by Subsoil and Other Tools Herewith Seen and Mentioned

STEEL BEAM PLOW

Sub-soil Plow

By following the ~~plow~~ with a sub-soil plow the earth can be broken to a depth of from 15 to 20 inches, giving roots a wider range for food, and the plants are hardly affected by excessive drought or a wet season, as the deep soil absorbs all the rain like a sponge and gradually gives off moisture during dry, hot weather.

The "Gold Medal" involves new principles and accomplishes the work without throwing any sub-soil on top. Its merits are ease of penetration, light draft, superior pulverization of hard pan, perfection of the "mole track" effect. The one-horse plow will reach to a depth equal to the height of its standard—15 to 16 inches—and the two horse plow to the depth of 20 inches.

TOOLS FOR PREPARING SEED BED.

Common on many farms. Wooden drag, tubular roller, spring-tooth harrow, disk harrow, spike-tooth harrow.

It Is Well to
Know Weights of
All Farm Products

WEIGHTS OF A BUSHEL

Form the Habit of Learning
Weight of Every Farm Product

Scales a
Convenience
on the Farm

Legal and Customary Weights, per Bushel, in Various States

STATE.	Anthracite Coal.	Apples.	Apples, Dried.	Barley.	Beans.	Buck- wheat.	Corn, on Cob.	Corn, Shelled.	Oats.
Alabama				47.	60.	48.		56.	32.
Arkansas	80.		24.	48.	60.	52.	70.	56.	32.
California				50.		40.		52.	32.
Colorado				48.	60.	52.		56.	32.
Connecticut				48.	60.	48.		56.	32.
Delaware								56.	
District of Columbia				47.	62.	48.		56.	32.
Florida				48.	60.	48.		56.	32.
Georgia	80.		24.	47.		52.	70.	56.	32.
Idaho				48.		52.		56.	36.
Illinois	80.		24.	48.	60.	50.	68.	56.	32.
Indiana		48.	25.	48.	60.	52.	70.	56.	32.
Iowa			24.	48.	60.	52.	70.	56.	32.
Kansas	80.		24.	48.	60.	50.	70.	56.	32.
Kentucky	76.	24.	24.	47.	60.	56.	*	56.	32.
Louisiana								56.	32.
Maine		44.		48.	62.	48.		56.	32.
Maryland					62.				26.
Massachusetts		48.		48.	60.	48.		56.	32.
Michigan		48.	22.	48.	60.	48.	70.	56.	32.
Minnesota			28.	48.	60.	50.		56.	32.
Mississippi				48.	60.	52.		56.	32.
Missouri		48.	24.	48.	60.	52.		56.	32.
Montana				48.	60.	52.		56.	32.
Nebraska				48.	60.	52.		56.	32.
New Hampshire					62.			56.	32.
New Jersey		50.	25.	48.		50.		56.	30.
New York				48.	62.	48.		58.	32.
North Carolina				48.		50.		54.	30.
North Dakota				48.	60.	42.		56.	32.
Ohio		48.	22.	48.	60.	50.	70.	56.	32.
Oklahoma				48.	60.	42.		56.	32.
Oregon		45.		46.		42.		56.	36.
Pennsylvania				47.		48.		56.	30.
Rhode Island				48.				56.	32.
South Carolina			26.	48.	60.	56.	70.	56.	32.
South Dakota				48.	60.	42.		56.	32.
Tennessee		50.	26.	48.	60.	50.	72.	56.	32.
Texas				48.	60.	42.		56.	32.
Vermont		46.		48.	62.	48.		56.	32.
Virginia	80.		28.	48.	60.	52.	70.	56.	32.
Washington		45.		48.	60.	42.		56.	32.
West Virginia				48.	60.	52.		56.	32.
Wisconsin		57.	28.	48.	60.	48.	70.	56.	32.

STATE.	Onions.	Peaches.	Potatoes		Rye.	Salt.	Timothy Seed.	Turnips.	Wheat.
Alabama	57.		60.		56.			55.	60.
Arkansas	57.		60.	50.	56.	50.	60.	57.	60.
California					54.				60.
Colorado			60.		56.		45.		60.
Connecticut	50.		60.		56.			50.	60.
Delaware									60.
District of Columbia	57.		56.		56.	50.	45.	55.	60.
Florida	57.		60.		56.		45.	55.	60.
Georgia	57.	38.	60.	55.	56.	56.	45.	55.	60.
Idaho			60.		56.				60.
Illinois	57.	33.	60.	55.	56.	50.	45.	55.	60.
Indiana	48.	33.	60.		56.	50.	45.		60.
Iowa	57.	33.	60.	46.	56.	50.	45.		60.
Kansas	57.	33.	60.	50.	56.	50.	45.	55.	60.
Kentucky	57.	39.	60.	55.	56.	50.	45.	60.	60.
Louisiana									
Maine	52.		60.				45.	60.	60.
Maryland		40.	56.		56.	56.			60.
Massachusetts	52.		60.	56.			45.		60.
Michigan	54.	28.	60.	56.		56.	45.	58.	60.
Minnesota	57.	28.	60.		56.		45.	52.	60.
Mississippi			60.		56.		45.		60.
Missouri	57.	33.	60.		56.	50.	45.	42.	60.
Montana	57.		60.		56.		45.	50.	60.
Nebraska	52.	33.	60.		56.	50.	45.	55.	60.
New Hampshire			60.		56.				60.
New Jersey	57.		60.	54.	56.		45.		60.
New York			60.		56.		44.		60.
North Carolina					56.				60.
North Dakota	57.		60.		56.		42.	60.	60.
Ohio	55.	48.	60.	50.	56.		45.	60.	60.
Oklahoma	52.		60.		56.		42.	60.	60.
Oregon			60.		56.				60.
Pennsylvania	50.		60.		56.	85.			60.
Rhode Island	50.		60.		56.				60.
South Carolina	57.		60.	50.	56.	50.			60.
South Dakota	52.		60.		56.		42.	60.	60.
Tennessee	56.	50.	60.	50.	56.		45.	50.	60.
Texas	57.		60.		56.		45.	55.	60.
Vermont	52.		60.		56.	70.	45.	60.	60.
Virginia	57.	40.	60.	56.	56.		45.	56.	60.
Washington			60.		56.		40.		60.
West Virginia		33.	60.		56.		45.		60.
Wisconsin	57.	28.	60.		56.		45.	42.	60.

Garden Tools from Henderson's Implement Catalogue

SQUARE POINT SHOVEL.

ROUND POINT SHOVEL.

SCOOP SHOVEL.

WOODEN GRAIN SCOOP.

VEGETABLE SCOOP.

SQUARE POINT SPADE.

TREE DIGGING SPADE.

POST HOLE SPADE.

No. 10.
SYRINGE.

WIRE EXTENSION
TOMATO SUPPORT.

LOPPING SHEARS

GRASS SHEARS.

HAZELTINE'S WEEDER.

BILL HOOK.

BRUSH AXE.

GARDENER'S GLOVE.

RUBBER PLANT
SPRINKLERS.

LIGHTNING
DOUBLE-EDGE
PRUNING SAW

COMBINED PRUNING SAW AND CHISEL.

LITTLE GIANT PRUNER AND SAW
COMBINED.

GRAPE-THINNING SCISSORS.

GRUB HOE.

SWIVEL PRUNING SAW.

ENGLISH FLOWER-GATHERING SCISSO

AMERICAN
FLOWER-GATHER-
ING SCISSORS.

Claw Hammer.

LAWN MOWER

Horticultural Implements from Henderson's Catalogue

GARDEN LINE AND REEL.

LIGHTNING HAY KNIFE.

HATCHETS.

DRAW HOE.

ACME WEEDING HOES

PRONG HOES OR POTATO HOOKS.

CELERY HOE.

STEEL GARDEN RAKE.

STEEL BOW RAKE.

CORN HUSKER. CORN BREAK.

DIBBER OR DIBBLE.

TRANSPLANTING FORKS.

SPADING OR DIGGING FORKS.

MANURE FORKS.

PERFECT FRUIT PICKER.

FLORAL TOOLS.

ASPARAGUS KNIVES.

AXE.

BASKET.

BUDDING AND PRUNING KNIVES.

REGISTERING THERMOMETERS.

TREE SCRAPER.

"SLIM JIM" TROWEL.

STEEL TROWEL.

HEART-SHAPED TROWEL.

VINE OR WALL NAILS.

WEDGE.

EUREKA WEEDER.

EXCELSIOR WEEDER.

Modern Improvement in Tools and Growth of Plants

The gardens of to-day with their long rows instead of beds, need up-to-date tools that will do all of the work with the least expenditure of time, labor and money. Here are 38 combinations, ranging in price from \$2.50 to \$12.00, that answer every need whether planting, cultivating, or distributing fertilizer. There are

many attachments for special purposes so that each gardener may find just what he wants.

Combined Harrow and Cultivator.

Price
Complete
\$5.00

An all-around, popular, adaptable tool. Is extensively used in cultivating sugar beets. Has diamond-shaped steel teeth with cultivator point forged on one end. They are adjustable for depth and

angle. With lever expander, cultivates 34 in. wide and closes to 11. When furnished without wheel, Price, \$4.50.

A Spike-Tooth Harrow with Lever Up. A Smoothing Harrow with Lever Down.

Tray partially filled with potatoes for sprouting.

Some of the Tools and Helps on the Farm

Churn, Cream Separator, Grapery, Chicken Coop, and Manure Spreader

This style of churn proves very satisfactory on the average farm

Cream Separator

Fig. 78.—GREENHOUSE OR GRAPERY.

Chicken coop with inclosed and partly covered run

KEMP'S MANURE SPREADER.

Implements Used on the Farm, from Henderson's Catalogue

HAND CARTS.

HUSKING PINS.

GRASS SHEARS.

MILK PANS.

LAWN ROLLER

FARM WAGONS.

HUSKING GLOVES.

CORN SHELLERS.

POTATO PLANTERS.

WINE MILLS.

SEED SOWERS

BONE CUTTERS.

STORAGE OF FARM PRODUCTS

Community Interests Are Solving the Problem of Proper Care of Fruits, Vegetables and Grain—the Last Step Towards Putting the Farm on a Business Basis.

Proper storage, whether for fruits, vegetables or grain, is a topic of constantly growing importance to the farmer. Every year cold storage is being brought closer to the farm. The farmer knows its benefits; he knows that by means of refrigeration crops may be held till market conditions are right. He knows that the harvest time is not the proper season for realizing good prices for his produce, and he knows as well that someone is making an extra profit from holding the fruit that he has raised until the normal supply has been used and prices have gone up in consequence. Like other business men, he wants a fair return for his labor and investment, and through individual or community cold-storage plants he is beginning to see his way clear to accomplishing his object.

Of course only on large farms would an individual storage plant pay, except in the way of granaries, bins, silos, barns and cellars. Artificial refrigeration requires a fairly large output to overcome the cost of maintenance. But the community storage plant is easily feasible, as has been proved in the case of co-operative grain elevators, and in the shipping associations of fruit and vegetable growers in many parts of the country. The larger the organization, the greater the net profit, but even small communities raising a common crop can profitably adapt the scheme to their own use.

In California—in all the big fruit states—co-operative associations of fruit-growers are taking over for themselves the responsibilities as well as the profits of proper handling, holding and selling of perishable farm products. The orange and lemon growers of California are banded together in such a mutually helpful organization. The growers of early vegetables, both there and in Florida and other southern states, are falling in line. In the East, the cranberry industry is organized on much the same basis, and in many Michigan localities peaches are marketed and handled in this economical fashion.

Branch cold-storage plants are being installed in the smaller market towns as feeders for the big centers of consumption. Farmers are being encouraged to buy storage when the market price of farm products is too low to tempt selling. The commission man is hiring

Storage of Farm Products—Continued

out his services as an expert in the storage of fruit, selling storage to the farmer who wants to take his own chances on the market.

There was a time, not so many years ago, when the average farmer raised only fruit for home use. The surplus was sold when ripe—if at all—at ridiculous prices, or left to rot on the ground. Apples brought twenty to fifty cents the bushel direct from the orchard; by the holidays the price was out of sight and few to be bought at any price. That was before the day of commercial refrigeration. Now the situation has changed. Prices continue to be low when the crop matures; prices soar through the winter; but apples are nevertheless plentiful. The profit goes to the man who takes the risk—the commission man who has a storage plant to conserve the fruit till market conditions are right.

But conditions are again changing. Everywhere farmers are beginning to demand their fair share of the profits, willing at the same time to bear their fair share of the risk. A number of circumstances have made the new condition possible. New and economical methods of refrigeration—smaller and cheaper plants nearer the farm or on it. Easier and cheaper means of distribution. The parcel post system is making an easy path direct from producer to consumer, and the express companies are offering like inducements. It is now profitable to ship in smaller and smaller quantities. The small fruits, eggs, butter, vegetables, etc., find a ready market in the city, transported at a rate that leaves a margin.

But for the larger fruits, the parcel post or express shipment is not so practical. Moreover, the harvest season comes but once, while the demand continues the year round, prices improving steadily out of season. The longer the farmer is able to hold his fruit, the better his profit. In progressive communities associations are being formed to install storage plants, refrigeration centers, sales agencies. An expert is put in charge, the expenses being taken care of pro rata. The local manager is in touch with markets, prices, the condition of the produce. His employers realize a good profit on his services.

But the members of the association must know something about the storing of fruit so that it may reach the plant in condition best adapted for long keeping. A few directions along this line may prove of value.

Apples, Pears, Peaches. These fruits usually should be fully grown and highly colored to give the best keeping and commercial qualities. Appearance counts a great deal in determining price, but

Storage of Farm Products—Continued

fruit will stay sound longer and be freer from scald and rot if thoroughly ripe. However, fruit from rapidly growing young trees is likely to be overgrown and often needs picking earlier. Picking over the trees several times may be necessary to get uniformity, but it pays. It pays to grade fruit according to size, color and quality. Imperfect fruit rots more quickly and soon contaminates the rest. Bruised fruit should be sorted out.

The fruit should be stored as quickly as possible after picking. The ripening which takes place between picking and storage shortens the life of the fruit, especially if the weather is hot. In the storage plant the fruit should be kept at a temperature of 31 to 32 degrees. Wrapping the fruit holds the color and prevents wilting and bruising. Keeping the fruit closely packed in closed boxes or barrels helps; ventilation hastens rot.

Small Fruit. As a rule small fruit, berries, etc., are not held in cold storage more than a few days. For this purpose a temperature of 36 to 40 degrees is satisfactory. To keep for any great length of time the fruit must be thoroughly frozen. It is well to remember that such fruit rapidly deteriorates after being removed from refrigeration, and that the best results are obtained when the fruit is merely cooled for quick sale. Small fruit that is carefully sorted and graded finds better and easier sale. Bruising of fruit is minimized by making the commercial package as small as possible.

As a rule, berries, currants, cherries, etc., should be picked when well matured and fully colored, but while still firm. The same conditions hold true regarding grapes, cranberries, the smaller plums, etc.

Pre-cooling of Fruit. In order to assist the shipper, pre-cooling plants have been established at nearly all large shipping stations, so that the fruit may be cooled before packing. After being placed in crates or boxes or barrels, the cooling is necessarily very slow, and much deterioration may result before the car refrigeration is complete enough to arrest it. It cannot be too strongly emphasized that reduced temperature is necessary for the proper keeping of perishable products, even when fruit is separately wrapped, packed in sawdust, or otherwise protected, and the initial cooling is a very essential part of the process. Packed fruit will stay warm or will stay cool a long time.

Vegetables. As a rule vegetables are not so delicate and there is much better chance of reviving wilted shipments. Many of the coarser vegetables, too—potatoes, turnips, squashes, pumpkins, etc., unless

designed for long keeping, do not require any extra precautions save protection from bruising, freezing and dampness. Of these the last is especially important. Potatoes should be thoroughly dry before being packed for shipping; any care in the way of cleaning, sorting, etc., pays in higher price per bushel.

Fresh vegetables as a rule should be packed closely, where possible, with roots or tops left on. Lettuce keeps better where not trimmed too closely, although properly bleached head lettuce brings a higher price when trimmed. Bunch stuff sells more easily and brings better prices than bulk, but requires more careful handling and a readier market. Pod peas and beans should be boxed in commercial quantities—the less any vegetable is handled the better its appearance and condition.

Grains. No farmer needs instruction in the storing of grain, and the method of shipping is familiar enough. The grain should be thoroughly ripe, thoroughly dry, and should be kept in a place not subject to great variations of temperature and away from all dampness. Proper ventilation is necessary, but water is the greatest grain enemy. Most of the grain of the country is now stored in elevators, one or more being located in or near every grain-producing community. Many of these elevators are co-operative in their nature, the expense being borne proportionately. As a rule, the farmer stores on his farm only his stock food and seeding grain.

Co-operation in the handling and sale of fruit, vegetables and grain. Inasmuch as under the mixed-crop system few farmers raise enough of any one kind of fruit or vegetable to make an individual refrigeration plant very profitable, co-operative organizations are coming into favor. Occasionally it is cheaper to use the branch commission house for this purpose when the amount shipped at any one time is small. Only when the agriculture of a community is of one kind would any extensive plant pay. But in the grape districts, the apple regions, the peach and pear and truck-farming regions, such an organization meets a real need. Some of the benefits derived are quickly apparent to the farmer whose fruit has barely paid hauling expenses because of poor condition on arrival. Car-lot shipments of perfectly kept produce are cheaper to handle and bring better prices. Such an association, too, has a tendency to improve the quality of the fruit and vegetables offered for sale, and it certainly enables the farmer to realize his fair share of the profits derived from holding his crop for advantageous market conditions.

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