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WICKSTRUM'S

BOOK ON

POULTRY

WICKSTRUM'S BOOK ON POULTRY

ILLUSTRATED

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PREFACE

The information given in this book is that gleaned from an experience of almost a quarter of a century in actual poultry raising. It is given to the farmers and others who are not engaged exclusively in poultry raising in the hope that some of the experiences or suggestions will help them to get more profit and enjoyment out of the work. The statements made are based on facts, not theories.

The information given on the different subjects is of necessity condensed, as a volume could be written on any one of the subjects, but the main points are brought out in a practical way, with the result that a beginner, by reading these pages and giving thought to the subjects presented, will gain a general knowledge of practical poultry raising as it is carried on by the average individual.

If this work gives assistance to anyone its object will have been accomplished and the desire of the author gratified.

P. M. WICKSTRUM

Lincoln, Nebr.

October 1, 1910.

BREEDS OF CHICKENS.

THE AMERICAN CLASS.

BREEDS of chickens are divided into a number of classes, the most important of which is the American class. This class is made up of breeds originated in America, and comprises the Plymouth Rocks, Wyandottes, Rhode Island Reds, Dominiques, Javas and Jersey Blues. All these are clean legged fowls and are of medium size—the size that meets the demands of our markets. They are all considered general purpose fowls, combining the qualities of good layers and good table fowls.

Each of these breeds is divided into a number of varieties. There are the Barred, White and Buff Plymouth Rocks, all of which are very popular and are extensively raised by both poultry fanciers and farmers. In point of numbers raised, the Barred variety takes the lead. As poultry fanciers are continually creating new varieties of fowls, the list of Plymouth Rocks is growing quite lengthy as in addition to the three varieties mentioned we have of later origin and lesser popularity the Partridge, Silver Penciled, Golden Barred and Columbian Plymouth Rocks. Of these the Partridge variety is very much admired and will, without doubt, grow in favor with all classes of poultry raisers.

The original Plymouth Rock—the Barred variety,

1. Barred Plymouth Rock cock. 2. Barred Plymouth Rock pullet. 3. Silver Penciled Wyandotte cock. 4. White Wyandotte hen. 5. Rose Comb Rhode Island Red cock. 6. Single Comb Rhode Island Red hen.

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bluish gray in color—is referred to as America's greatest production. It is a favorite with fanciers and farmers alike, and while other breeds and their varieties will come and go, the Barred Plymouth Rocks will always remain—the idol of American poultrymen.

The Wyandotte breed is divided into no less than thirteen varieties of which the Whites are by far the most popular, although the Silvers are the original Wyandottes and were first known as American Sebrights. The Whites resulted from what is termed "sports" from the Silvers. Nearly all colored breeds of chickens will occasionally produce a pure white one. By selecting the white sports from Silvers and breeding from them for a term of years, the pure white variety was produced. Today the Whites breed truer to type than any other Wyandotte variety. Other varieties are the Golden, Buff, Black, Partridge, Silver Penciled, Columbian, Cuckoo, Buff Laced, Violet Laced, Blue and Buff Columbian. These are all the results of crosses, and it required many years of work in breeding to establish these varieties so that they would breed reasonably true. In addition to the Whites and Silvers, the Golden, Buff, Partridge and Columbian Wyandottes are favorites among poultrymen and are quite extensively bred, but the remaining and newer varieties have not attracted much attention, and are rarely ever seen outside of the yards of a few fanciers.

The Wyandotte as a breed is one of the very best races of domestic poultry. Wyandottes are all purpose fowls and are profitable for any branch of poultry raising. In size they average about a pound less than the Plymouth Rock. It is interesting to note that some

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large buyers of market poultry pay a premium above market prices for Wyandotte fowls, while others prefer, and pay more for Plymouth Rocks.

No breed of chickens came to the front more rapidly nor received a heartier reception at the hands of poultrymen, than did the Rhode Island Reds. Their brilliant red color attracted the eye of the fancier, and their productiveness appealed to the farmer and commercial poultry raiser—so much so, that in many instances the old time Barred Plymouth Rock favorite had to give way to this new comer. As a practical fowl it is doubtful if in the entire category of the fowl race, there is anything better than the Rhode Island Reds, originated by practical poultrymen in the state of Rhode Island, from whence, together with the color of the plumage, the breed derives its name. This breed is made up of two varieties, distinguished only by the style of the comb, one being rose and the other single. No difference in point of usefulness between the two varieties is noticeable.

What are called Rhode Island Whites are known in a very small way in the extreme East, but it is doubtful if they will ever attract greater attention than at the present time, owing to their close resemblance to the white varieties of the Plymouth Rock and Wyandotte breeds. The Buckeyes, a comparatively new breed, which has a color similar to that of the Rhode Island Red, does not give promise of attracting world-wide attention as has the Red breed.

Black Javas and Dominiques are the oldest races of poultry of American origin, and they have long since lost a hold on poultry breeders, and just why, no one seems to be able to tell. It is pretty well established

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that the combined blood of these two breeds is responsible for the popular Barred Plymouth Rock, which takes its color from the Dominique. Aside from the black variety, there are also the pure white and the mottled (black and white) Javas. Javas and Dominiques are good breeds, but it seems that they are destined to sink into oblivion, a fact deeply regretted by men grown gray in the work of building up the money-making breeds of American fowls.

Jersey Blues, perhaps the oldest of American breeds, are almost extinct, due, no doubt, to the breed not having any special qualities to commend it to the rank and file of poultry raisers.

THE ASIATICS.

Under this head we have the Brahmas, Cochins and Langshans—the feather-legged family of chicken aristocracy—first brought to American shores by sea captains from ports in the Asiatic country. It was the advent of these enormous feather-legged fowls into America that created the first real interest in poultry breeding. The original importations consisted of what we now know as Cochins and Brahmas, but were known in the early days as Brahmapootras, Chittagongs and Cochin Chinas. Langshans came later, and were a perfected breed in the hands of England's fanciers before reaching this country.

Brahmas are the largest of all the races of chickens. There are two varieties, the Light and the Dark, either one of which has enough of fowl beauty to attract the eye of anyone. Light Brahmas have long been popular, but the Dark variety, beautiful steel gray

1. Light Brahma hen. 2. Light Brahma cock. 3. Buff Cochin hen. 4. Buff Cochin cock. 5. Black Langshan hen. 6. Black Langshan cock.

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in color, has never been extensively bred, although truly deserving of a more prominent place in fowldom.

There are four distinct varieties of Cochins—the Buff, Partridge, Black and White, the first named having always taken the lead, with the Partridges a close second. The craze for an abundance of feathering on the Cochin fowl, from the top of its head to the ends of its toes, that came from England to America a dozen or more years ago, had much to do with lessening the popularity and particularly the usefulness of these massive chickens. Among poultry showmen, Cochins are regarded as ideal show fowls, but for a commercial poultry business they cannot be looked to as a breed having the necessary qualities to commend them. For the city lot poultryman, Cochins are, however, profitable to handle, as they are not inclined to forage for their food, are easily confined and will produce an abundance of eggs in winter weather. This is also true of Brahmas.

The original Langshan was glossy black throughout in color. Later the white variety appeared, and in more recent years came the Buff and Blue varieties. The latter, however, is hardly known in this country. The Whites are scattered well over the country, but do not receive the attention given the original Black Langshan. The Black Langshan has more admirers than any other Asiatic variety. So stately is it in carriage that it is referred to as the Lordly Langshan. This variety is profitable to keep on the farm as well as in the yards of the fanciers. Throughout the central section of the United States they are raised in large numbers by farmers. The most serious objection that was ever raised against them was in reference to their

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Buff Orpington hen and Black Orpington cockerel.

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dark shanks and white skin. Chickens of American origin all have yellow skin, and there was a time when no other class of fowl would command attention in our markets, but nowadays the distinction is not so great. This is no doubt due to the fact that several very popular and profitable varieties of chickens brought to us from foreign shores have white skin, sometimes of a blue tinge or pink-white color.

Until about fifteen years ago all the leading Asiatic varieties were extensively bred, but about that time progressive American fanciers placed before the poultry public the new American creations, and breeders of "America's Greatest Production" displayed renewed energy in advancing claims for their favorites. Along with this, England sent us some of her new clean legged chickens, and the result was that Asiatic fowls were rapidly cast aside by many of their old time admirers for the fashions of the day. During the past year or so, however, there appears to be a renewed interest in some of the Asiatic varieties. Particularly is this true in reference to the Black Langshans, and the time may again come when the most fashionable fowls will be among those of the Asiatic class. Poultry fashions change as do the fashions of dress.

ENGLISH FOWLS.

It is not the purpose of this work to delve into English poultry history and give an account of all the races of chickens that come under the head of the English class, but reference will be made to those English breeds which have won favor at the hands of American poultrymen.

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The Dorkings, of which there are three varieties—Silver Gray, Colored, and White—were the original English fowls to be taken up in this country, but the Silver Grays are the only ones that really became generally known. The Silver Gray Dorking is a beautiful fowl in color and is heavy bodied with clean shanks, but like the Langshan, its white skin was against it in our markets.

The Dorking fowl is responsible, however, for much of the good that American poultrymen find in England's greatest production—the Orpington. The Orpingtons are a remarkable breed, and although only known in this country a few years, they are found in large numbers in every section of the country. Large, massive bodies set low down on stout, clean shanks, combining exceptional egg-laying and table qualities, all go to make the Orpingtons all-around fowls adapted to every purpose that a breed of chickens would be kept for.

There are eight varieties of Single Comb Orpingtons, viz: Buff, Black, White, Diamond Jubilee, Spangled, Ermine, Partridge and Blue, and in addition there are rose comb varieties of the three first named. For some time the Buffs were the only Orpingtons that commanded attention, but during the past year or so the Whites have become almost as popular, while the Blacks are a close rival of the Black Langshan. Other Orpingtons are kept only in small numbers and are not widely known. The introduction of Orpingtons into America killed much of the prejudice that existed against fowls with bluish-white shanks and skin.

What were originally called Cornish Indian Games

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and were recognized as belonging in the game fowl class are now known as Cornish fowls and in the near future will be transferred to the English class.

Cornish are fine table fowls and males of this breed are frequently used for crossing with other breeds or with common chickens for improving the table qualities. The original Cornish are dark in color—a combination of black and brown. White Cornish are gaining ground slowly, but the Buff variety has never been given much consideration. The latest addition to the Cornish breed is the Buff Laced variety, the merits of which are now being advanced by the originator.

Red Caps are an old English breed, but they never became popular in America, although they are excellent layers.

THE MEDITERRANEANS.

In this class we have the Leghorns, Minorcas, Black Spanish, Mottled Anconas, and Blue Andalusians, the Leghorns being the most extensively bred of all the Mediterranean breeds. These breeds had their origin in the countries surrounding the Mediterranean sea. They are the natural laying breeds, and in this respect hold their own so well, that practically every exclusive egg farm in America is stocked with some variety of the Mediterranean family, the Single Comb White Leghorn being the variety most generally used for this purpose.

The Leghorn breed is made up of the following varieties: Brown, White, Buff, Black and Silver Duckwing, and these are sub-divided into the Rose and Single Comb varieties. All are of the same size and

1. Single Comb Buff Leghorn cockerel. 2. Single Comb White Leghorn pullet. 3. White Face Black Spanish cock and hen. 4. Mottled Ancona pullet. 5. Mottled Ancona cockerel.

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shape and general make-up, one variety being distinguished from another solely by the color of the plumage and style of the comb. Leghorns are not only used on exclusive egg farms, but are just as popular among general farmers. Their large, white-shelled eggs make an attractive appearance in the market places.

Minorcas are the largest of the breeds in this class and their eggs, on the average, are larger than the eggs of any other breed. There are the Black and White Minorcas in both Rose and Single Comb, and of late a new variety called Barred Minorcas has made its appearance. This new variety has plumage of the same color and markings as the plumage of the Barred Plymouth Rock.

Black Minorcas of both combs are very popular, but the single comb variety takes the lead, which is only natural as it is the oldest representative of the Minorca family. Minorcas are not as attractive in appearance as the Leghorns, and not having yellow skin and shanks as do the Leghorns, no doubt accounts for the White Minorca not being kept in as large numbers as the White Leghorn. Rose Comb White Minorcas are bred only in a small way at the present time.

Blue Andalusians very much resemble the Minorcas in shape, but are somewhat smaller. So far this is the only breed clothed with blue feathers that has ever attained any prominence. They are very pretty and are splendid layers of white eggs, fully as large as Minorca eggs. Although belonging to the laying breeds, the Andalusian is considered quite a good table fowl.

The White Face Black Spanish is one of the old-

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Houdan cock and hen.

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est breeds of domestic fowls. They closely resemble the Black Minorcas in shape and color of plumage, but their milk-white face makes them distinct from all other breeds. The face of the Spanish fowl is covered with a kid-like substance which extends well down the neck, surrounding the wattles. This peculiar characteristic of the Spanish makes it different from all other chickens.

Anconas are much newer than the other breeds in this class. They could well be called Mottled Leghorns, as the standard requirements call for exactly the same size and shape of body and same comb as are demanded for Leghorns. The plumage of the Ancona is evenly mottled black and white. While not as well known as the Leghorns, the Anconas are fast gaining ground among those who are seeking a breed of natural heavy layers. Anconas rival the Leghorns as egg producers.

MISCELLANEOUS BREEDS.

Aside from the popular breeds mentioned in the foregoing pages, there is a long list of useful and ornamental breeds not usually kept on the farms, but which are much thought of by poultry fanciers who want to combine striking beauty of plumage with utility. Included in this list are the French, Dutch, Polish and Game classes.

The Houdan is the only French breed that has become at all popular. It is a very old breed, but never had a boom like some of the other breeds. On the contrary it has steadily advanced and is continuing to advance. The Houdan can be classed with the

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general purpose breeds, being a good layer of large, white eggs, and a good table fowl. In France, its native home, the Houdan is as popular as the Barred Plymouth Rock is in the United States. The black and white plumage, evenly mottled, and their large crests make the Houdans attractive fowls.

The leading Dutch breed is the Hamburg, the Silver Spangled variety being the most extensively bred. Hamburgs are small fowls and belong in the

Buff Cochin Bantam cock and hen.

heavy laying class. When they were first brought to the attention of poultrymen they were known as Dutch Everlasting Layers. They were also called Mooneys and Pheasants. It is doubtful if there is a prettier chicken than the Silver Spangled Hamburg.

The Polish fowls, all adorned with large crests, are strikingly ornamental and appeal strongly to fanciers who admire something odd as well as beautiful in chickens. The White Crested Black, Golden and

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Silver Polish are generally known and bred by fanciers, but as a general rule they are not raised in large numbers, as the demand for them is not sufficient to justify anyone in handling a large flock. For the person who wants to supply his own table with fresh eggs and have something that will add attractiveness to the home surroundings, the Polish fowl will fill the bill.

Games are not bred for egg production or for market purposes, although no fowls will surpass them as table poultry. They are kept principally by the sporting classes who admire their fighting proclivities, which quality is encouraged by Game fowl breeders.

There are numerous other breeds of rare and ornamental chickens, some of which are really useful and give good returns for the cost keeping them, but they are not well enough known to justify a description in these pages. As this is being written, arrangements are being made and contracts closed with poultry breeders in foreign lands, to send large exhibits of fowls to exhibitions of poultry in this country. These exhibits will be made up of breeds never before seen in America, and their advent on this side of the water will, no doubt, create a still greater desire on the part of American fanciers to add variety to the already long and varied list of pure bred chickens.

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UP-TO-DATE POULTRY HOUSES.

This picture shows the poultry houses on the rear of a city lot at the home of O. Compton, Lincoln, Nebr., who derives both pleasure and profit from his flock of Black Orpingtons. These houses were built along modern lines. They represent a combination of the fresh-air and curtain-front types of houses. The center house, which is 12 x 16 feet and was originally a small barn, is used as a fitting room for show stock, a feed room, etc. A bone cutter, clover cutter and feed mill are operated in this house, the power being furnished by a small gasoline engine. Alfalfa or clover hay is kept in the loft for use as desired. The low front of the scratching shed always remains just as it is shown in the picture, but the wire netting sides of the shed are covered with canvas curtains, the same as the top, during the winter. There are no partitions between the scratching shed and main part of the house. The roosts are above a raised platform along the rear side, and on real cold nights a curtain is dropped down in front of the roosts. People who have visited Mr. Compton's place say that his poultry houses are the best they have seen.

POULTRY HOUSES

THE purpose of this work is to impart information to farmers, and to people living in villages and the outskirts of cities, who derive pleasure and profit from raising chickens on a town lot, and in many instances in only the back yard, therefore no special reference will be made to the designs of poultry houses erected on exclusive poultry farms. Anyone who raises chickens is interested in knowing that poultry plays a prominent part in the resources of our country and that the raising of poultry can be successfully carried on as an exclusive business, yet, what the average poultry raiser is interested in most, is that which can be applied to his particular requirements. It is with these thoughts in mind, that special reference will be made to poultry houses best suited to the average poultry raiser.

Seventy-five per cent of all the poultry produced in the United States comes from the farms, but it is only in recent years that the farmers have given particular attention to the matter of poultry house construction. Chickens, and particularly the growing stock, will do well when roosting in the trees in summer time, but if the fowls are forced to roost out in this way during the winter weather, returns in the way of eggs will not be forthcoming, therefore the wise poultry keeper will consider the comfort of his hens in cold weather if he desires to make a profit from keeping them.

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IDEAL SUMMER QUARTERS.

Fruit trees make fine shade for chickens, and chickens must have shade in hot weather or they will not do well. The above picture shows the comfortable summer quarters for chickens at "Fairview," the home of W. J. Bryan, near Lincoln.

Those who have made a careful investigation of the matter of housing fowls to get the best results, no longer advocate the tight houses, lathed and plastered and heated with stoves, for general use as was the custom a few years ago. Many learned to their sorrow, that this unnatural way of housing chickens, weakened the fowls' constitution, and saw what was once a flock of vigorous and productive chickens deteriorate until they were of practically no value.

Fresh air for man, beast and bird is now the cry all along the line, with the result that the open-front or fresh-air poultry house has come into general use, which in turn has resulted in healthier and more vigorous stock than it was possible to have under the sys-

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tem of close housing. There are exceptional cases, however, when the snugly built, lathed and plastered houses are advantageous. Sometimes it is necessary to have the warmest kind of houses for the large combed breeds, in order to protect the combs against freezing.

During the winter it is necessary to have the fowls' roosting quarters so constructed, that drafts on the fowls at night will be avoided. Strange as it may seem to the inexperienced, chickens that roost right out in the open will not contract colds nearly as quickly, if at all, as will those that roost in a house with cracks or holes in the walls and are thereby in

WHERE EGGS ARE PLENTIFUL

F. J. Lewis' Egg Farm at College View, Nebr., is where Single Comb White Leghorns produce eggs in plenty. The poultry house shown above extends out from one end of the barn. It is a fresh-air type of house, with the feeding room or scratching shed part of the house along the front and the roosts and nests along the rear side. This house accommodates about 300 White Leghorn hens.

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A WELL-DESIGNED HOUSE

This poultry house is in use at "Fairview," the home of W. J. Bryan, near Lincoln. It is about 14 x 20 feet in size, and the entire south side is enclosed with glass, as the picture shows. In the newer houses muslin would be substituted for a portion of the glass. This would give more ventilation and would not interfere with the light to any great extent. When such a house is used it is advisable to have a curtain to drop down inside the glass at night during the winter.

a constant draft of air throughout the night. A house may be closed tight on three sides and the other side left entirely open, and the wind may blow in this open side right onto the fowls and still not cause the fowls to take cold. All that is necessary is to have the house deep enough from front to rear to accommodate the roosts at the rear side and thus protect the fowls from rain and snow that would at times beat in through the open side. But even then there is little danger of rain and snow getting in at the front

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of the building if the front is protected with a hood, or if the roof slopes to the front, having the front only three or four feet high and the rear side high enough to permit a person to enter the house without stooping.

The front of the fresh-air house should be covered with wire netting, with the entrance to the building on one side. It is always best to have the front of any chicken house facing the south, and to have the door on the east side. By this arrangement the north and west sides of the building are always tight, which is an advantage during cold and stormy weather in the winter, as the coldest winds blow from the north and west.

CONTINUOUS POULTRY HOUSE

Here is a style of house in common use where a good-sized flock of hens is kept. This house is divided into apartments and has a yard for each apartment. This is a good arrangement where pure bred poultry is kept and eggs for hatching are sold. The arrangement is equally good for a flock of laying hens, as by having the house divided into apartments the flock is also divided, assuring healthier hens and a greater egg yield. As a general rule hens do not lay as well when all crowded together as when divided into small flocks. For winter use the continuous house is favored by most poultry raisers on account of the convenience in caring for the fowls. In this style of house it is customary to have a hall or passageway along the rear side the entire length of the building. The feed can be kept in this hall and then it is an easy matter for the attendant to pass down the hall and feed and water the fowls in each apartment.

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A LEGHORN HOUSE

This illustration shows one of the poultry houses used by L. P. Harris, College View, Nebr., for housing part of his flock of Leghorns. At the time the picture was taken this house was accommodating a large flock of young Brown, White and Buff Leghorns. It was designed especially for winter use to insure against frosted combs and be conducive to winter egg yield. The house is two feet under ground and is built on a concrete foundation. The front slopes slightly which permits the rays of the sun to reach the farthest side of the building. A house of this style can be built on either a large or a small scale.

Good ventilation in a poultry house is very important. In a closed chicken house moisture will gather on the walls and this moisture will change to frost, causing the house to become very damp, and foul odors will be very noticeable. When a flock of fowls is confined in a house of this kind during the winter, their health is sure to be impaired. But if the openings for the windows in such a house are fitted with frames covered with muslin, and the glass windows replaced with these muslin-covered frames, an abundance of fresh air will at once be admitted to the

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building and the dampness will gradually disappear. Muslin-covered windows admit light and air, yet-keep out the cold and wind. One very good arrangement employed by successful poultry men is to provide each opening with both muslin and glass windows, these being arranged to slide over the opening, one from the left and the other from the right. By this arrangement the poultryman is permitted to have either a glass or muslin window or one-half of each or the opening not closed at all, as he sees fit. In connection with windows in poultry houses, another method employed by careful poultry keepers, is that of guarding

A COMMON STYLE OF HOUSE

Here is a house used by J. A. Graham, College View, Nebr., for housing his Barred Plymouth Rocks. It is 10 x 24 feet in size, and shows a style of house in common use among poultry breeders. Being on a brick foundation rats do not bother by digging under the walls. When a solid foundation like this is put in the house can be filled in with several inches of dirt, making the floor that much higher than the outside, which means that the floor would always be dry.

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HOUSE FOR A FEW FOWLS

O. Compton, Lincoln, Nebr., built the small house, shown in the above illustration, as an experiment, and the results were so satisfactory that he built large houses after the same plan. The canvas covered scratching shed is 4x6 feet, and the roosting and laying room is 4x5 feet. This is an ideal little house for a small pen of fowls.

against loss at the hands of chicken thieves by placing iron bars in the window openings, and also in front of the regular fresh air house, wire netting to keep the chickens in, being tacked on the outside. In a community where one poultryman had his chicken houses guarded in this way, this man did not lose a chicken, while neighbors all around him had their entire flocks taken by chicken thieves. Evidence of the thieves having visited the place where the houses were guarded with iron bars were found, but the thieves undoubtedly felt that too great an effort would have to be made to effect an entrance to the buildings as nothing was disturbed.

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One plan of building a poultry house is to divide the building into two rooms, using one room for roosting quarters and the other as a laying and feeding room or scratching shed. Aside from being covered with wire netting, and iron bars if possible, the front of the feeding room should be open. During the winter, if the weather should be very severe, this front could be covered with muslin. A more convenient plan, but more expensive to start with, would be to have a canvas curtain on a roller, which could be raised and lowered at will. The canvas would really be the cheapest as it would last for years, whereas the

POULTRY AND FRUIT.

At Strandberg's Poultry Farm, Davey, Nebr., where Barred Plymouth Rocks are raised in large numbers, the poultry houses and yards for the breeding pens are all arranged in the orchard, with the result that both chickens and fruit trees do well—in fact, a poor crop of fruit is unknown at this place. There are twenty poultry houses on this farm and each one is numbered. In the above illustration house No 5 is for a breeding pen of fowls, while house No. 15 is occupied by part of the free range flock.

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HOUSE FOR LARGE FLOCK.

Among the poultrymen in Lincoln, Nebr., is Geo. Buck, Sr., who devotes all of his time to the work at his Sunnyside Poultry Yards, where he keeps nothing but Buff Orpington fowls. The poultry house shown above was not quite completed when the picture was taken. When finished the house will be covered with Rubberoid roofing. It is 24 x 36 feet and is divided into six large pens, the partitions being made of wire netting. The front half of each pen is scratching space, and the nests and roosts are in the rear half. The roosts are removable for easy cleaning and are placed above platforms hinged to the rear wall.

muslin curtain would have to be replaced almost every season.

The size of the chicken house depends entirely on the number of fowls to be kept. Nothing is gained by crowding the fowls. From seventy-five to one hundred hens is a sufficient number to keep in one house. A roosting room 10x10 feet will accommodate a set of roosts for 100 fowls and still leave plenty of room to walk around the roosts on all sides. The feeding room should be at least 10x15 feet for

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a flock of this size, but 10x20 feet would be much better, especially if the winter should be long and severe and it was found necessary to keep the fowls confined in the house for a considerable length of time. In town, where chickens are kept in small flocks, the house should be made much smaller than the dimensions given.

With the improved methods of constructing poultry houses and equipping them, the work of caring for a flock of hens is brought down to a minimum. Where it is desired to utilize as much of the space in the house as possible, a platform, commonly known as a droppings board, can be placed along the rear side of

CONTINUOUS POULTRY HOUSE

The camera did not take in the full length of the building when the above picture was taken, as the house is fully 100 feet long. The picture was taken at the home of A. Wells, Normal, Nebr., and shows the same type of house and one that is used in the same manner as the one described on page 27.

FRESH AIR POULTRY HOUSE

This illustration shows one of the houses in use on Lee Schureman's five-acre Single Comb White Leghorn Farm, Lincoln, Nebr. This house is built after the design of what is known as the Tolman Fresh Air House. The front is four feet high and is entirely open except for the wire netting and the iron rods, the latter being used to guard against loss by chicken thieves. The awning is used only in summer to protect the chicks from the heat.

GOOD WINTER QUARTERS

One of the poultry houses on Lee Schureman's five-acre Single Comb White Leghorn farm, Lincoln, Nebr. This house is 12x40 feet and was constructed after what is known as the Park plan. It is divided into four rooms, each 10x12 feet. The rooms at the center of the building are the roosting and laying quarters, while the rooms at the ends are the feeding apartments, where the floor is kept well covered with scratching material. The openings in this house are provided with sliding glass windows and muslin covered frames and are also protected with iron bars.

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the room at a height above the floor that will make it convenient for the fowls to fly upon the platform to reach the roosts, which should be above the platform. This arrangement proves very satisfactory when the house consists of only one room. Where a special roosting room is provided the droppings board is not necessary, the roosts being supported by stands that rest on the floor, one at each corner. No poultry house is really complete without sanitary roosts, which enable the poultryman to keep the house free from vermin. Sanitary drinking vessels and feed hoppers are inex-

GOOD VERMIN PROOF ROOSTS

The illustration shows a set of what is known as the "Queen Lice-Proof Roost." The stands are made of iron, with a cup-shaped casting at the upper part of each stand. These cups are filled with liquid lice killer. Each roost bar is made in two parts. The lower part of the bar contains receptacles for liquid lice killer, and when the upper and lower parts are joined together a heavy piece of felt wicking is inserted. This wicking draws the liquid from below and carries it to the sides of the bar thus keeping the roost thoroughly saturated with the liquid. The deadly chicken mites which infest ordinary roosts cannot live on the kind of roost described above. For the comfort of the fowls and in the interests of greater profits every poultry house should be equipped with lice-proof roosts.

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pensive, yet they render valuable assistance in keeping up the health of the fowls and lessening the work in caring for the flock.

In building a poultry house, bear in mind the conditions as they exist during the winter and construct the house to meet these conditions. If this is done, the building will prove to be satisfactory for use the year 'round.

COLONY POULTRY HOUSES

These individual houses are used in different ways. It is a good way to house the breeding pens or the laying flocks during the spring and summer. A good many poultry raisers place their little chicks in this style of houses as soon as they are taken from the incubator, an indoor brooder being used in each house until the chicks are old enough to get along without the brooder. When the chicks are old enough to roost, a set of roosts is placed in each house. The colony house plan is very popular and is used by many the year around, but in parts of the country where there is considerable cold and stormy weather during the winter months it is sometimes rather inconvenient to go from house to house feeding and watering the flocks. In the Pacific coast states and southern states colony houses can be successfully used from one year's end to the other. When this style of house is used for free range flocks the buildings should be placed far enough apart so that the flocks will keep divided during the day. In this way each set of fowls will go to their own house at night. An orchard is the best place in which to use a number of colony houses.

CARE OF THE FOWLS

THE care of the fowls on the general farm does not entail any great amount of labor even when the work is well done. The main thing is to provide the right kind of a house for the fowls and have it equipped with sanitary roosts. Every farmer knows that lice on the fowls and mites in the chicken house take the life right out of the chickens, leaving them in a run-down condition, with the result that the flock does not give any returns. For this reason it is very important that the best methods be employed for keeping the house free from vermin.

On the farm the work of keeping the poultry house clean is the most important, as the matter of feeding practically takes care of itself for the greater part of the year. The hens, having free range, pick up any amount of grain that would otherwise go to waste. In roaming over the fields and through the orchard they get everything they need in the way of a variety of feeds—a real balanced ration as the scientific poultryman would term it. No prepared balanced ration will ever fill the bill as will the great variety of feed that the hen will find on the farm.

It is only recently that farmers have awakened to a realization of how much good the hens do in the way of destroying insects in the fields and orchards. Some farmers are now increasing the size of their flocks of hens for the purpose of having enough hens to eat up the grasshoppers that feed on the growing grain,

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A WELL CARED FOR FLOCK

The illustration shows a very small part of one of the large poultry houses and a part of the flock of 700 Silver Spangled Hamburg fowls at the home of Col. J. L. Brown, Kearney, Neb. Col. Brown devotes the greater part of his time to the care of his fowls and he gives them extra good care with the result that his hens are a profitable investment. He sells thousands of eggs for hatching and as many more on the market every year. During the breeding season the selected matings are confined in yards, while the balance of the flock is given free range in the orchard at the rear of the poultry houses.

thereby decreasing the yield. These things are mentioned, not only to show that the hens on the farm make their own living during part of the year, but in return render untold service to the farmer in protecting the grain and fruit. Such hens, if they are the selected pullets from the flock from year to year, will furnish the farmer's wife with an abundance of fresh eggs at practically no cost for feed during the spring, summer and fall months.

About the only thing that might be lacking to complete the hens diet, is grit in some form. A wag-

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on load of coarse sand placed within a framework of boards near the poultry house will furnish grit, and it is surprising how much sand a flock of hens will consume in a year.

During the winter more attention must be given to the matter of feeding the fowls, especially if the weather is severe and there is much snow, necessitating keeping the fowls confined in their house for several days at a time. At this time of the year oyster shell and grit should be kept in hoppers in the feeding room where the hens can have access to it at all times. Construct a platform two feet square, one foot above the floor, and on this platform place the drinking fountain. By having the drinking fountain up off the floor, the water will be clean all the time. The hens soon learn to jump up on the platform to drink. By securing the nest boxes to the wall none of the floor space will be taken up. A dirt floor is best. Before the chickens go into the winter quarters take out the dirt

DRY FOOD HOPPER

DRINKING FOUNTAIN

These are serviceable, yet inexpensive, appliances that pay for themselves many times over in a season. Both fountain and hopper are made of galvanized iron. The hopper can be used for dry food, grit, shell, etc.

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HEALTHY AND HAPPY

Fruit trees and alfalfa, providing good shade and the best kind of green food, and where plenty of insects furnish animal food for the fowls. This picture was taken at "Fairview," the home of W. J. Bryan, near Lincoln, Neb. No better conditions for healthy, productive fowls exist for a free range flock, and the same is true for yarded fowls when the houses and yards are built in the orchard. Here the trees, grass and insects prove beneficial to the fowls, and the trees are more productive on account of the insects that would otherwise destroy foliage and fruit being devoured by the hens. Fruit and poultry make a combination hard to beat.

to a depth of about three inches and replace with fresh soil. By doing this the hens will not be forced to work over the dirt that has become foul during the summer. Keep the floor well littered with straw, changing the straw as often as it becomes soiled and odorous.

In feeding during the winter, duplicate as near as possible the variety of feeds that the hens gather during the summer. Grain is always the main feed. Scatter wheat in the litter and let the hens work for it during the day. Feed whole corn at night just before roosting time. Oats are excellent for laying hens and

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when steamed will be eaten readily. Put the oats in a pail and pour hot water over them. Cover the pail and allow the oats to steam until the hulls are softened, then pour off the water and mix the oats with bran and feed from a trough. A warm feed of this kind the first thing in the morning proves very satisfactory. Bran, either dry or in the form of a mash, is an excellent feed for laying hens at any time.

Bulky food to take the place of grass in the summer can be supplied by sprouting oats in the cave or cellar. Alfalfa leaves steamed, and cabbage, in fact, most any vegetables that can be kept through the winter make excellent feed. On the farm there is generally something in the way of meat that can be given to the hens. Meat to take the place of grasshoppers and insects helps along the egg supply in winter. By feeding a variety and duplicating summer conditions to a certain extent there will be but little danger of the fowls overeating and getting out of condition. A quantity of granulated charcoal in a hopper in the feeding room where the hens can eat it at will, will usually correct any little ailment that might arise from overeating or insufficient exercise.

In the foregoing, the care of the fowls on the farm is quite generally covered, and in the main will apply to the care of the fowls in the city or village. Especially is this so in reference to the housing and the feeding. In town-lot poultry raising, however, a system of feeding must be employed the year around as the fowls have but little chance to range. They are almost entirely dependent upon their owner for what they get to eat, therefore the town-lot poultryman is responsible to a very great extent for the results ob-

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tained from the hens. In town more attention must be given to the matter of providing the fowls with grit, shell and animal food than on the farm, and as most people who keep poultry on a town lot conduct their poultry business as a side line from their regular work, conveniences in the way of poultry house appliances, when used, will materially lessen the work of caring for the fowls.

CARE OF LITTLE CHICKS

THE newly-hatched chicks are very tender, and if all of them are to be raised they must be given careful attention the first few days of their lives, whether being raised with hens or in brooders.

In raising chicks with hens, always have the brood coop ready for the hen and chicks before the chicks are hatched. In constructing the coop bear in mind that the chicks are going to grow, if given half a chance and that the hen will desert them long before they are large enough to roost in the hen house. For these reasons the coop should be made large enough to house the chicks until they are half or two-thirds grown. The coop should not only be made storm proof but should be so constructed that rats and other varmints that prey upon young chickens cannot molest them at night.

Having decided on the size to make the coop, nail the coop together, then cut boards for the floor to fit inside the coop. Fasten the floor boards together with a cleat at each end, leaving the cleats project about an inch on both sides for the sides of the coop to rest on. This will prevent anything that might get under the coop from raising the floor, thus the chicks are safe from that source. The lower half of the front should be slatted to keep the hen in, but at the same time permit the chicks to go in and out between the slats. If each side of the coop, to the height of the

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TEACHING THE CHICKS TO EAT

While a great many chicks seem to be told by instinct that they should eat, and they eat and grow right from the start, there are others that require help. It requires only a little help each day for three or four days to get all the chicks to eating regularly. When chicks are hatched with a hen, the hen teaches them to eat, but when they are hatched in an incubator, the person who is to raise the chicks must take a little time to get them started right. If you will try tapping on the brooder floor, ground, or feeding board, preferably on something hard so the sound of the tapping will be heard by the chicks, the chicks will crowd around your hand, and if a little feed is on the floor the chicks will at once commence picking at it. In this way all the chicks will rapidly learn to eat. Just before the chicks go into the brooder for the night, take time to feel their crops, and when you find one with an empty crop use a little extra care in getting it to eat. Every chick should go to sleep at night with a full crop. Notice in the above picture how the chicks crowded around the hand when they heard the tapping of the fingers on the feeding board.

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opening in front, is made one inch shorter than the upper part of the sides, with a strip along the front at the bottom to hold the two sides in place, a frame covered with fine mesh wire netting or window screen will slide in back of the slats and when in place at night the chicks will be perfectly safe. This is a simple method of making a serviceable brood coop, and could well be adopted by anyone who raises chicks with hens.

Place the coop where it will be protected from the sun during the heat of the day. Shade is very important during the hot summer months. However, do not get the mistaken idea that the chicks should be kept in the shade all the time. Locate the brood coop so that the chicks will have opportunity to run

BROOD COOP FOR HEN AND CHICKS

This illustrates the style of brood coop described in this chapter. At night the frame covered with wire screen is shoved into place and the chicks are perfectly safe.

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BROOD COOPS AS ORDINARILY USED

The coops shown in this picture answer every requirement, excepting that they are not proof against rats and other small animals that are always ready to carry off little chicks at night. With a little extra work these coops could be made to conform to the description of the brood coop given in this chapter. The location of the coops in the orchard provides an ideal range for the chicks.

out in the sun and have access to shade at the same time. An orchard is the very best place in which to keep the hens and chicks. As a rule, people who live in town do not have orchards, but nearly everyone has either a few fruit or shade trees or bushes among which the brood coops could be placed.

Cover the floor of the brood coop with dry dirt or sand and it is ready for the hen and chicks. It is best to keep the hen confined in the coop until the chicks are from ten days to two weeks old. By that time the chicks will have a good start and will be strong enough to follow the hen about. On the farm it is advisable to give the chicks as much liberty as

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possible, as the hen will help them to find many a choice morsel of food that they would not get if they were kept on limited range. The average town lot poultry raiser will find it impractical to give the hen and chicks free range, therefore it is advisable to attach a run-way to the front of the coop for the hen, having the run-way so constructed that the chicks can go in and out at will.

When the hen and chicks are first removed from the nest, give the hen a thorough dusting with insect powder and rub a little fresh lard or vaseline on the head and neck of each chick. This will remove the large body and head lice that may be on the hen and chicks. Every two weeks repeat the operation of dusting the hen and greasing the chicks. If this is done there will be no danger of lice killing any of the chicks.

If a coop with a removable floor, as described, is used, the matter of cleaning the coop is very simple as the coop can be lifted off of the floor and the floor swept and scrubbed perfectly clean in a few minutes. The brood coop should be cleaned at least once a week, and when through using it for the season, store it away in a shed. It is also a good plan to give the coop a coat of paint on the outside and a coat of white-wash on the inside once each year. This will keep it clean and in good shape for many years use.

Chicks do not require any feed the first two days. From then on until they are from five to seven days old they may be fed on hard boiled eggs mixed with bread crumbs or bread crumbs moistened with milk. After that give them dry grains cut fine. There is

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AN IDEAL BROODER COOP AND COLONY HOUSE

No better arrangement for raising chicks in an indoor brooder can be provided than that shown in the above illustration. The coop should be about 4x8 feet on the ground, 3 feet high at the rear and 4 feet at the front. The illustration shows the construction of the coop so plainly that a complete description is unnecessary. The window opening should be enclosed on the inside with fine mesh wire netting. The hinged frame is covered with muslin. There are many things in favor of a coop of this kind when chicks are being raised artificially. It provides an excellent feeding room and perfect shelter in cold or stormy weather, and the chicks are not forced to remain in the brooder for hours at a time. It means that the brooder takes the place of the hen instead of the hen and coop, thus the chicks only go into the brooder at intervals to warm themselves and at night. When the chicks no longer require the warmth of the brooder, the brooder is removed and you have a very satisfactory colony house in which to house the chicks until they require more roomy quarters. A brooder coop and brooder, just as shown in the illustration, would prove a profitable investment for any poultry raiser.

nothing better than the properly prepared dry chick food. As soon as the chicks are large enough, feed them wheat screenings or whole wheat. Keep sand or fine chick grit and fresh water before them at all times. Drinking fountains for chicks are inexpensive and it is advisable to use them as there is no chance for the chicks to get into the water and drown.

The care of chicks in a brooder is very similar to caring for them with hens. However, when a brood-

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er is used the chicks must be taught to go under the hover and must be helped a little in order to get them started to eating and drinking. Bear in mind that a brooder cannot call the chicks or go to them, therefore the chicks must be taught to go to the brooder. From two to four days are usually required in assisting the chicks to get started on the right road, but after that they get along fine, and in most instances better than when they are raised with hens. The poultry raiser will be well repaid for the careful attention he gives his brooder chicks the first week in order to get them started right. Brooder manufacturers who are interested in the success of their customers, furnish plain and complete instructions for using their brooders. The precautions taken to guard against lice when chicks are hatched and raised with hens need not be considered when artificial methods of hatching and brooding are employed.

CARE OF GROWING STOCK

AFTER the chicks have been deserted by the hen or have been removed from the brooder it is best to keep them separated from the old fowls and the later hatched chicks. If they were brooded with hens in roomy coops they may be permitted to continue using these coops until they have outgrown them. If the outdoor style of brooder is used it will be necessary to provide coops or what is termed colony houses and transfer the chicks to these as soon as they have outgrown the brooder. If indoor brooders were used in brooder coops or colony houses at the start, then all that would be necessary to do would be to remove the brooder and let the young chickens remain in the coop. A little later on when the young chickens begin to look about for something to roost on, it will be necessary to place roosts in the coops or the chickens will try to roost outside on the roof or they may take to roosting in the trees. There is no serious objection against the chickens roosting in the trees during the summer, but if allowed to do so the poultry raiser will experience considerable difficulty in training them to go into the poultry house when winter comes on.

If the young chickens have free range, their feed need not consist of anything but grain. In the morning give them just what they will eat up clean. If they come up to their house at noon and appear to be hungry, give them a little feed, but at night feed them

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YOUNG STOCK ON RANGE

These pictures were taken at Union College, College View, Neb., where a poultry department is being successfully conducted. This department is in charge of Prof. C. C. Lewis, president of the college, and a specialty is made of Single Comb White Leghorns. In the upper picture some of the A-shaped colony houses are shown. These houses are each 6x6 feet, ground dimensions. There is quite a saving in building this style of house as the roof also forms two of the sides. Young stock grown in such splendid surroundings are sure to grow rapidly and develop into strong, healthy fowls.

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all they will eat. Try and have each chick go to roost with a good full crop. When the chickens are raised in confinement the feeding problem must be carefully considered, as it is very essential that a variety of feed, including green stuff and meat, be given if the chickens are to make a rapid growth and mature into vigorous, well-developed fowls. The yards must be kept clean and the ground spaded up occasionally. Bran is an excellent feed for chickens that are being raised in confinement. It assists in keeping the chickens in good condition, making them less susceptible to crop and bowel troubles.

FEEDING THE YOUNG STOCK

This is the style of feeding coop used on the farm of Perry Strandberg, breeder of Bared Plymouth Rocks, Davey, Neb. The coop is raised just enough from the ground to permit the young chickens to crawl under the edges, while the old fowls are forced to remain outside. The top of the coop is covered with wire netting. This is an extra good arrangement for feeding young chickens on a farm, where all the poultry, old and young, has free range. It enables the young stock to get plenty of feed to insure steady growth, while the old fowls are not overfed. Every farmer would profit by adopting this plan of feeding.

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A GOOD COLONY HOUSE

This house is 4x6 feet on the ground, 6 feet high in front, and 5 feet high at the rear. It can be used for housing either hens and chicks or a brooder and chicks. It can also be used for growing stock or for a pen of grown fowls. Also see illustration on page 54.

When making the rounds to close the coops for the night, examine the chickens occasionally to see that they are not becoming crowded. Young chickens that are crowded at night will sweat and are liable to contract colds when they come out into the cool air in the morning, especially along during the fall. Whenever chickens get too warm at night they lose strength, their growth is retarded, and they will not

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develop into as good fowls as they would if care was taken to prevent crowding. Thus when the chickens get so large that they are cramped for room in the coop, the number should be reduced.

When the chickens are raised in confinement, it is advisable to separate the cockerals from the pullets as soon as they can be readily distinguished. If this is done they will all grow better and develop into better fowls.

Many of the points brought out in connection with the care of the fowls and little chicks can be considered in caring for the growing stock.

COLONY HOUSE FOR GROWING STOCK

This is another picture of the house shown on page 53, and shows the house as it is used in housing young chickens. A frame, with slats attached, is placed about eight inches from the floor. Heavy burlap or any other suitable material is attached to the under side of this frame so that it will bag down. This is for a hover arrangement for the chicks after they have outgrown the brooder. When the chicks have reached the age when they no longer require the hover, the cloth is removed and the slats are used for roosts. This arrangement has been tried out and proved to be satisfactory.

NATURAL INCUBATION AND BROODING

IN hatching chickens with hens the best results cannot be obtained if the hens are set in the poultry house where the laying hens are kept. If this is done there are sure to be many eggs lost on account of other hens crowding on the nests with the setters. At times the hens will fight, resulting in an entire nest of eggs being destroyed. The natural instinct of a setting hen is to seclude herself and hatch her brood in peace and quiet. The poultry raiser will profit by providing his setting hens with that seclusion which nature tells them they should have.

Everyone who has had experience with poultry, knows that when a hen hides her nest and lays her clutch of eggs and sets upon them twenty-one days, without being bothered by man, beast or bird during that time, each egg is pretty sure to produce a chick. This being true, it is advisable to get as close to nature as possible when arranging the nests for the setting hens.

The first thing to consider is the eggs. These should be carefully gathered as soon as convenient after they are laid. Place the eggs in a cool place and thereby guard as much as possible against the eggs getting too warm, thus injuring the germs before they are set.

Although a hen may hide her nest up high and

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ARRANGEMENT FOR SETTING HENS

This picture shows a row of nests for setting hens, with a run-way in front of each nest, as described in this chapter. It is a good arrangement for those who still cling to the old hens for hatching and raising chicks.

dry in a hay loft and bring off a good hatch, when man undertakes to set a hen it invariably happens that a better hatch will result if the hen is set in a cool place on the ground. A special effort should be made to arrange the nests for setting hens in such a manner that other hens cannot interfere with the setters. Different people employ different methods of providing nests for setting hens. One method is to make a yard twelve feet square and put small coops in this yard. Make a nest in each coop so that each hen will be by herself. Keep feed and water in the yard and allow the hens to leave their nests and return to suit themselves. It is best to visit the yard twice a day to see that two hens have not gone onto one nest, but as a usual thing only one hen will be off of her nest at a time. When coops of this kind are used they could be cleaned out after the chicks have hatched and the hens and their broods left in the coops. But if this

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is done, each coop should be fitted out with a removable floor and a frame covered with a wire screen for the front as described in the chapter on "Care of Little Chicks."

Another plan is to build a long, low coop and divide it into sections, one section for each hen. Then have a covered yard the same height as the coop in front. Divide the yard into as many sections as there are in the coop. Keep feed and water in each section of the yard and leave the front of each section of the coop open. When this method of setting hens is followed there is no chance of two hens getting onto one nest. Each hen will have her own way and will rarely ever break any eggs and good hatches are generally the result.

NESTS FOR SETTING HENS

This is the style of nest boxes described in this chapter, except that the run-ways to be used in front of the nests do not show in the picture.

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When the hens are set they should be given a thorough dusting with insect powder, and if they are given an opportunity to enjoy a dust bath when they come off of their nests for feed and water, lice will not cause much trouble. If the hens have been handled gently and are tame, it is an easy matter to transfer them from the nests in the laying house to the hatching nests, but hens that have not been handled and are therefore wild, will not always content themselves on strange nests. It always pays to be gentle with the hens, no matter what they are kept for. Hens that are treated kindly will be better layers, setters, and mothers, than will those that are frightened every time anyone goes near them.

The matter of brooding the chicks with hens is taken up in the chapter on "Care of Little Chicks."

ARTIFICIAL INCUBATION AND BROODING

BEFORE the methods of hatching and raising chickens artificially came into general use, the chicken business did not amount to much. The business was not talked of and written about as it is now, therefore the demand for poultry products was far less than it has been in late years. Now the demand for poultry and eggs is greater than ever before in the history of mankind, and although poultry raising is carried on in every section of the country, yet the demand is far greater than the supply. Prices are such that every product sold from the poultry yard brings a profit.

Conditions as outlined above would not exist if the modern artificial method of hatching and brooding had never been brought into use. People can hatch and raise chickens with hens but not enough of them to make it a paying proposition. The advantage of using incubators, is that more chickens can be hatched in a given length of time and can be hatched whenever they are wanted, either winter or summer. Then, too, when incubators are used for hatching, the hens can be broken up when they become broody and started to laying again.

It is not necessary to have a special place in which to operate an incubator. A dry well-ventilated cellar or basement or one of the rooms in the house answers the purpose just as well as any other place. While well made incubators will maintain an even tempera-

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AN ORIGINAL IDEA

J. A. BELL, Staves, Ark., conceived the idea of surrounding his incubator with blanket partitions in order to make a saving in oil consumption. He was operating the incubator in a cold room and found that by enclosing it in one corner, as shown in the picture, the heat could be maintained with less oil. The idea is presented to others who may copy it to advantage.

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ture when operated in a room where there are extremes in temperature, yet the operation of the machine is more satisfactory if it is in a room where the temperature does not vary to any great extent, as in a basement. Good incubators are equipped with heat regulators that work automatically and can be depended upon.

Unfortunately any poorly constructed incubator can be made to show up well on paper, therefore it is quite a puzzling proposition for the beginner to decide on the kind of machine to buy, when the desire is to get a dependable hatcher. But if the prospective purchaser will bear in mind that a manufacturer of a good machine gives full information regarding construction, while a manufacturer of a cheaper product has but little to say about construction, the matter of deciding is not so difficult after all. A good incubator can be bought for a reasonable price, therefore every poultry raiser should be the owner of a good hatching machine.

The matter of operating an incubator entails only a small amount of work. In reality it is a pleasure to care for an incubator. There is a fascination about the work that is hard to explain unless it is that there is something about helping to bring new life into the world that holds the thought to the work in a different manner from that which connects the mind with the general run of work. All forms of life mean much to the human mind—even the life of a little chick is held dear.

Incubator manufacturers who really desire that their customers meet with success, send plain and full instruc-

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INCUBATOR IN SPARE BEDROOM

A. E. Krueger, breeder of White Plymouth Rocks, Madison, Wis., operates his incubator in a spare bedroom where it is never molested, thus always does good work. When care is taken in filling the lamp, everything about the incubator is perfectly clean. There is nothing to prevent anyone from operating an incubator in any room in any house when the incubator is properly constructed.

tions with each machine. Starting the incubator, caring for the lamp and turning and airing the eggs are fully explained. Those things necessary to have, to get a good hatch in an incubator, are a well made incubator to start with, fresh eggs from healthy stock, correct hatching temperature, proper turning of the eggs, the right amount of ventilation and moisture. With these things, success in hatching artificially is assured. That it is an easy matter to have the essentials necessary for success one needs to refer only to the thousands of farmers, mostly farmer's wives, in every section of the country, each one of whom hatches hundreds of chicks every year.

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Incubators have made it possible for poultry on the farm to be a profit-making crop. They have made it possible for poultry breeders and fanciers to increase the size of fowls by hatching the chicks early in the season, thus giving them ample time to develop fully before cold weather.

Brooders are made in different styles and sizes. There are those made storm-proof for outdoor use, and others made for indoor use. One style of outdoor brooder is made to be heated with a lamp and another will be used without a lamp, the latter being known as a fireless brooder. Indoor brooders are made in the same manner. The best fireless brooders are those equipped to be heated with hot water whenever artificial heat in the brooder is required.

A great many more chickens can be raised with brooders than with hens. In fact, brooders are absolutely necessary when chicks are hatched in large numbers with incubators. There are more poor brooders offered for sale than good ones. It don't pay to buy a poor one. A person can get some idea of the worth of an article by the price asked for it. It is unreasonable to presume that a very low priced article is as good as an article that sells for a fair price. It does not necessarily hold, however, that the highest priced brooders are better than all others. In buying a brooder, consider the quality of material used, the method of construction and workmanship, then it will be easy to tell if the price asked is right. Always bear in mind that a good brooder is just as important and necessary as a good incubator.

In the chapters on "Care of Little Chicks" and

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AN ORIGINAL PLAN

A. E. Krueger, breeder of White Plymouth Rocks, Madison, Wis., hit upon a novel plan of handling his indoor brooder by placing it on a very low truck for convenience in pulling it in and out of the shed provided for shelter, as shown in the above picture. In nice weather the brooder is pulled outside and the chicks have the run of the yard, but at night and on stormy days the brooder is pushed back into the shed. The idea is original with Mr. Krueger, who is pleased with his way of handling his brooder.

“Care of Growing Stock” the systems of feeding are given. The feed that is good for chicks with hens is also good for chicks with brooders. Warmth, fresh air, exercise, a variety of wholesome feed and enough of it to keep the chicks growing, milk when convenient, and clean, fresh water to drink, are the essentials necessary to raise chicks successfully in brooders. Brooders go hand in hand with incubators and it is this combination in modern hatching and brooding machinery that has been of such great help to poultry raisers in making the poultry business prominent enough to be recognized by the national and state governments and represented by the largest live stock organization in existence.

BREEDING WATER FOWLS

OF the several breeds of ducks, only two have attained great popularity. These are the Pekin and Indian Runner. Rouen ducks are quite generally bred by farmers and duck fanciers, but this breed is not used on duck farms.

The Pekin is the market duck and the Indian Runner the layer. The Pekin is often referred to as the Plymouth Rock of the duck family, while the Indian Runner is heralded far and wide as the Leghorn of the duck family.

In addition to the Pekin, Indian Runner and Rouen breeds, there are the Colored and White Muscovy, Aylesbury (white), Cayuga (black), Crested White, Blue Swedish, Gray and White Call, Black East India, and the new Buff and Blue Orpington ducks. The Call and India ducks are small, being the bantams of the duck family.

Ducks are very hardy and will stand most any kind of weather, therefore it is not necessary to go to much trouble in housing them. In nice weather and especially on moonlight nights they will not go under cover. They seem to enjoy sleeping out in the barn lot or in the poultry yard. Ducks generally lay their eggs at night or very early in the morning and in most cases they do not take the trouble to find a nest. It is

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PEKIN DUCKS

advisable to shut the ducks up at night in a yard or shed and keep them in until the middle of the forenoon. In this way all their eggs can be secured. If the ducks are not shut up they will wander out in the fields or if there is a pond or creek nearby they will go there, with the result that many of the eggs will not be found until they are too old for use. It is not uncommon for ducks to lay their eggs in water.

As ducks are bred now it is not necessary that they have water to swim in in order for them to do

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well and be productive, but as they enjoy the water and keep themselves clean when permitted to swim, it is advisable to let them do as nature tells them, providing a watering place is convenient. By having a swimming place, the ducks will not soil all the water that is placed out for the chickens or that is in the stock-watering trough.

On free range ducks will pick up a great deal of feed, especially when they can go to a pond or creek, near which the soil will be soft and damp, and they can dig for worms and the tender shoots of grass. In feeding ducks it is necessary to have water to drink before them while they are eating. They must have water to assist them in swallowing their food. Ducks will do best when fed on mash food in preference to whole grains.

The habits of geese are about the same as those of ducks. But geese will consume more grass than any other species of fowl. If they can have the range of a pasture they will graze there from morning until night, and during the spring and summer will get in this way practically all the food they require. At

INDIAN RUNNER DUCKS.

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this time of the year if it is found necessary to give the geese any grain, a feed of oats at night will suffice. During the winter geese will eat grain and alfalfa and clover leaves. Both geese and ducks are very profitable when raised on the farm.

Of the several breeds of geese the large gray Toulouse are the most popular. This breed is known as dry-land geese, as they do as well without water for swimming as with it and do not appear to mind it in the least when they are deprived of a swimming place. Most all other breeds of geese are not so contented without water for swimming as are the Toulouse.

Other quite popular breeds of geese are the White Embden, Gray African, Brown and White Chinese. The Wild or Canadian geese are recognized as a Standard breed and are gaining favor with water-fowl breeders. They are easily domesticated and are quite a profitable breed. Egyptian geese are not widely known and in fact are rarely ever seen, although they are a Standard breed. The latest addition to the goose family is the Buff breed, of average size and of pleasing color.

Geese are valuable as market fowls and for their feathers. In fact, a good per cent of the profit that comes from raising either ducks or geese is in the feathers.

SUCCESSFUL TURKEY RAISING

IT is quite generally supposed that turkeys are difficult to rear and keep at home after they are grown, but experienced turkey raisers all contend that turkeys are as easily raised and managed as are chickens. Turkeys are naturally of a roving disposition, and are not contented in confinement. They are great foragers and will gather most of what they want to eat while ranging over the farm. It is advisable, however, to feed them once each day some place about their roosting quarters. This encourages them to return home at night. When turkeys, either old or young, are kept free from dampness, given plenty of range, green food in abundance, and have plenty of fresh air without draughts at night, the matter of raising turkeys successfully is well in hand.

Throughout the west central states where farms are large, raising turkeys can be carried on very successfully. Farmers are learning that there is no better method of protecting the growing grain from grasshoppers and insects than to have a flock of turkeys roaming over the fields daily. In 1909 one Nebraska farmer, who has his entire farm of over 400 acres in alfalfa, bought a small flock of turkeys to eat the grasshoppers. That year he raised 300 young turkeys, and he was so well pleased with the way they kept the grasshoppers down that he retained 100 of the young hens for breeders the following season. The other 200 netted

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a neat sum on the market. Now the flock of turkeys on this farm is considered the best paying crop. It is the intention to rear them in large numbers in the future.

An institute speaker from Ohio, who spent the entire winter in the Missouri river valley section, talking on farm topics, including poultry subjects, remarked on various occasions that the farmers as a class through-

BRONZE TURKEY

out this section were overlooking a golden opportunity by not raising turkeys. In riding on the train from one institute to another this man, as he passed some spot where there was a small piece of woodland, a stream of running water and on across the hill a wide field of grain, would exclaim, "What a glorious place for a flock of turkeys! Why, the farmers out here don't know how to make money easy." There is much

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food for thought in the suggestions made by this practical man from a more densely populated section of the country.

Turkeys can be successfully hatched and reared by artificial methods. This is being done by a few who have realized the value of raising turkeys in large numbers, but the average farmer who starts in a small way will find that if he arranges nests in secluded spots about the farm buildings and allows the turkey hens to find these nests, lay their eggs and hatch their young in nature's way and unmolested, that it will be the quickest way to get a good sized flock the first year.

Dampness is injurious to the newly hatched poults, therefore as soon as the young are hatched the hen and her brood should be removed to a roomy coop in which there is a board floor covered with sand. Do not attempt to get the poults to eat until they are two days old. Then feed them hard boiled eggs crumbled real fine and dry bread soaked in sour milk. Milk is one of the very best feeds for both turkeys and chickens. After the poults are ten days old they can be fed on small grains or grains cut fine. Keep the turkey hen confined in the coop about six weeks, allowing the little ones to run in and out of the coop at will. After that the hen and poults can be given their liberty each day as soon as the dew on the grass has dried.

See that the turkeys are all home for the night, and as soon as the young ones begin to look about for a place to roost, see that they are provided with suitable poles where they will be protected. If the brood coop they were started in is large enough, it would be well to place a roost pole in it. The poults will roost

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when quite young, and during warm weather they will do better if roosting alongside of the hen than they would if hovering under the hen. Turkeys grow to such large size and bring such good prices on the market that anyone having range enough will be well repaid for raising even only a small flock each year.

In point of popularity the Bronze turkeys take the lead, but the White Hollands have become almost as

WHITE HOLLAND TURKEY

well known and are prized very highly by those who keep them. The feathers from the White Hollands are quite valuable. This variety is not inclined to wander quite as much as the Bronze. They are more domestic in their habits. The Bronze and White Holland turkeys are the only ones that are disseminated over the entire country. The Narragansett, Buff,

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Slate and Black varieties are raised in a limited way in certain localities only. In some parts of the country they have never been seen, and, in fact, most people have never heard of them.

Another variety called Bourbon Red Turkeys exists, but has not yet attained sufficient prominence to be recognized as a Standard breed. For profitable turkey raising the general farmer would succeed best with either the Bronze or White Holland varieties.

STARTING WITH POULTRY

THERE are two ways of getting a start with pure bred fowls. One is to buy eggs and hatch the chicks and the other is to buy fowls all ready mated for breeding. Buying eggs is the cheapest way at the beginning, but starting with fowls is the cheapest in the end.

When a person understands what constitutes a good specimen of the variety he has decided to start with, then buying eggs for hatching will prove satisfactory, for such a person will be able to pick out the culls and retain only those chicks which come up to the requirements for the breed. But if the person is not familiar with the breed and does not know that there will be some culls in every lot of chicks, no matter how good the parent stock may be, taking it for granted that every chick raised from the eggs which he bought is good enough to breed from, then the buying of eggs for hatching will not always result satisfactorily to the purchaser. However, no one but the purchaser can be blamed in such a case. In an instance of this kind it may take several seasons before a uniform flock of true to type fowls is built up, while the person who knows what is required in his breed has what he wants right in the start.

A man who buys eggs for hatching should not expect too much. It is unreasonable to expect eggs that are shipped by rail, sometimes for long distances, to hatch as well as they would if set at home. There

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are plenty of cases on record where eggs shipped long distances have produced remarkable hatches, but even then any one who buys hatching eggs should be satisfied if fifty per cent of them hatch. This would be getting pure bred chicks at a reasonable price.

In buying fowls to start with, if good stock is bought, the purchaser knows as soon as the fowls come into his hands just what good specimens of his chosen breed are like. Each hen bought will produce enough eggs to hatch at least two broods during the first hatching season. In the fall the flock of young stock can be culled and those that do not have shape and color corresponding to the old stock should be disposed of. In this way an extra good flock is secured in one season.

A suitable house should be ready for the fowls when they are received. By having everything all ready, the fowls will soon become familiar with the new surroundings and the hens will start laying in a short time. To buy fowls without first preparing a place for them is a great mistake.

Either way of starting with a pure breed has its advantages, and it remains for the beginner to decide which way will suit him best.

POULTRY SHOWS AND SHOWING

POULTRY shows are the life of the poultry business and they should be encouraged by every state and by every county. The shows create new interest from year to year, with the result that each year's poultry output shows an increase in volume. The more interest that can be created in good poultry, the more demand there is for poultry products at increased prices.

Poultry shows are educators. The best specimens of the breeds are placed on exhibition to be viewed by interested spectators. The specimens in each class are examined section by section by a judge who is thoroughly posted on all the breeds, and prizes are awarded to those specimens which approach nearest to the standard requirements as demanded by the American Poultry Association, the highest body to which poultrymen have to look for guidance along poultry lines. After the awards have been placed, visitors to the poultry show have opportunity to compare the best fowls with the others in the same class and from such comparisons learn wherein the winning specimen excels and what constitutes a good chicken.

Aside from those breeds of chickens that are bred solely for their beauty of plumage or because of some oddity, such as is displayed in the crested breeds, the shape of the fowl is very important, and, in judging, is given consideration before the color of the plumage. The popular breeds, all of which are in the utility

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class, must have good breast development, broad backs of good length, and well filled bodies. These points indicate good laying qualities and plenty of good poultry meat. Take a well formed fowl with a well shaped comb, a bright eye that denotes vigor and strength, place it upon a pair of stout clean legs, and clothe it with a coat of glossy feathers that distinguishes it from other fowls, and you have a chicken that is sure to give good returns for its keep. There is no one to say that a chicken well bred and conditioned is not a better fowl than the mongrel of the barn yard for producing its share of the products that go to make up the great poultry output of the country.

There is just as much difference between well

GETTING READY FOR THE SHOW.

The picture shows Mr. and Mrs. Perry Strandberg, Davey, Neb., preparing their exhibit of Barred Plymouth Rocks for the 1910 Nebraska State Fair. The building shown in the picture is used for housing exhibition coops and as a conditioning room for show stock.

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bred specimens of poultry and the mongrel fowls as there is between the Short-horn and the Texas steer or the Poland China and the razor-back. The difference in poultry is first brought to the attention of the uninitiated at the poultry show or the poultry exhibit at the agricultural fair, and is the first step toward starting another man on the road to successful poultry raising.

In many counties small poultry shows are held in connection with farmers institutes and at these places the advantages of breeding good poultry is brought forcibly to the attention of the farmers, with the result that throughout these communities the quality of the poultry is being improved from year to year the same as is the quality of corn and other farm products. The local poultry markets improve and better prices are paid for the better grades of poultry products. All this helps to add more wealth to the community and each individual who has put forth efforts to produce more and better poultry profits thereby. So great has the business of handling poultry products become in some localities that when figures, showing the volume of business done, are produced it is hard for the average man to realize the immensity of the poultry business. During the week of the state poultry show at Hastings, Nebraska, in January, 1910, the city superintendent of schools compiled a table showing what the poultry products handled in Hastings, a town of 10,000 people, amounted to for the year 1909. Those who saw the figures were astounded when they learned that the poultry business in Hastings for one year represented an amount of money greater than the combined capital stock of the four national banks of the

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city. This illustrates what is being done with the chicken business in one community, and the holding of the poultry show in the central market place of this community created a still greater interest in the work.

In showing poultry the greatest pains should be taken to have the exhibits appear to the best possible advantage. The appearance of the coop adds materially to the attractiveness of the fowl. Many a time a good specimen is shown in a small, poorly-constructed coop with the front covered with slats, making it difficult for the spectators to see the fowls, while on the other hand a poor specimen is shown in a neatly-made, roomy coop with a wire front, with the result that the fowl of inferior quality will show

AN EXTRA GOOD EXHIBITION COOP.

This is a standard size single coop 2x2 feet, 2 1-2 feet high, with cleaning door and drop curtain in front. With a well-made coop like this, fine fowls can be safely shipped to poultry exhibitions in winter weather, and the coop adds to the appearance of the fowls when they are on exhibition. Note how the drinking cup is attached on the outside of the coop by means of a patented holder. Double or pen coops are the same width and height as above, but are four feet in length. The four-foot coop is provided with a partition covered with wire screen instead of canvas.

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to better advantage and attract more attention than will the better bird. But place the well bred fowl in a good exhibition coop and there will be no comparison between the good fowl and the poor one no matter how good a coop the latter may be placed in. Too much care cannot be taken in the matter of showing poultry in neatly made, uniform coops.

A fowl should never be placed on exhibition until it has first been conditioned and groomed for the occasion. The plumage should be carefully cleaned—washed if necessary, and the legs and feet also cleaned. Handle the fowl gently for several days prior to the show and have it tame so that it will be contented when cooped up and will not become frightened at the approach of a stranger or when being handled by the judge. Care should be taken to avoid breaking any of the feathers when preparing the specimen for exhibition, as broken feathers are included among the defects. No poultryman can become a successful exhibitor until he has first familiarized himself with Standard requirements, the defects, and the disqualifications of his chosen breed. All this information can be obtained from the book called the Standard of Perfection, published by the American Poultry Association, the price of which is \$1.50. The publisher of any poultry paper or an officer of any poultry association is in position to get a copy of the book for any party wanting one.

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P. M. WICKSTRUM'S EXPERIMENTAL PLANT.

P. M. WICKSTRUM'S HATCHING ROOM.

PART OF P. M. WICKSTRUM'S EXPERIMENTAL PLANT.

THE QUEEN METHOD OF INTENSIVE POULTRY KEEPING

KEEPING chickens in confinement on a small space of ground is known as "intensive poultry keeping"—excessive use of limited room and concentrating one's efforts to produce results. This method of poultry keeping is what interests business and professional men, or their wives and children—a class of people who live in cities and usually have only the back part of their residence lots to devote to chickens.

The secret of keeping poultry successfully in this manner is in having only a few chickens in a coop. A large number of chickens in one flock and housed closely will not do well, but when they are divided into small lots and placed in separate coops they do well under the closest confinement.

The dissemination of knowledge regarding intensive poultry keeping is doing much to increase the production of poultry in places where it was thought to be impossible to keep chickens on account of limited room. People of the cities are rapidly taking up poultry raising on the intensive plan. In most instances, a start is made with an incubator, a brooder and one coop. After the first brood of chicks is hatched, the number of coops is increased as the chicks grow and require more room.

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THE QUEEN METHOD COOP.

The top picture shows the Queen coop as it is used during the warm season. The picture below shows the coop ready for cold weather use.

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INTERIOR VIEW OF THE QUEEN
METHOD COOP.

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The illustrations of Queen coops in this chapter show how a very small space of ground will accommodate the fowls or chicks.

The coop is 3x6 feet, 3 feet high at the sides and 4 1-2 feet high at the center. The floor is two feet above the ground. This floor is removable and is made in two sections, the section at the front side of the coop being made to slide back under the other section. This construction makes it possible to have the floor extend the entire length of the coop, or just part way, or just far enough back from the front to leave room for the chickens to go up and down on the inclined runway at the front end of the coop.

The upper part of the coop has a removable partition in the center. This partition shows plainly in the picture on page 84.

Each end of the lower and upper parts of the coop is fitted with frames, held in place by door buttons. Two sets of frames are made for the lower half of each coop, one set being covered with wire netting for warm weather use. For cold weather use, a solid board panel encloses the rear end and a glazed panel encloses the front. In warm weather, the front of the upper part of the coop is enclosed only with wire netting, but in cold weather this netting is covered with muslin on the inside. The pictures on page 83 show plainly how the coops are fitted out for the different uses according to the season of the year.

The yard at the side of the coop is 3x6 feet. Thus a space of ground only six feet square provides house and yard room for a pen of matured fowls or for a good sized brood of chicks.

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Figuring that a person is taking up poultry keeping on the intensive plan, and is starting, as has been suggested, with an incubator, a brooder and one of the coops, as described, the first use that the coop would be put to would be in housing a newly hatched brood of chicks. The rear half of the upper part of the coop is where the fireless brooder should be placed, close to the partition so as to make it easy for the chicks to find entrance to the brooder. The best style of brooder for use in the Queen coop is illustrated on page 87.

The style of fireless brooder that has been generally advocated by a number of parties is simply a little box fitted out with a hover cloth. Chicks will keep warm from their own heat when huddled to-

Hundreds of chickens can be raised profitably on the back end of a city lot when the Queen Method coops are used. Each lot of chicks has fifty-four square feet of floor space. The above picture shows how chickens are raised successfully on the back end of a city lot.

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gether in such a box, but suppose you are brooding chicks in cold weather, what then? What about the heat in the brooder when the chicks leave it for feed and water? There is no heat in it then. Newly hatched chicks are tender little things and if they become chilled there is much danger of loss.

The brooder illustrated herewith is a fireless brooder, but arrangements are made to supply heat.

INDOOR FIRELESS BROODER

The picture shows the lid of the brooder raised to give a view of the hover and hot water warming pan. Beneath the hover is a nest of soft straw or hay. The warming pan is filled with hot water and is placed on the strips above the hover cloth. If the weather should be quite cool, a piece of blanket could be laid over the warming pan to assist in retaining the heat.

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Then close the lid of the brooder. In a few minutes the brooder is nice and warm and ready to receive the chicks as they are taken from the warm nursery in the incubator.

When the chicks are ready for feed and water and are given the run of the upper part of the coop, they will hover in the brooder when they are tired or when they want to get warm. When the chicks are young, hot water should be placed in the warming pan each morning and evening, and in cold or damp weather, at noon, also.

Drinking fountain, and hoppers for grit, bran and dry mash food are attached to the walls as shown in the picture on page 84. The floor should be covered

CITY POULTRY PLANT.

²²² This picture shows part of the intensive poultry plant operated by C. A. Julian, Lincoln, Neb. The coops are the regular Queen coop with the exception that Mr. Julian prefers to have one-half of the top of each coop open, or enclosed only with wire netting.

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ANOTHER PART OF THE JULIAN PLANT.

The coops shown in this picture are a modified form of the Queen coop. They are designed and constructed by C. A. Julian, Lincoln, Neb., and prove very satisfactory for growing young stock on the intensive plan. ;

with dry dirt or sand. After the chicks are a few days old and when they have learned to go into the brooder to warm up or to remain for the night, then the brooder can be pulled back from the partition and placed against the rear wall, thus giving the chicks the benefit of the extra room in the back part of the coop.

When the chicks are from ten days to two weeks old, the inclined runway should be put in place and the floor slid back the width of the runway to give the chicks room to go down below. This will be a new thing to them and they will have to be helped up and down a time or two until they become accustomed to the arrangement. After that the little fellows

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will scamper up and down as if they enjoyed it. In fact, it is good for them as the exercise gives them strength. Especially does it strengthen the muscles of the legs.

As there is no floor in the lower part of the coop the ground should be hoed or spaded up occasionally. This should also be done in the yard at the side of the coop. One of the secrets of raising chickens successfully in close confinement is in keeping everything clean. This applies to the ground as well as to the floor of the coop, the brooder, drinking fountain and food hoppers.

It will not be long until the chicks outgrow the brooder, and long before they have reached this point the use of supplied heat by means of the hot water warming pan will have been discontinued. Thus it will not be too sudden a change to remove the brooder when the chicks have outgrown it and give the chicks the entire back part of the coop for roosting quarters. This part of the coop should have a good bedding of short straw or hay, and this bedding should be changed frequently. As the chicks grow older and the coop becomes crowded it will be necessary to divide the flock, placing part of the chickens in another coop.

The Queen coop will accommodate six hens and a cock nicely by using the lower part for a scratching room and the upper part for roosting and laying quarters. When the coop is used for housing fowls the removable partition in the upper part should be taken out. Place the nest boxes at the rear end of the coop where it is easy to reach in and gather the eggs.

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Keep the ground in the lower part of the coop and in the yard well spaded up so that the fowls will have plenty of chance to scratch and dust.

If oats and wheat are buried several inches under ground every time the yard is spaded up, the fowls will get the necessary exercise in scratching for grain. They will overlook quite a good many of the seeds and these will quickly sprout and will assist in furnishing green and bulky food.

To the man, woman or child who has longed to raise a few chickens and keep a few fowls, but has not done so on account of not having a large yard for them, the method as outlined in this chapter should appeal strongly. This method of poultry keeping has been proven a success and it is recommended to those who have only a small space of ground on which they could keep chickens.

INCREASING THE EGG YIELD

O poultry raiser is getting all the profit from his fowls that he should be getting unless he is paying close attention to breeding for an increased egg yield from each hen in the flock. If the hen is already making a profit of two dollars a year for her owner, and she can be induced to lay only one dozen more eggs in a year, the value of that extra dozen eggs adds just that much more to the year's profit. And by adding an extra dozen eggs to the yield of each hen in the flock the increase in the profit amounts to a number of dollars.

Proper attention to details in caring for the flock, the right kind of feed and a correct system of feeding all help to bring about an increase in the egg supply, but back of it all is the breeding of the stock. Some breeds of chickens are naturally heavy layers, while other breeds naturally yield only a small supply of eggs, but the latter can, by careful selection of the best individuals in the flock, be bred to lay the equal of the best natural layers.

In connection with the breeding of any kind of stock it is often said, "Like begets like." That is, if you breed from poor stock, the offspring will also be poor stock, and if you breed from good stock you get good stock. In connection with the breeding of animals it is an easy matter to look after the matings and raise stock from only the best individuals in the herd,

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but to breed poultry systematically—to know the sire and dam of each of the offspring, and to be able to accurately select the specimens that were hatched from eggs produced by the best laying hens, which were mated with males that descended from heavy layers—a different system from that employed in breeding all other kinds of live stock must be used. This system is in being able to tell which hens produced the eggs.

The only method whereby a poultry breeder can tell with any degree of satisfaction, and know positively from which hens the eggs come, is in the use of trap nests.

Reliable trap nests are as necessary to the poultry raiser who wants to be successful and make a good profit as are good incubators and brooders.

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There are drones in a flock of hens just as there are drones in a colony of bees. By using trap nests you can tell which hens are laying, and then you can pick out the "drones" and sell them on the market. You can also tell which hens lay only a few eggs or not a sufficient number to pay to keep and feed them. These poor layers should be sold on the market along with the non-layers, thus leaving you with a flock of

hens each one of which is a good layer and a profit payer.

When trap nests are in use the eggs from the best laying hens can be marked and used for hatching purposes. By hatching only those eggs produced by the heaviest layers in the flock, the pullets from such eggs will naturally be good layers, and the cockerels from such eggs will have the same blood in their veins

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and will naturally be the best for breeding purposes when the desire is to build up a heavy laying flock of fowls.

With the trap nest system of breeding poultry it is an easy matter to improve the shape and color of the chickens as well as to improve the laying qualities. In fact, trap nests are valuable to every poultry raiser, no matter whether the poultryman is engaged in the

market poultry business, egg business, or strictly fancy breeding.

It is not many years since the best-informed people on poultry subjects commenced to predict that the day was not far distant when the leading and most progressive poultry breeders, as well as the shrewd utility poultryman, would not think of trying to get along

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without trap nests. As to the fulfilment of this prediction poultry raisers of today have abundant evidence on every side.

It is generally admitted that the trap nest is to the poultry breeder what the separator, the scale, and the Babcock test are to the dairyman. The progressive dairyman does not think of feeding, breeding, and caring for a lot of cows without making frequent tests

of the product of each cow from which her average yield of milk and butter and the percentage of butter fat in milk is ascertained. He can come nearer guessing at results than the poultryman can, but he does not chance it because he knows from experience that he cannot afford to do so.

The poultryman should not take chances. In this

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day and age, when feed is high and poultry and eggs still higher, no one can afford to keep a lot of hens that don't lay and simply "eat their heads off." The breeder of fine, pure bred fowls cannot afford to keep a lot of hens that will not lay eggs for him during the breeding seasons when he can get twenty cents or more an egg. Neither can he afford to keep hens that lay only deformed eggs, or fowls that are incap-

able of doing their part towards fertilization. No poultry raiser who wants to make all the profit he is entitled to can afford to do without trap nests and feed sixty cent corn and dollar wheat.

You never hear of anyone who uses trap nests say that poultry does not pay. Of course, there are instances where poultry is paying, and paying well,

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when trap nests are not used, but that does not signify that it would not pay much better with trap nests.

The mission of the trap nest is to check loss, increase profits, hasten the day when failures in the poultry business will be rare indeed, and when almost every poultryman will have the best poultry and plenty of it.

INCUBATORS AND BROODERS

IT is estimated that there are something like 50,000,000 people living on farms in the United States. When one stops to think that the farmers must produce the living for all the people living on the farms, and also produce the food products for the other 50,000,000 people who live in the towns and cities, it is easy to see what a great field there is for incubators and brooders among the farmers.

Thousands of incubators and brooders are manufactured and sold every year and yet there are thousands of farmers who have never used these money making machines. It is going to take a long time for the incubator manufacturers to get one machine on to each farm in our own country, to say nothing of the great field in foreign lands. In addition to the new field for incubators and brooders, the old field is always fertile, because when a farmer gets the machine that helps him to make money he buys more of the same kind. Then there are the people who unfortunately buy poor machines, that do not make money for them, and as their poultry business requires incubators and brooders that produce good results, they in turn become buyers of good machines.

And then, too, a large percent of poultry raisers do not live on farms but, instead, confine their poultry operations to more limited quarters in the villages and outskirts of cities. Poultry raisers of this class also

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use incubators and brooders, the number of machines so used probably being as great as the number used on farms.

In the face of such conditions it is easy to see that the incubator and brooder business is always going to occupy a prominent place in the commercial world. With the increase in population, the increased demand

for poultry products, and with the increased knowledge of poultry raising for profit, the demand for good incubators and brooders steadily increases. The demand is greater now than it has ever been and there is also a tendency among the buyers to select the better grades of machines, but it is still difficult to convince some people that a very low priced incubator or

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brooder will not give satisfactory results. When such people will not heed the advice of those who know, then they must find out for themselves—and they learn the difference quick enough.

There are not as many incubators and brooders in use as there should be. No farmer or poultry raiser should be without these machines, which so ably

assist in increasing the profit from the hens. The incubator and brooder have a great many advantages over mother nature when it comes to raising poultry for profit. One great advantage is in being able to get out a large lot of chicks just at the right time for them to reach the marketable age when the price is highest, or just at the right time for them to be in

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their best condition for showing at the fairs or winter poultry shows. For instance, if it was the desire to make an exhibit at the state fair, the incubator could be started in February, thus bringing the chicks out about the first of March. This would make them about six months of age when they would appear to good advantage. The pullets from these early hatches

would be fully matured before cold weather, which means that they would produce eggs in winter when the price is high.

Chicks hatched early—from February to May—usually make the most money for their owner. However, if a person is paying particular attention to market poultry, then the hatching can be carried on

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profitably all the year 'round. Many market poultry-men hatch large numbers of chicks in the fall and sell them in the early spring for broilers at top prices, realizing a nice profit. If these people did not use incubators they could not possibly hatch chicks in large numbers in the fall and early winter.

You cannot produce too much poultry and eggs.

More poultry products are being marketed now than ever before, yet prices in general are higher than they have ever been. Even at the high prices the demands of the market are not supplied.

Every farmer should own at least one good incubator, and brooders enough to take proper care of the chicks. Brooders are just as important as incubators.

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There is nothing gained in hatching a nice lot of chicks, if the chicks are not raised. It is always advisable to order the incubator and brooder together, and if an indoor brooder is bought it is further advisable to provide a suitable place in which to house the brooder and thus have everything ready when the chicks hatch.

A medium sized incubator will produce as many chicks as would be hatched by ten to fifteen hens, and all being hatched at one time there are no partly grown chicks to trample upon the little fellows as is the case when hens bring off broods a few weeks apart. It is much easier to care for 100 chicks in a brooder than it is to care for a couple of old hens and their broods.

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A good incubator and a good brooder bear the same relation to the poultry end of farming as do the cream separator to the dairy, the manure spreader to the fields, etc. No farm equipment is complete without them. They are practical money-making machines.

No man or woman, who is today raising poultry

as a business proposition would any more think of worrying along in the old way, when the hens wandered about at will, produced eggs only in the spring and hatched a few broods of chicks, any more than men would go back to the wild life the red men lived before white men set foot on American soil.

The hen already plays a prominent part in the

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nation's production of wealth, but she is going to do even better than she has been doing because of the up-to-date methods employed in the production of poultry. The incubator and brooder are largely responsible for the prominence of the poultry industry, and when every farmer and poultry raiser breaks away from the old way of raising chickens and takes up

the modern artificial methods, then, and not until then, will each one realize the profit that he should from his poultry work.

The pictures of incubators and brooders in this book are reproductions of photographs of Queen machines operated by poultry raisers in different parts of the United States.

POULTRY KEEPING FOR PROFIT

THE place to make the greatest profit from poultry is on the farm. Select a good general purpose variety of some popular breed and keep nothing else on the place. There is no argument in favor of keeping mongrel stock in preference to pure breeds, and the only argument that can ever be advanced in favor of mongrel fowls is that they are a little better than no fowls at all.

Discard every hen that does not show signs of being productive. By watching the hens carefully one can soon tell which ones are helping to fill the egg basket. Use only such males as are active and vigorous, and keep only enough males with the flock of layers to insure fertility of the eggs. Surplus males worry the hens and quarrel with each other. They produce nothing for their owner and are simply a dead loss. With a selected lot of layers, properly mated, and cared for as given in the chapter on "Care of the Fowls," good profits are sure to be realized.

The best profit from poultry comes from the eggs, no matter whether they are sold for hatching or for market purposes. Even when every ounce of feed that the hens eat has to be bought and paid for in cash, the cost of producing eggs is not great, and as prices exist now the country over, the per cent of profit on the sale of eggs is greater than the profit that can be realized from any other poultry product when used for commercial purposes. Every poultry raiser makes

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A SAFE WAY TO SHIP
BABY CHICKS.

A GOOD BOX FOR USE IN SHIPPING
EGGS FOR HATCHING.

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a mistake if he does not take pains to improve the laying qualities of his flock of hens.

As soon as a fowl is no longer profitable as a producer it should be conditioned and sold. The weight of a fowl can be increased materially by special feeding for ten days, and the greater part of this increase is profit. When the young stock is being raised, the flock should be gone over from time to time and every chicken that does not give promise of developing into a good specimen should be culled out and sold on the market or used for home consumption. It does not pay to feed the culls of the flock after they have reached a size large enough for table use. Up till this time it has not cost much to raise the chicks, and by selling them now a greater profit will be realized than there would be if they were matured and sold later. Then, too, the better chickens in the flock have the benefit of the range and the house room.

A poultry raiser, whether located on a farm or on a town lot, can suit himself as to whether he should sell all his surplus on the market or sell eggs for hatching and stock for breeding purposes. In most instances a combination of the two is best.

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A GOOD COOP FOR USE IN SHIPPING
FINE FOWLS.

POULTRY KEEPING FOR PLEASURE

IN keeping chickens for the pleasure that can be derived by the owner because of a desire to possess something of animate life, and because of the recreation that a man engaged in business derives from caring for a flock of fine fowls, it matters not whether a profit is made. While some people who keep chickens for pleasure strive to make the chickens pay their own way, yet the money part of it is a secondary consideration.

The people who indulge in poultry raising as a means of recreation all come under the head of poultry fanciers, who enjoy breeding fine poultry for the beauty they see in the color and markings of the feathers and in the form of the fowls. The making of new breeds and breeding for perfection in color and shape is truly an art. The poultry fancier gets as much genuine enjoyment in anticipating the beauty of the feathers with which his chickens will be clothed when matured as does the artist in looking forward to the time when his work with paint and brush will be completed, and he will be permitted to gaze with satisfaction upon the beauties of a scene rivaling nature in all its splendor on a May-day morn.

The love for beauty in fowls is manifested just as much among the "common people" who have only small back yards, where they keep and breed their chosen varieties, as it is among the wealthy who have

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FANCIER'S POULTRY HOUSE.

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FANCIER'S POULTRY HOUSE

The illustration opposite is of a style of poultry house used by a city fancier. This house is 8x8 feet, 5 feet high at the eaves and 7 feet at the gable. The door opens into a hall 2 1-2 feet wide through the center. The chickens are kept on either side of the hall. The floor space is used for scratching pens. Two feet up from the floor is a platform on which the roosts and nests are placed, and are reached by the chickens going up an incline the same as shown in the Queen coop in chapter on "Intensive Poultry Keeping." Two feet above the first platform or floor is another floor. On this second floor are four pens, each two feet wide, on each side of the hall. These pens are used for extra birds, setting hens or hens with chicks in winter or early spring when it is too cold for the chicks outside. All the partitions are made removable so that each side can be converted into one, two or three apartments as the user might desire. All partitions are made of wire screen. Doors open into each apartment from the hall-way. The window openings in front, excepting the one in the gable which is a glass window, are covered with wire screen on the inside. The frames which open outward are covered with muslin. These frames are on hinges and are opened and closed according to weather conditions. In the north side is a glass window corresponding to the one in the south gable. Two doors, hinged at the top open on both sides of the house. Wire netting is tacked on the inside of these openings and a small door is cut in the center of the netting for each apartment. These small doors are for the chickens to pass in and out of the house. During the breeding season yards are attached to each side of the house. In nice weather the house is used just as shown in the picture, but in cold weather the doors at the sides and the murlin covered frames and the two glass windows are closed. Also see picture on page 115. This same style of house could be made on a larger scale if desired.

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their country estates stocked with fowls of rarest beauty. It is interesting to note that a great many of the popular varieties of poultry were originated by men of limited means and in limited quarters. The wealthier people, as a rule, do not apply themselves sufficiently to create new things in the poultry world. They prefer to buy the finished product and enjoy its beauty in its completeness, but the pleasure they derive from the possession of the almost perfect specimens does not compare with that keen sense of enjoyment that possesses the originator as he sees the result of each year's mating bringing nearer to him that for which he set out to accomplish.

A PEN OF HOUDANS.

Houdans are among the breeds that people who raise poultry for pleasure delight to handle. They are very docile, are easily kept in an enclosure, and when treated kindly become great pets.

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This is the front view of the house described on page 113. This shows how the doors to the different apartments open into the hall-way. This is a very convenient house to keep clean, and its construction makes it easy for the user to handle the fowls, gather the eggs, etc., from the hall-way.

It requires the best part of a life time to originate and perfect a new variety of fowls, and in many instances it requires years of study and careful mating to establish certain characteristics in fowls that will be manifest throughout an entire flock. But the fancier who breeds poultry for pleasure cares but little for the time required in accomplishing his work and for the expense attached to it. He buys a specimen that appeals to his fancy in much the same way that a person would buy a bouquet of roses or a ticket to a theatre.

There is untold pleasure for the fancier in gather-

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ing the eggs, hatching the chicks, and watching the little fellows grow. Each day something new in the development of the chicks will be noticeable—good points will show up from day to day, or, on the other hand, defects may become prominent, but no matter what the gradual development of the chick may bring forth, there is pleasure in it all. And so it goes all through the various stages of development from the shell to the show room, where final judgment is passed on the fancier's skill as a breeder. There is pleasure, too, in gathering round the festal board and satisfying the cravings of the inner man with the choice parts of a roasted fowl, even though it once graced the show room and won the admiration of the public.

THE END.

THE INCUBATORS AND
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