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THE

NEW HAMPSHIRE

KITCHEN, FRUIT, AND FLORAL

GARDENER.

By E. M. Tibbs.

WITH NUMEROUS ILLUSTRATIONS.

PETERBORO':

PUBLISHED BY K. C. SCOTT.

1852.

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NEW HAMPSHIRE

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PREFACE.

The Author does not lay claim to entire originality in the following pages, but acknowledges himself under great obligations to many distinguished writers upon Horticulture. In some few instances he has altered the dates in the extracts, to suit the latitude of New Hampshire. He also acknowledges the receipt of many suggestions and valuable articles written expressly for the work. Due credit has been given for all borrowed matter. He has endeavored to furnish a book adapted to the wants and within the means of every one. In the "Kitchen Gardener," he has given full directions for cultivating the various vegetables suited to this climate, also recipes for cooking the same, which he thinks will be appreciated in the kitchen and at the table. In the "Fruit Gardener," the list of fruits is not so large as to perplex the beginner in the selection of kinds, yet sufficiently extensive to include nearly all of our best varieties. He hopes that the directions for cultivation in this department will prove satisfactory. In the "Floral Gardener," he has given directions for the cultivation and a selection of the most choice flowers that ornament our Parlors and Gardens. His limits have compelled him to be concise, yet he trusts that the directions are such as to produce vegetables, fruits, and flowers, sufficiently perfect to satisfy all reasonable expectations.

THE KITCHEN GARDENER.

PRELIMINARY OBSERVATIONS.

THE want of a small Garden Manual, suited to the soil and climate of New-Hampshire, has been very generally felt. There are, already, a large number of Horticultural Works, but most of them are adapted to a climate farther South than New-Hampshire.— Their expense, too, as a general thing, renders their extensive introduction, a matter of considerable difficulty. It is proposed, in this work, to obviate these difficulties as far as practicable, by presenting the public with a work whose cheapness places it within the reach of every one, and yet, the directions of which, shall be sufficiently copious for the successful cultivation of the Kitchen, Fruit and Flower Garden.

SITUATION OF A GARDEN.—Perhaps a majority of those into whose hands this work will fall, have already selected their situation, and made their arrangements, so that it would be a matter of inconvenience to change the location; but where this is not the case, the selection of a situation is a matter of no inconsiderable importance, and should be assiduously attended to. Cold winds should be guarded against, especially those blowing from the *North*, *North-East*, and *North-West*. A full exposure to the sun is essential for the production of most culinary vegetables, and to obtain this, it is necessary to have the garden on a gentle declivity to the south, bearing, perhaps, a little to the east, that it may have the benefit of the morning sun. A northern aspect is to be avoided, except for some few kinds of vegetables, which grow there

in greater perfection than anywhere else. Among these are *salads*, *spinach*, *cauliflower*, and some others. Peas, also, in the hot, dry, summer months, are here produced in great perfection, long after they have ceased to bear in warmer situations. Trees upon the south side of the Garden are injurious as they cast their shadows over it, when vegetables require the genial rays of the sun, and also, by their long tapering roots, exhaust much of the goodness of the soil, which should assist in the production of healthy and luxuriant plants. Continued, dense vapors, have an injurious effect upon most garden vegetables; therefore, low grounds are unsuitable situations, and should be avoided. Taking these facts into consideration, no one need hesitate as to the proper situation of a Garden.

SOIL.—The principal soils to be avoided, are those in which *clay*, or *gravel*, is the chief constituent. A clay subsoil, though six feet from the surface, from its coldness, will retard the early crops a week or ten days; while on the other hand, a gravelly soil or subsoil, though it hastens early crops, is so subject to drought during hot weather as to make it very unprofitable. The proper soil, therefore, is a rich, deep, friable loam with a sand subsoil. But where this cannot be had, it is very desirable to improve that which we do have, that it may be able to supply the wants of plants. Clayey soils are cold and sour. To correct them apply white sand, chalk, lime, or wood ashes. Turn the soil frequently, as frost and air have a tendency to overcome this acidity. Waste lime about old buildings in the shape of plaster and mortar, and also charcoal, have the same effect. To improve a sandy soil, mix in clay, peat, or vegetable mould. The mould best suited for renewing or improving land, is the surface, to the depth of a foot, of some field or road-side, which has lain fallow for a number of years and has become perfectly matted with grass roots.—This thrown into piles the year before use, ferments, and makes one of the best of garden soils.

MANURES.—The manure heap, is the capital of the Gardener. Care should be taken to augment it as much as possible. With it, the gardener can do everything; without it, nothing. "If there is a large supply of manure, it will be best to mix it with the soil whenever it may be spaded or trenched. A portion should be incorporated with the substratum every time it is dug over, so as to hasten its gradual improvement. Another portion should be kept near the surface, that the young roots may not have far to travel in search of nutriment. Should the supply be small, or not large enough to admit of this broadcast application, put it in the hills or drills, for the large vegetables." But in every case, it ought to be thoroughly incorporated with the soil, and if fermentation has not taken place, this work should be done in Autumn, so as to prevent the parching effects upon plants, arising from fermenting manures. There are several kinds of manure valuable for horticultural purposes.

Horse dung.—This stands at the head, because of its general use, and its superior fertilizing effects. Its quality depends in a measure, upon the food given the animal, and the care that is taken to preserve the volatile matters of the manure by composting it soon after it comes from the stable. Plaster of Paris, spread upon it, retains the ammonia, that is in part expelled by the decomposition.

Cow dung.—This is colder than the dung of the horse, and therefore, retains its virtue longer. It should be housed rather than remain for months exposed to the injurious effects of rain and the sun. It should, also, be thoroughly mixed with loam, and remain until it is fermented.

Pig dung.—This is an excellent manure for some vegetables, especially, for corn and plants of the *gourd* tribe. It is not suitable for vegetables that are valued for their roots, as it imparts a rank taste to them. A pig may be made to earn his living, by working up grass sods, weeds, before their seeds have matured,

forest leaves, and the various refuse vegetables about the premises.

Guano.—The Peruvian is the best. It is very powerful and stimulating, and is, therefore, valuable for forwarding early vegetables. It requires great caution in application, as otherwise, it destroys the plant that it is intended to invigorate. By preparing it in the following manner, it may be used with great advantage.

Before using guano, pass it through a fine sieve, and all lumps remaining, break up, and these pass through the sieve. Then take at least six times its bulk of mould, or light loamy soil, and this pass through a coarser sieve, and mix it in layers with the guano. Over this spread a thin coat of charcoal, or plaster of Paris, or both. These are to retain the ammonia. Let this compost remain a few days, then turn it over and mix it well together, and then it is fit for use. Lime and ashes must be avoided, as they rapidly expel the ammonia, and in that way rob the compost of its most valuable part.

When it is desirable to use it in a liquid form, put one teacupful into four gallons of water. Stir it well and cover the vessel tight to prevent the escape of the ammonia, and let it remain from one to three days before being used. Water *around, not upon,* the plant, for if the liquid touches the plant or its leaves, it is liable to burn them. The compost should be applied around the plants, at the rate of a spoonful of guano to a hill of corn, and to other plants in proportion, and hoed in, so as not to come in immediate contact with the roots. Guano costs from \$4. to \$6. per hundred pounds.

Poudrette.—This is very exciting and like guano, well adapted to forwarding early crops. Care should be taken to purchase none but that of superior quality, for much of that purchased by farmers and gardeners is almost worthless. From eight to ten bushels will manure one acre of corn. This is highly rec-

commended by Downing for strawberries, as it affords a permanent and powerful stimulus, and is free from weed seed. That manufactured by the Lodi Company, has a very high reputation.

Hen and Pigeon dung.—These are active and powerful fertilizers. Every farmer by taking a little pains, can gather a considerable quantity by properly managing his henhouse. When gathered it should be mixed with plaster or charcoal dust to retain the ammonia. When preserved in this way it is almost, if not quite equal to the imported guano.

Charcoal.—It should be applied in small lumps or dust. It being porous, it has the power of absorbing various gasses from the atmosphere, and, when subsequently placed in the soil, it readily yields them to the plants. It also loosens tough soils, and, by its black color, increases their warmth. Its effect in flower gardens is, perhaps, more marked and obvious, than any where else, it giving a deeper color to everything to which it is applied.

Salt.—This article of late years, has been extensively used as a fertilizer. It should be sown broad-cast or incorporated with other articles in the compost heap. It is especially adapted to the plum tree, sea-kale, asparagass and plants of a like nature. It is said that an asparagass bed may be so covered as to kill all weeds, and yet it proves beneficial to the asparagass, producing larger, and more succulent sprouts.

Bone Dust.—This article is peculiarly adapted to raising turnips, wheat and grass. It is an excellent fertilizer to place about old Pear trees, where some of the elements of the soil are so exhausted as to cause the fruit to crack. Horn shavings from comb manufactories have the same effect.

Ashes.—These may be used, leached or unleached, with good effect, at all seasons and in all kinds of soils, though they best suit lands of a light, sandy, or gravelly nature. Every family makes more or less of

these, so that they are easily obtained, and are of great importance to the horticulturalist.

Lime.—This is a valuable article for the compost heaps, as it causes very perfect fermentation, especially, if the chief ingredient of that heap be fallow soil, that has become matted with grass roots.

Plaster of Paris or Gypsum.—This is valuable for most plants. It is used as a top dressing after hoeing. It requires to be sown early so as to have the benefit of moisture, and to insure its decomposition, where it is used for a grass crop.

Compost Heap.—This may be made from fallow soil, meadow mud, leaves gathered under forest trees, refuse vegetables about the garden, weeds before they have gone to seed, lime &c. Weeds may be covered slightly in hoeing so as to kill them, but not so deep as to prevent them from decaying, and in that way enrich the ground. This should not be done when they have gone to seed, as it would be multiplying your future labor.

THE TOOLS AND TOOL HOUSE.—The old maxim, "A place for everything, and everything in its place," should be strictly observed by the gardener. Of all men, he ought to economize his time. As soon as the Spring opens, he has his grounds to prepare, his seed to plant, his early plants to transplant and protect, and from that time till the crop matures, he has to make a continual war upon insects and weeds. The waste of ten minutes a day in hunting up tools, amounts to a serious loss at the end of the year. Beside, if tools are scattered about in various parts of a garden, they are subject to numerous injuries which they would escape were they properly cared for. A very neat tool house, and cheap one, too, may be made in the centre of the garden, in the shape of an arbor, or summer house. Over it, grape vines may be trained, and in that way it may be made an object of convenience and beauty in the grounds. Boxes may be made for the smaller tools, such as hoes, spades, rakes, water-

ing pots, trowels &c., under the seats in the arbor.— The larger articles, such as Hot Bed frames and sash, wheelbarrow &c., can be put into some other building. Where the garden is not large enough to have a convenience like this, there should be a space allotted to garden tools in some shed, barn or other out house.— Proper hooks should be put up upon which to hang them, so that they may be out of the way. The wooden part of the tools should be painted, and the initials of the owners name, or the name itself, be marked upon each. Tools, like sheep, will stray from one lot to another, and should, therefore, be branded. The steel parts should be cleansed before they are put away, so that they may not be rusted and unfit for use when wanted. A little care, bestowed in this way, is amply repaid. Tools out of repair should be mended before restored to their places.

FIGURE 1.

HOT BED FRAME AND SASH.—Hot beds are necessary in almost every New-Hampshire garden, where people intend to have early vegetables. In fact, there are some kinds that cannot be raised in perfection without them. Among these are Cauliflower, Tomato, Egg-plant &c. The frame should be made of plank nine inches high in front, and *eighteen* inches at the back. The top should be so made, that the sash can be shoved up, as in the above cut, or raised by inserting a wedge between the sash and frame at the back side,

to let off the steam that arises from the fermenting manure. This, if retained too long, will have an injurious effect upon the plants. The frame should be made about four feet wide and of any required length. The sash should be made stout, without any cross pieces for the glass to rest upon. The glass should be lapped, one over another, so that the rain may run off. By carefully examining the cut, any joiner will be able to make a suitable sash and frame.

German Hot Beds.—Take white cotton cloth of a close texture, stretch and nail it on frames of any size you wish; take two ounces of lime water, four ounces linseed oil, one ounce white of eggs, two ounces yolk of eggs; mix the lime water and oil with very gentle heat, beat the eggs well, and mix with the former, and spread this mixture with a paint brush over the cloth, allowing each coat to dry before applying another. Pursue this course until the cloth becomes water proof. This may be used with good effect, as we know by experience. It possesses the following advantages over glass sash:—

1st The cost is hardly one-sixth.

2d Repairs are easily made.

3d No matter how intense the heat of the sun, the plants are never struck down or burnt, or checked in growth, neither do they grow up long and weakly; yet there is sufficient light to produce green and hardy plants.

4th The heat arising almost entirely from below, is more equable, and temperate, which is a great benefit.

They are very convenient for bringing forward flowers in season for transplanting. We do not recommend them as an entire substitute for glass, in raising *very* early plants.

Hand Glasses.—They are made of iron or wooden sash and are pyramidal in form. They may be covered also with cloth, prepared as it is for the German Hot Bed. They are used to protect Hot Bed

plants, during cold storms and nights, which follow their transplanting.

FIGURE 2.

Vine Shield.—These are small frames, made of thin boards, with a pane of glass in the top. They should be made with a bevel as represented in the cut, (fig. 2) so that they can

be packed away when they are not in use. They can be covered with the Hot bed cloth and answer a good purpose. They are used in protecting young plants from the cold, and the attack of bugs.

Spades.—Every tool house should have at least one good spade. No tool about the garden is of more importance. Buy a good article, it costs but a trifle more than a poor one.

Shovels and Forks.—Have at least one good shovel and one good fork. These, properly taken care of, will last for years. Forks are sometimes used as a substitute for the spade, and with good effect when the ground is wet, as it prevents the baking which follows the use of that tool.

FIGURE 3.

Garden Trowel.—The Trowel is a very convenient tool for transplanting Tomatoes, Cabbages, &c., as you can take up

a ball of earth large enough so as not disturb the roots. Fig. 3, represents the proper pattern for use.

Wheelbarrow.—Every garden of any considerable size, should have a good wheelbarrow made of light but strong materials. It should be painted once a year if used to a great extent.

Dibble.—This is used in transplanting tap-rooted plants. It may be made of an old spade handle, sharpened at the lower end, with several holes bored at various heights into which pegs may be placed to regulate its insertion into the ground.

Hoes.—These should be made of different patterns and sizes. Some broad, some narrow with tines on the back, &c. Those with forks on the back are useful for loosening soil around plants.

Drill Rakes.—These may be made with four, six or ten wooden teeth, placed from ten to fifteen inches apart. Draw the first drill by a line, then place the outside tooth of the rake in this drill, and so proceed keeping the left hand tooth in the right hand drill.—This does the work neatly and very rapidly.

Garden Rakes.—These should be made of wrought iron, the teeth 2, 1-2 inches long and 2 inches apart. The number of teeth may vary from ten to sixteen.

Water Carrier.—This is a barrel placed between two handles similar to those of a wheelbarrow, with two small wagon wheels in front. With this a barrel of water may be carried to any part of the garden with great ease and with great economy of time.

Hand Cultivators.—These should be made of iron so as to expand from ten to eighteen inches wide. These are very convenient for drawing between garden vegetables, as they save the labor of several men with hoes.

Garden Engines.—These are made double and single action pumps, double and single brakes, on four wheels with tongue, and on two wheels with handles like a barrow. They are extensively used in gardens, nurseries &c., and are sometimes found to afford very valuable assistance in case of fire, in a neighborhood distant from a larger engine, as they throw water to the height of seventy or eighty feet, with considerable force.

Miscellaneous Tools.—Under this head we place many tools very valuable in a large garden, viz. The *Seed Sower*, *Reel* and *Line* for laying out beds and walks, *Watering-pots*, *Pruning Shears*, *Pruning Knife*, *Garden Syringe*, *Fruit Gatherer*, &c. &c.

PREPARATION OF SOIL.—Having described the soil suitable for a garden, the various substances for enriching it, and the implements to be used, we now proceed to

speak of the preparation necessary to fit it for the production of culinary vegetables. Here let us add, too much importance cannot be attached to having a rich, deep, friable loam, resting upon a warm subsoil, as upon this in a great measure, depends the future success of the gardener. Skill in cultivation cannot overcome all the injurious effects arising from a poor or cold soil. Having a suitable soil, the next thing of importance is to stir it deeply. Without mellowness roots are not able to penetrate it. Mr. Trull proved that the roots of the common turnip extended six feet, although he could not trace them to that extent with his naked eye. Mr. Downing remarks, "I have seen the roots of strawberries extend five feet down in a rich soil; and those plants bore a crop of fruit five times as large and twice as handsome and good, as the common product of a soil only one foot deep." Another benefit of deep stirring is, it exposes the soil to the action of the atmosphere. This, it is known, contains some of the principal elements of vegetable growth which it readily yields to a light and porous soil. "Such a soil permits the immediate escape of water after heavy rains, and yet, by its capillary attraction furnishes a supply of moisture during a protracted drought. By its friability, it is more capable of absorbing heat during sunshine, and, therefore, more sensible of the early approaches of spring; and yet, it radiates heat so rapidly, that the deposit of dew in the summer nights is greatly facilitated. These latter two properties are very important, because the warmth of the sun is necessary for the roots, and because the free deposit of dew protects them from the fatal consequences of continued dry weather."

Subsoil Plowing.—This is undoubtedly the best method to pursue when the ground is wanted for immediate use. It loosens very thoroughly the subsoil, and yet leaves the true soil on top. The objection to it, is, that it does not enrich the soil to the depth required to produce good vegetables.

Double Plowing.—This, on the whole, we consider preferable to subsoiling, when properly done. The manure should be spread upon the surface and turned in with a large plough. This should be followed by a smaller one in the same furrow both moving the ground from fourteen to sixteen inches deep. It should then be cross-plowed. In this way a portion of subsoil is brought up and incorporated with the surface soil and manure, and is enriched and made suitable to nourish plants.

Trenching.—Where you have a deep soil, this is undoubtedly the best of all preparation. Across one side of the ground you intend for the garden, you make with a spade, a trench two feet wide and two feet deep. Shovel out the bottom clean, throwing the earth away from your future garden. You then take another piece beside the trench, two feet wide, and put the earth that this new piece contains into your former trench, the top soil at the bottom. Pursue this course until your garden be trenched. The last trench you will have to fill up with the soil that you shoveled out of your first trench. Your garden soil to the depth of two feet you will have completely turned over.

Bastard Trenching.—When you have but a foot of good soil on a sandy, gravelly or clayey subsoil, it will not do to pursue the former method. The surface soil would be so poor that plants would never be able to throw out roots to reach that which would yield them support. The method to be pursued in such a case is this:—Commence upon one side and dig a trench two feet wide and two feet deep, laying the good soil in one pile, and the poor in another. Side of this, commence another trench two feet wide and throw the good soil *over* the first trench on to the other good pile. Spread manure in the first trench, and then spade the poor soil of the second trench upon it, and incorporate it with it. Open the third trench and throw your good soil upon the last poor soil which

was thrown into the first trench. Pursue this course until you have gone through the bed, when you will have left on the side where you commenced, the soil and subsoil which you threw out of the first trench and the good soil of the second. This you will be obliged to convey by a wheelbarrow or otherwise, to the last two trenches. In this way, you will have your poor soil loosened and enriched, and the same soil on top that you had when you commenced.

This thorough spading should be performed once in four or five years. Besides this there will be an annual spading. Commence at one side of your ground and open a trench the width and depth of your spade, and fill it by opening another. Continue this until the ground is all gone over. The work will be facilitated by digging in a straight line and of a uniform depth. All lumps should be broken as you proceed and the ground be well pulverized. Avoid spading immediately after a rain, as the ground has a tendency to bake if worked when wet. We are aware there is labor and expense in preparing ground in this manner, but every one should bear in mind he is doing a work that is to last years, and that he will be richly repaid for his labor in the increased vigor and beauty of his plants.

SOWING AND PROPAGATION IN GENERAL.—Propagation of plants is effected in a variety of ways; by seed, suckers, offsets, layers and cuttings. Most garden vegetables are propagated by seed; those that are not, will be spoken of under the treatment of each plant.

Having prepared the ground by spading or plowing, the next operation is to top dress it. This is done by raking it smooth and pulverizing all the lumps of earth, so that the soil shall have an even surface.—Then with a chain or line, lay out your ground into suitable plats for your vegetables. Between the plats make a walk eighteen inches or two feet wide, by treading the soil or by throwing it evenly over the

ground, so that the walk shall be two or three inches lower than the surface of the bed. Doing this work neatly very much improves the looks of the ground, and as it occupies but a short time it should never be neglected. Having dressed the ground take a drill rake and mark it off into drills suitable for your seed. The depth that seeds should be sown depends much upon their size and character. Seed as large as peas *may* be planted as deep as two or more inches and germinate, but those as small as celery planted to that depth would probably remain there until their vitality was destroyed, before sufficient warmth would reach them to cause them to sprout. Having scattered the seed in the drills, the amount of which we shall speak of under each article separately, gently press the soil on to it, that every seed may be thoroughly covered with loam, for upon this depends its germinating. This work should be done with care and neatness.

"Broadcast sowing is deservedly falling into disrepute, for with a gardener, its only recommendation is that of expedition at the most hurried season. In reality, however, it causes an actual loss of time. The plants must be thinned out and transplanted at a period when every moment should be spent in resisting the encroachments of weeds and insects. There is considerable risk in this removal from the seed bed; the fibrous roots are broken and injured so that unusual care is necessary in their protection, until they become fairly established. The drill system is certainly much more tidy and convenient. The hoe can be used freely, while the beneficial influences of light and air are effectually admitted to the leaves and soil. The good effects will be discovered, not only in the increased product and its improved quality, but also, in the better preparation of the land for the succeeding crop.

A seed requires heat, air, and moisture to insure germination. In the absence of either of these three conditions, it may remain dormant for centuries. When waking into life, moisture is absorbed, the seed swells, the starch is converted into sugar, the germ bursts its integuments, and the stem pushes its way towards the surface, while the root buries itself downward in search of nutriment. Now, it is surely an object to hasten this process, for thereby the crop will be accelerated, and the young plant sooner placed beyond all danger of its enemies. The mere putting the seed into the ground is not always sufficient. With certain kinds, it is well known that days, and even weeks, will elapse before the

plant is developed; by which time the weeds may have taken undisturbed possession of the beds. Various steps have been proposed, for the purpose of hastening vegetation, among which are solutions of saltpetre, nitrate of soda, muriate of ammonia, sulphate of ammonia, guano, chloride of lime, sulphur, &c. &c.—Tepid water answers a very good purpose. The length of time for each kind of seed to remain in the liquor, varies and must be determined, together with many other things of equal importance, by experiment. If suffered to remain too long, putrefaction will commence, which either weakens or destroys the vitality of the germ. We do not think it prudent, as a general thing, to delay sowing after the seed swells and gives unmistakable signs of sprouting.—*P. A. Schenck.*

Care is necessary after sowing to ensure perfect plants. The ground may be so dry as to abstract the moisture from the sprouted seed and thereby destroy it, or it may be so wet and cold as to cause it to decay. These two extremes should be avoided.

The following was furnished us by a distinguished New Hampshire Gardener:

"To start Seeds quick.—Pulverize the bed where you sow, make it level with a board, put on the seed as even as possible and sift on just enough dirt to cover it; spread a rug or old cotton bag over the bed and water with boiling water from a waterpot. Take off the rug at night as soon as the sprouts appear which will sometimes be in forty-eight hours if the rug is well wet."

SAVING SEEDS.—Every beginner is obliged to depend upon his neighbors, or some Seedman, for his seed. This is a point in regard to which, he ought to use great caution, as he is liable to be deceived as to the sort, its genuineness and soundness. To avoid disappointment, purchase of a Seedman of known probity. He may, at times, be deceived, for he cannot raise all of his seed, but by buying of such a one, your chance is greater of getting seed which is good. After you have got plants which are true to their kind, you should endeavor to save your own seed. There are some few kinds, which you will have to depend upon the Seedman for, as they are seldom raised in this country. In raising seed, remove those of the same

species as far apart as possible, for it is a well attested fact, that if two different varieties of a vegetable are permitted to blossom at the same time, within a short distance of each other, they intermix, and produce a hybrid partaking of the character of both parents.—The fertilizing dust of the stamens in the flowers of one plant, is conveyed by the wind or insects to the pistils in the flowers of the other. The distinctive features of each are thereby lost, while the new variety may not possess a single point to make it worthy of cultivation. For instance, you set out an early Dwarf and a Drum-head cabbage side by side for their seed. One you value for its extreme earliness, the other for its lateness and its winter keeping quality. Having raised a fine lot of seed, you plant it the ensuing year, but instead of Early Dwarf, you have a later cabbage of a coarse quality, partaking perhaps, more of the character of the Early Dwarf than any thing else, but yet not the true kind; and instead of the Drum-head, you have a cabbage that ripens earlier and does not keep so well as that which is true to its kind, so that you are disappointed in both.

This fact is of great importance to the gardener, and should be strictly observed. Those who have but a small piece of ground, will not be able to raise a large variety of seed the same year, nor is it necessary. Many kinds of seed keep a number of years, so that the gardener can raise of one variety of a genus, sufficient to last as long as the seed will keep and retain its vitality. For instance, he can raise this year at one side of his garden, his Cauliflower seed; at the other his Savoy Cabbage seed. Next year, he may in the same manner, raise his Sugarloaf and Battersea Cabbage seed, and in this way go through the whole *Brassica* tribe. So also of the *Cucumis* or *Gourd* tribe. But it is better to raise only one kind where there is danger of hybridizing, and depend upon some Seedman of known honor for your others.

“Of such varieties as you select for seeding, choose

the best plants only,—those which are healthy, and have their peculiar characteristics most perfectly developed. To insure earliness, only the most forward plants should be taken.” Plant them out in rich soil, and if the weather becomes very dry, a moderate watering should be given. When the seed stocks have become long and heavy, they should be tied to a stake with bass matting, to stay them and preserve them during severe winds. As the seed ripens gather without unnecessary delay, otherwise the seed will be scattered upon the ground. Select only the finest looking pods. In this way your varieties may be improved. Having perfectly dried them in some shady place, thresh out the seed and winnow the chaff and poor or defective seed away, then pack in paper bags and put them in some dry and cool place to remain until wanted. Each bag should be labeled with the name and when raised, thus: “Early American Cauliflower, 1852.”

The *vitality* of seed with good care can be depended upon for the following periods:—

Carrots, Parsnips, Rhubarb and other thin scaly seeds,—for *one year*.

Balm, Basil, Beans, Cress, Lavender, Leeks, Onions, Peppers, Peas, Savory, Sage, Salsify, Tomato, Thyme, and small herb seed,—for *two years*.

Asparagus, Egg-plant, Indian Corn, Lettuce, Marjoram, Mustard, Parsley, and Spinach, for *three years*.

Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Radish, Sea-Kale, and Turnip, for *four years*.

Beet, Celery, Cucumber, Melon, Pumpkin, and Squash, from *five to ten years*.

EARLY PLANTS.—There are several vegetables, which, owing to the shortness of our Spring and Summer, cannot be successfully raised if planted in the open ground. It is desirable, therefore, to have early plants. A cheap way to obtain them, is, to plant seed in a flower-pot and set them in a warm kitchen window, where they will have the benefit of the sun.—By giving the plants sufficient light and fresh air, you

may forward your crops from two to four weeks. Operations of this kind, of necessity must be of a limited character.

Hot Beds.—Under the head of "*Tools and Tool House*," we have spoken of the frame and sash necessary for the covering of a *Hot Bed*. In this article we purpose to speak of the making of the bed, its materials, and its after management. There are several substances employed to produce artificial heat, among which, are, grass, Tanner's spent bark, leaves, and green manure. Unfermented horse manure is undoubtedly the best article in use. Heat is generated by its fermentation. To produce this, air and moisture are necessary. Throw the manure into a conical shaped pile, and if the weather is cold or stormy, cover it with litter. After it has lain in this condition three or four days, it should be shaken over and piled again, and if any part should appear dry, it should be watered. Pursue this course until the larger part of the straw is browned. The object is to get rid of the violent heat and vapor that arises. Care should be taken that this process is not carried too far, as there would not be sufficient heat left to force the plants and give them a good, healthy appearance. Having prepared your manure, mark the size of your frame upon the ground, and then with a fork spread the manure so that it shall project six inches beyond each side of the frame. Pursue this method, beating each layer with the spade, until the pile is from two to four feet high according to the season of the year, and the plants to be forced. If the weather is dry and warm, it will require less than if it is wet and cold. If the heat becomes exhausted, it may be restored in a measure, by a "lining". First, cut the manure even with the frame and remove it; make some holes through the bed, and then with manure that is just beginning to heat, fill these places and also those caused by the removal of the manure upon the outside of the frame.

In this way, should the weather prove unfavorable, you can continue the heat any length of time.

Having prepared your bed, put three or four inches of good rich loam or decayed turf upon it, and place the frame and sash over it. In three or four days the loam will be sufficiently warm to receive the seed.—The plants of most seed will very soon appear in hot beds and care must be used in order that they may have sufficient light and air, otherwise the plants will draw up long and weakly, and will not be worth transplanting. A stocky, green plant is the kind to be desired; and the only way to produce it, is by giving an abundance of air. The upper side of the sash should be raised sufficiently to let the vapors arising from the manure, escape. The sash may be shoved up or down from one to four inches, according to the weather. If it be mild and warm, they should be taken off during the day, that the plants may become seasoned to the atmosphere so they will bear transplanting. By giving an abundance of air, there is no trouble in raising good plants, but care should be taken that there are no sudden changes in the atmosphere of the bed, as that tends to stunt the growth of the plants.

When the plants are an inch high, it is a good plan to transfer them to small earthen pots that have a hole in the bottom. Put some earthen shreds in it that the pot may be well drained, and also, that the ball of earth may be easily pushed from the pot without disturbing the roots of the plant when it is desirable to transplant them to the open ground. The pots should be plunged to their rims in the loam of the hot bed. Some make holes in the ground so as to have the loam when the bed is finished even with the surface of the ground, but these beds are liable to be effected by damp and injurious vapors, so that the plan of building above ground is to be preferred. If any one chooses, he can make a box around the manure

which answers a better purpose than to place the manure in the ground.

TRANSPLANTING.—Most gardeners recommend that transplanting be done just before a rain. It should never be done while the ground is wet, as it causes it to bake down and prevents the plants growing, till the ground is stirred when it is *dry*. Mr. Cobbett recommends that transplanting be done in warm, dry weather, and says, "There is a fermentation that takes place immediately after moving, and a dew arises, which did not arise before. These greatly exceed, in power of causing the plant to *strike*, anything to be obtained by rain on the plants at the time of planting, or by planting in wet earth." We have transplanted several hundred strawberry plants in one of the driest and hottest times in August without the loss of a single plant. We stirred the earth deeply with a spade, and with a trowel, moved the plants from their original places to the trench. Here we pressed the mellow loam about the roots, and then with a pair of shears removed all the leaves that had expanded, leaving only the eye of the plant to produce new leaves. This last operation we regard as very essential. There is a constant evaporation of the juices of the plant through the pores of the leaves, and if this takes place before the fibrous roots have taken hold of the soil, the strength of the plant is exhausted and it dies or lingers out, at best, a sickly existence. Under the above treatment the new leaves quickly expand giving healthy and vigorous plants.

We urge upon gardeners, the necessity of stirring the ground just before transplanting, and of pressing the soil upon the roots even to the ends, otherwise the roots exposed to the air under ground soon mould and decay. The trowel should be used and a small ball of earth be taken up when possible. If the plants are simply drawn out of the ground, they should be dipped in a semi-fluid mass of cow-dung and water, and be inserted in a hole made by a dibble, and then

the dibble pressed down an inch from the side of the hole that all of the roots shall come in contact with the soil. Should the weather be very warm and dry it may be necessary to protect the plants with vine shields during the hottest part of the first two or three days, and give them a watering with tepid water just before sundown.

ROTATION OF CROPS.—There are a few vegetables that are produced in perfection upon the same soil year after year, but they are exceptions to the general rule. The onion tribe is an instance of this. Most plants, however, require a change of soil to prevent their degenerating and becoming liable to the attack of insects and various diseases. “When one particular element of a vegetable is removed from the soil, the vegetable cannot again be raised there, until that element be restored. It is, therefore, advisable to alternate the crops; by which means the land will have an opportunity to regain its original strength and fertility. If old pastures were to be attentively observed, it would be found that the grasses gradually change from season to season; and in woodland, it would be discovered, that an entirely different kind of tree takes the place of such as have decayed, or have been cut down.”

Vegetables, therefore, of the same species should not follow each other, but return at as distant intervals as the case will allow. “Tuberous or tap roots should be succeeded by those of a fibrous character; perennials by annuals, and plants of a dry, solid texture, or those left for seed, by such as are succulent and juicy.”

If every gardener should pursue this course, thoroughly spading and manuring his grounds, we should hear less of varieties degenerating.

DESTRUCTION OF VERMIN.

“A feeble race! yet oft
The sacred sons of vengeance; on whose course
Corrosive Famine waits, and kills the year.”

“Nothing is more vexatious and discouraging for the gardener, than to see the objects of his care actually swept away by vermin of all kinds and sizes, of whose habits he is wholly ignorant,—unless their partiality for tender vegetables be excepted. He may have labored diligently for weeks perhaps months; yet in a single night, his choicest plants will be destroyed. Of the whole vegetable kingdom, there is scarce a useful member which is not liable to these attacks at different stages of its growth. Some vermin prey upon the root, others choose the stem and branches, a third class prefer the leaves, a fourth select the flowers, while a fifth reject everything but the fruit or seed. For example; if the seed of the common turnip is so fortunate as to escape a minute weevil, another enemy awaits the unfolding of the first leaves; another buries itself in the bulb or rootlets, so that they become diseased, and covered with unseemly excrescences; and the mature foliage falls the prey of caterpillars. It is, therefore, the duty of the gardener to study the character and habits of these depredators, so as to guard against their attacks. The reader who may desire a thorough acquaintance with the subject, must refer to works of greater pretensions than this volume. We have room for only a few practical hints.

An ounce of prevention is said to be worth a pound of cure and the student will naturally first inquire for the best modes of protecting his plants. This will in a measure be secured by high culture,—having the ground rich, sowing healthy seed, and hastening the maturity of the crop. As the young stems and leaves are sweetest, so are they most liable to injury; and everything that accelerates their growth, adds to their security. It is the policy of some cultivators to turn over the soil late in autumn, in order that the grubs and insects which have taken up their winter quarters may be exposed to the action of frost. We are acquainted with many gardens which have thus been almost entirely rid of these pests. The application of salt at the rate of two or three bushels per acre, in spring, or the occasional use of strong brine, is highly recommended; but, salt is a very powerful agent, and in every form must be applied with caution, lest vegetation should also be injured. Rolling or pressing the surface of the ground compactly, after sowing, is an excellent plan, as the flies are thereby deprived of hiding places around the little lumps of dirt.

Reproduction should be prevented as much as possible. When crushing a grub under foot, or stifling a beetle, the gardener lessens the number of his enemies by millions *in embryo*. The aphides, or plant lice, multiply with astonishing rapidity, and a

single butterfly has been estimated to produce thirty millions of descendants at the third generation! The butterfly, which is the parent of destructive caterpillars, will deposit its eggs upon pieces of woolen cloth laid upon currant bushes or around cabbage plants. It is even good policy to employ little boys and girls in this work, giving them a bounty on every worm, chrysalis, moth or nest of eggs, which they may discover. Children have very sharp eyes when their industry is stimulated by hopes of a pecuniary reward. Large gardens have thus been kept free from vermin at the annual cost of a few shillings. Bonfires of shavings or brush, just after twilight in the evening, will attract and destroy immense numbers of flying beetles.

The next inquiry will be, what is to be done after the vermin, in spite of all the above precautions, have actually made their appearance. The war against them must be vigorously prosecuted. The most certain, and therefore the best mode of attack, is by hand-picking; but, the difficulty of capturing the minute and most agile insects by the fingers, will prevent its general adoption. However repulsive may be its personal appearance, the common toad is a very valuable assistant in this work. The writer who termed it "the most deformed and hideous of all animals," could scarcely have known its use in the vegetable garden. Its eye is active, and its long, viscid tongue moves so rapidly, that it will destroy twenty or more wood-lice in two or three minutes.—It lives almost entirely upon small worms and insects, and in a very unostentatious and quiet manner relieves the cultivator of many of his most troublesome enemies.

But, still other plans are required. These are numerous; such as dusting the plants, when covered with moisture, with soot, ashes, charcoal, sulphur, road-dust, powdered hen-dung, air slacked lime, etc.; or watering them and the ground with soap-suds, solutions of saltpetre, guano, hen-dung and whale oil soap,* decoctions of tobacco and elder, etc.; or fumigating them with sulphur and tobacco. Soap-suds from the wash-room is excellent for this purpose, and it likewise proves an excellent fertilizer. Whale oil soap is very cheap and efficient; care must be taken, however, not to make the solution too strong, lest it injure the plants.—Of soap of an average quality, one pound may be put to seven gallons of water; but, as its strength varies much, the gardener should determine the proportions by experiment.

We have long used a solution of hen-dung with success, and we recommend it because it is always easily obtained. We have a tub standing in a convenient part of the garden, and, at the time when the insects are expected, put in the bottom about one

* *To make Whale Oil Soap.*—Take eighteen pounds of potash and thirty pounds of foot oil, and mix them together in a barrel. Every other day add twelve quarts of boiling water, and stir the whole for a few minutes every day, until the barrel be full, when the mixture will be fit for use.

bushel of hen-dung, upon which we pour several pailsful of boiling water. When the mixture has become semi-fluid, by frequent stirring, we fill the tub up with water. After remaining twelve hours longer, the liquid should be of a dark green color, and somewhat offensive to the nostrils, as upon that particular depends its efficacy. It may then be cautiously applied upon melon and cabbage hills, and, in fact, every place liable to the attacks of insects.

We also make use of the vine-shield, (Fig. 2,) which not only protects the plant, but greatly accelerates its growth. Could the scratching propensities of poultry be restrained, their assistance would be of no little value. Broods of young chickens will do much good,—the hens being confined, and the chicks suffered to roam over the beds; as soon, however, as their claws become troublesome, a new brood should take their place. Whatever mode may be adopted, much depends upon the time when operations are commenced. The moment the enemy appears, the signal or a general onslaught should be given. By such prompt action only, may the cultivator have cause to expect a crop.”—*P. A. Schunck.*

VEGETABLES.

“**ARTICHOKE, (JERUSALEM.)** *Helianthus Tuberosus*.—Early in the spring (last of April,) is the proper time for planting the Jerusalem Artichoke, and, being of a very hardy nature, it will thrive in any situation, and even in a soil of an ordinary kind. It is not easily eradicated when once introduced into a garden. It is propagated in the same manner as the potato, by planting the bulb or tuber in rows about a yard asunder, and nine or ten inches distant from each other in the row, covering them with three inches depth of earth. The ground should be well manured for them, and no further trouble is required, except to keep them clear from weeds, and give a light digging between the rows.”—*Kitch. & Fruit Gar.*

In an agricultural point of view, this plant deserves a high position. Its hardiness and great productiveness, (for it is said that it sometimes produces more than two thousand bushels per acre,) should cause it to be more extensively cultivated. It is valuable for cattle, sheep and hogs, and also for table purposes.

To Pickle.—Take those only which are fair, and pour upon them hot vinegar which has been previously spiced, and let it stand till cold. Repeat the operation two or three times.

ASPARAGUS. *Asparagus officinalis*.—This is one of the most valuable garden vegetables, resembling in flavor

green peas and coming as it does when there are so few vegetables to be had, it should be found in every garden. It is propagated by seed and by separating old roots. The former way is preferable though it will be longer before it is fit for use since the plants require to be three or four years old before they will do to crop.

"The seed—one oz. being sufficient for 900 or 1000 plants,—is to be thinly sown, in drills sixteen inches apart, early in the spring—say from about the middle of April to the beginning of May, due regard being had to the forwardness of the season.—Cover the seed about an inch and a half deep. If the weather continue dry, the ground ought to be covered with straw or brush during the middle of the day, until germination takes place. Or, water may be frequently applied in small quantities, until the same end is accomplished. When the young plants are a few inches high, they must be thinned out to distances of six or eight inches in the drill. The surface should be kept open and free from weeds. By the middle or latter part of November, remove the withered stalks, by cutting them down close to the ground, and then cover the bed with two inches of rotten dung, overlaid by coarse stable litter. This protection not only saves the roots from being injured by the frost, but secures a vigorous growth during the next summer."—*Schenck's Gardener's Text-Book.*

"In the making of Asparagus beds, the chief point to be considered is to make choice of a proper soil: choose the best which the garden affords; it must not be wet, nor too strong, nor stubborn, but such as is moderately light and pliable, so that it will readily fall to pieces in digging or raking, and in a situation that enjoys the full sun. The ground intended for Asparagus beds should have a large supply of rotten or other good dung, laid several inches thick; it should then be regularly trenched two or three feet, and the dung buried equally in each trench as the progress goes on. The ground being made level, it should be divided into beds, four feet and a half wide, with paths two feet wide between bed and bed. Four rows of Asparagus should be planted in each bed, and ten or twelve inches distance to be allowed between plant and plant in the row, letting the outside rows of each bed be nine inches from the edge; or they may be planted only in single rows, two feet and a half apart, or in narrow beds containing two rows of roots only. It is of very great importance for ensuring success in the planting of Asparagus to lift the roots carefully, and to expose them to the air as short a time as possible. No plant feels an injury in the root more keenly than Asparagus, and, from the brittleness of the roots when they are once broken, they do not readily shoot again." *Comp. Gard.*

"At the approach of winter, when their natural season of growth is over, the tops will turn white, and they may then be cut down close to the ground. Care should be observed not to do this while they are at all green, because in that case the roots are likely to sprout again. The dead stalks, and all weeds—if any there be found, can either be gathered into a pile and burned, or else be taken to the compost heap or pig pen, to be subsequently returned to the ground in the shape of manure. The bed ought now to receive a thin top-dressing of good, rotten dung, about three inches thick, together with a covering of leaves, litter, or even a little rich soil. This is the only way to ensure a healthy growth of the roots in the coming year.

In March or April of the following spring, as soon as the frost leaves the ground, and before the buds are expected to start, remove the covering, and dig the surface of the bed with the fork, in order to mix the old manure with the soil, as well as to admit heat and air to the roots. The tines of the fork ought not to be inserted to a greater depth than three or four inches, lest the crowns of the roots be injured. This having been properly done, the next thing is to rake off the heavy clods and stones into the alleys. Owing to its marine character, the asparagus plant receives decided benefit from frequent and liberal applications of common salt. It is best applied at this season of the year, spread thinly upon the surface of the bed, and then raked under. A smaller quantity may be given some two or three times afterwards during the summer. Many gardeners recommend the use of brine of the strength of sea-water, to be sprinkled upon the ground every fortnight or three weeks through the growing season. There is but little danger of making the ground too rich; some caution must be observed, however, in the application of salt, as by its injudicious use several fine plantations are said to have been destroyed. In our own garden, all we dare do, is to sprinkle on just enough to make the ground look white, as though a light snow had fallen.

This course of management for the spring and winter dressings, must be pursued annually so long as the bed remains. In summer, the only culture necessary is to keep the soil in good tilth. In dry seasons, a regular application of water at stated intervals will prove of decided benefit, securing a vigorous and uninterrupted growth. No portion of the crop ought to be gathered previous to the fourth season after the sowing of the seed."

"*To cook.*—In the first place, cut off the tough, white part of the stalks, in such manner that they may be of nearly equal length. Put them into small bundles, and boil them from fifteen to twenty minutes according to their age. The addition of a quarter-teaspoonful of salaratus to three quarts of the water, will preserve the fresh, green color of the asparagus. A little salt should be put in the stew pan. Toast a large slice of bread, and

lay it in the bottom of a vegetable dish. Then moisten the toast with a little water from the stew pan, and butter it. When the asparagus is taken up and drained, it is to be laid on the toast, and the strings removed. Serve with melted butter, and salt to the taste."—*Gardener's Text-Book.*

BALM. *Melissa Officinalis*.—Balm is a hardy perennial, having a very fragrant odor. "It may be propagated by seed, by offsets of the roots and by slips of the young shoots. The first two modes can be practiced either in Spring or Autumn, but slips are generally found to succeed best when they have been set out in the latter part of spring." It grows best on a poor friable soil and needs no manure. It is used as a trimming for meats and for medicinal purposes.—The Lemon is usually preferred.

BEAN. *Vicia faba*.—There are two distinct species of the Bean, the *vicia faba* or English bean and *phaseolus* or kidney bean. These species require entirely different treatment. The English, the most common varieties of which, are, the *Early Mazagan*, *Long Pod*, *Broad Windsor* and *Green Nonpareil*, are very hardy, and may be sown very early as spring frosts do not injure them; they also produce more certain crops when sown early. They succeed well by being sown in the fall. They require a stiff moist loam with a considerable proportion of clay. Sow thinly in drills two feet apart. Gather them for use while young and tender. These are usually inferior with us to the class of kidney beans.

BEAN. *Phaseolus vulgaris*.—The class of kidney beans is so extensively known and cultivated as hardly to require a notice here. They are called kidney beans in contradistinction to the English bean, or *vicia faba*. There are a large number of kinds of the dwarfs, and also of the runners or pole bean, of this variety. Some of the most popular of the dwarfs, are, the *Early Yellow Six Weeks*, *Early Mohawk* which is not injured by a smart frost, *Early Caseknife*, *Early Dwarf Horticultural*, *Early Valentine*, and the *Dwarf Red* and *White Cranberry*.

Kidney Dwarfs should be planted as soon as the danger of frosts is over, in light rich soil, three or four in a hill or in drills two or three feet apart. Let them be carefully hoed, drawing the earth around the stems a very little at each time.

Of the pole beans or runners, the *White Caseknife*, *London Horticultural*, and the *Red* and *White Cranberry*, are perhaps the most popular in this State. They are all worthy of cultivation. Pole beans should be planted in hills two feet apart, putting four or five beans in a hill, and leaving a space in the centre for the pole. They should not be planted till all danger of frost is past, as they are more tender than the dwarfs. When the runners begin to start they should be trained to the pole. Move the ground frequently in dry weather and keep it free from weeds. It should be well enriched with fermented manure.

The *Lima Beans* which are very popular in some other states do not succeed well in this, and therefore are cultivated only with the assistance of a Hot Bed.

To boil String Beans.—Take off the strings and cut the beans into short pieces. Boil them with a little salt, from twenty to forty minutes, according to their age. A little salaratus in the pot preserves their green color and makes them more healthy. They ought to be quite tender before taken from the fire. Add salt, butter, and a little sweet cream, and they are ready for the table.

Shell Beans.—These are cooked in the same way either with or without the salaratus.

To bake White Beans.—Pick them over carefully and at evening put them in a slightly warm place.—Put a quart of water to a pint of beans. The next morning rinse them well in two or three waters, and boil them ten or fifteen minutes; at the end of which time take them up with a skimmer and lay them in a baking dish. Put in the centre a piece of salt pork, having the rind scored, with the top just exposed; and then pour in cold water so that it may be seen

at the sides of the dish." Add a little salaratus and sugar or molasses. Bake them in a hot brick oven from three to six hours.

BEEF. *Beta vulgaris*.—The principal kinds of beets cultivated for the kitchen, are *Early Turnip-rooted Blood Red*, *Long Blood Red* and *WHITE SUGAR*.

"Beets delight in rich yellow ground, having been manured for the previous crop. Sow the seeds in drills one inch deep and fourteen inches apart; cover them up and tramp firm. The turnip rooted can be sowed as soon as the frost is out of the ground in spring, for summer use, and the long blood in June for winter use. Hoe well between the rows, and keep free from weeds.—When the plants are two inches high, thin them out to four inches apart. Dig up the roots before hard frost in fall, put them in the cellar among dry earth, and plant out a few of the best in spring to raise seed.—*Waller Elder*.

To Pickle.—Wash your beets and boil them before scraping as scraping tends to bleach them in the boiling. When they are boiled tender, cut them in slices and pour upon them cold spiced vinegar.

BROCCOLI. *Brassica oleracea*, var.—"This is a species of cabbage with long leaves and cheese-like heart, which is very tender and delicious. Sow in drills half inch deep and six inches apart, in June: transplant into rows thirty inches apart each way in August, and use the hearts when they become full grown, which will be in October and November. The leaves are not for use. Broccoli delights in rich loam, and is best in wet seasons."—*Cottage Garden*.

It is a very wholesome vegetable. The *Purple Cape* and *LARGE WHITE* are the desirable varieties. It is prepared for the table in the same way that *Cauliflower* is, which see.

CABBAGE. *Brassica oleracea Capitata*.—The kinds most valued for early eating are the *Early York*, *Early Sugarloaf*, *Early Battersea* and *Early Oxheart*; the latter is somewhat tender as regards frosts.

"Cabbage seed, for a very early crop, should be sown in a hot bed in March; give plenty of air, and thin out the plants, that they may grow strong. When the plants are four or five inches high, they should be transplanted, if the weather is mild, into the open ground, in rows two feet apart, and about fifteen inches apart in the row; make the ground rich and light, and set them firmly; as they grow, give frequent hoeings, and keep clear of

weeds. Those who have no hot beds, should sow in the open ground early in May, which will be soon enough for a general crop."

The Drumhead, Bergen, Drumhead Savoy, and Curled Savoy are the varieties most esteemed for winter use.

"They need not be sown until the middle of May; sow in drills or broadcast, in beds properly prepared, and thin out as soon as they are one inch high; transplant them in June, in rows two feet apart. Those who wish to preserve their cabbages through the winter, should take them up in dry weather, and plant them down to the leaves, and close together, in a dry, sheltered spot. The whole must be covered securely with straw and boards, to keep off rain."

Or a trench may be made into which the cabbages may be placed heads down and the whole covered with earth. It should be in a dry place where water will not be likely to settle in large quantities upon them. They will keep good and fresh until spring. Red Cabbage makes an excellent pickle.

CARROT. *Daucus*.—The kinds best for garden culture, are, the Early Horn, and Long Orange.

"Sow in drills half inch deep and fourteen inches apart. The early horn can be sowed as soon as the ground is fit to dig in spring, for summer use, and the long orange in June, for fall and winter use. Cover the seed, and tramp the earth firm on them. When the plants are two inches high, thin them to three inches apart, hoe between the rows and keep clear of weeds. Late in fall dig them up, and put them in the cellar among the dry earth; and in spring plant out a few of the best for raising seeds."—*The Cottage Garden*.

CAULIFLOWER. *Brassica oleracea*, var. *botrytis*.—The cauliflower is one of the most delicate and curious of the whole of the *brassica* tribe; the flower buds forming a close, firm cluster or head, white and delicate, for the sake of which the plant is cultivated."—*American Gardener*.

The varieties most cultivated in this State are the Early American and the Large Late.

"The cultivation of this is the same as cabbage, but the crop is not so sure; it being more affected by climate. The scorching rays of the sun in dry weather are not favorable to it and land that is very rich, deep, and stands the drought well, is the best for its cultivation. When the plant begins to flower the leaves should

be broken or bent over it to shade the flower and water freely applied about the roots. It is said that when the plant does not flower in the field that it will in the winter if well set out in a damp cellar."—*By a New Hampshire Gardener.*

To Prepare Cauliflowers.—Take off the centre leaves; round such as are young leave just one leaf; put them with some salt and a little milk into boiling water; boil according to size, from fifteen to twenty minutes; try the stalk with a fork and when the stalk feels tender and the fork is easily withdrawn, the flower is done. Take up instantly with a wire ladle and serve with butter sauce.

CELERY. *Apium graveolens.*—The varieties most esteemed are Seymour's Superb White Solid and the Rose-colored Solid.

"The seed of this plant when intended for an early crop should be sown in a hot bed sometime in March, and the plants picked out as soon as the leaves are about two inches long, at the distance of an inch or two apart and should stand in the bed until they are large enough to set in the trenches where they are to grow. Before setting the plants, the largest leaves should be cropped off, as they start better than when left on. For a late crop the seed may be sown in the garden any time in April, and in all cases the ground should be finely pulverized, and the seed covered not more than 1-4 of an inch deep. The seeds should be sown in moist, cool land, and shaded from 11 o'clock A. M., until 2 P. M., as a hot sun will kill the plants when they first come up. The land most suitable for its cultivation is a deep, black, rich loam, and should be prepared by digging trenches from four to five feet from centre to centre—one foot wide and one or more deep. The manure should then be put in and if not fine it should be made so by chopping and mixing with dirt until the trench is nearly half full; then put on dirt enough to cover all the manure, and the ground is ready for the plants. The plants should be set in the centre of the trench and about eight inches apart, and kept clean from weeds until the leaves are about one foot long at which time it is large enough for bleaching; which is done by filling up the trench and hilling up the earth about the leaf stocks. In doing this, care should be taken to keep the leaves straight and the dirt out of the centre of the stocks. The dirt may be put up within three or four inches of the top of the leaves the first hilling and then go through the same process as often as once in 7 or 10 days until it is fit for use. I have used liquid manure and salt with very good success on my plants before bleaching, but no manure should come in contact with the leaves when the process

of bleaching is going on. Some gardeners set deeper and nearer than what I have mentioned, and it is frequently raised without trenches, but this latter mode takes more land as the ridges have to be made higher. Celery is generally raised as a second crop after early potatoes, vines, onions, cabbages, &c."—*By a distinguished New Hampshire Gardener.*

CHIVE. *Allium schoenoprasum*.—Chives are used by many both in the kitchen and in salads, and are a substitute for spring onions. They will grow in almost any soil and are easily propagated by off-sets. They may be planted in rows eight or nine inches asunder and four or five in a row. Early in the spring is the proper time for planting.

CORN, (INDIAN.) *Zea mays*.—Green Indian Corn makes one of the most delicious dishes that the garden affords. The varieties best adapted for table use, are, the Early White Jefferson, which is much earlier than the small Canada, the Eight-rowed Sugar, Darling's Early Sugar, and the Twelve-rowed Sugar for the late crop. The soil should be deep, rich, dry and mellow. Mark out cross rows from three to four feet apart each way and at each crossing make a hill. Put a shovelful of old manure or compost in each hill and mix it with the soil. Drop five or six kernels of corn in each and cover about one and a half inches deep. The plants should be reduced to three when they have passed all danger from worms. They should be kept free of weeds and slightly hilled as the corn grows. When the kernel is fully in the milk it is fit for use.

"*To Boil*.—Green corn is sweetest when boiled upon the cob, from fifteen to thirty minutes, according to its age. Some persons do not strip off the inner husks, until after the corn has been boiled, thinking that its rich flavor is thereby better retained.—The kernels can be cut off with a knife, and seasoned with butter, pepper and salt, or carried to the table untouched. None but the over-fastidious will object to eating directly from the cob.

Green Corn Pudding.—To three teacupful of grated corn, add two quarts of milk, eight eggs, two teaspoonsful of salt, one-half teacupful of melted butter, together with a little nutmeg. Bake for one hour, and eat with sauce.

Green Corn Oysters.—To one pint of grated corn, add one well-beaten egg, one teacupful of flour, one half teacupful of butter, with salt and pepper to the taste. Mix them well together. A tablespoonful dropped into lard, will make a cake of the size of an oyster. Fry to a light brown, and when cooked, moisten it with cream or butter.

To Dry for Winter Use.—After the ears have been boiled, the kernels are to be cut off by a knife, or shelled by running the prong of a fork along the base of the grain. Spread them upon a cloth in a shaded, airy place, but carry into the house at night-fall. They will require several days to become perfectly dried, when they are to be put away in cloth bags. The ravages of mice must be carefully guarded against.

Succotash.—Put three quarts of cold water to one half pound of salt pork and place them upon the fire. Cut three quarts of green corn from the cobs and boil the cobs with the pork, or scrape the cobs and save the scrapings to thicken with. When the pork has boiled one half hour, take out the cobs and put in one quart of freshly shelled beans. Boil them fifteen minutes, add the three quarts of corn and boil the whole until it is tender. Add butter, salt, sugar, cream and pepper to suit the taste. It may be made in winter, by using corn prepared as before directed for winter use, soaking it over night and adding it to the beans when they become tender.

CRESS. Lipideum Salivum.—The principal variety of cress is usually known as *Peppergrass*. As soon as the weather will permit in Spring, select some warm situation and sow the seed thickly in drills six inches apart. The ground should be finely pulverized and the sowings be repeated once in two weeks till fall.—It is in perfection when two inches high and should be cut close to the ground. It is used as a salad with lettuce, mustard, &c.

CUCUMBER. Cucumis sativus.—The cucumber requires a light, rich loam. The hills should be raised on the out side that they may retain the rain that falls, and afford a place into which to pour water in case there should be a dry time, as the cucumber requires a large amount of moisture. The *Early Frame*, *Early Cluster*,

Long and Short Prickly, and the *Long Green Turkey* are the kinds most valued. For directions in regard to bugs, see article "Destruction of Vermin."

"Sowing in the open air may be performed in the latter part of April, or any time during the month of May, according to the character of the season. Plants of very early sowings are apt to be cut off by a late frost. Nevertheless, it will be for one's interest to get the seed into the ground as soon as it can be done with safety. The first labor will be to mark out the hills at regular distances; perhaps, five feet apart each way will be sufficient, but to allow six feet is much the better plan. They should be dug out to the depth of twelve or fifteen inches, with about the same diameter, and be partly filled with well rotted dung, or a compost of hen-dung, overlaid by some rich, mellow loam. Sow five or six seeds in each; at which rate, one ounce of seed will plant near two hundred hills.

Cucumbers intended for pickling purposes, should be planted sometime during the first fortnight of July. In the bearing season, the vines ought to be examined daily, and, in order to secure greater productiveness, be relieved of the fruit as soon as it acquires a proper size.

The Hand-Glass is useful in forwarding plants. And for small cultivators, we think it more important than the hot-bed. In the beginning of April, a small hole, say eighteen inches deep, and as wide as the glass to be employed, should be dug on a warm border having a southern exposure. Put in fourteen or fifteen inches of active manure, and cover that with six inches of fine, rich soil, on which the seeds are to be sown. Place a hand-glass over the hill, and, during cold days or nights, give the additional protection of a mat, or a layer of long litter. While it is desirable to preserve a high temperature below the glass, fresh air must be admitted, in such quantities and at such times as will secure a vigorous growth, together with a strong, healthy green color in the plants. As the season advances, they ought to be gradually hardened, in order that they may not suffer serious inconvenience from the entire removal of the glass. The proper regulation of this matter will require a good deal of judgment, lest the tender vines experience a fatal check, from the want of that shelter under which they have been coaxed into a premature existence.

Hand-glasses are also valuable in the protection of early plants raised on a hot bed, or in a warm kitchen window, and removed to the open ground before the weather becomes settled. We have found the vine-shield a very cheap and efficient substitute; although it may be considered inferior to the regular hand-glass." — *Gardener's Text Book*.

THE EGG-PLANT. *Solanum Melongena*.—"This is a tender plant and easily killed by frost. Therefore if wanted for early

use the plants must be raised in a hot-bed, or they may be sown in any good rich garden soil in the month of May, and the plants kept at the distance of 20 or 25 inches apart. When about a foot high, they should be hilled a little. The cultivation is very simple and easy.—By a N. H. Gardener.

The *Long Purple* is the kind used for culinary purposes. The *White* is an ornamental variety.

To Cook.—"The fruit contains an acrid juice, which ought to be removed before cooking. For this purpose, pile up the slices on a plate, with layers of salt, and raise one side of the plate, so that the juice may run off without affecting the taste of the lower slice. After remaining so for about half an hour, they should be well washed in fresh water, and then fried quite brown in batter."

ENDIVE.—*Cichorium endivia*.—The *Green Curled*, and the *White* are the kinds for the main crop.

"Sow in rich soil at intervals from April to July, in drills fifteen inches apart, and the plants eight inches apart in the rows. Hoe them frequently. Tie up the leaves when fully grown, to blanch the heads. They are used as a salad. The green curled is the best."

FENNEL. *Anethum feniculum*.—"They are all raised from seed of which half an ounce is sufficient for a seed-bed four feet by six feet. Sometimes, also, they are raised from offsets from the old plants, where only a few are wanted. Sow in the spring in light earth, either in drills from six to twelve inches apart, or broad-cast and rake in. When the plants are three or four inches high, thin or transplant a quantity fifteen inches asunder. As the roots of old plants divide into side offsets, these may be slipped off in spring, summer, or autumn, and planted a foot apart. They will produce immediate leaves for present supply, and in continuance; or, for an immediate larger supply of leaves, you may procure some established full roots, and plant as above: let them be well watered."

The tender stalks of common fennel are used in salads; the leaves, boiled, enter into many fish sauces; and, raw, are garnishes for several dishes. The blanched stalks of the variety called *finochio* are eaten with oil, vinegar, and pepper, as a cold salad, and they are likewise sometimes put into soups.—*Loudon*.

HORSE-RADISH. *Cochlearia armoracia*.—"Like every other plant, this bears seed; but it is best propagated by cutting bits of its roots into lengths of two inches, and putting them, spring or fall, into the ground about a foot deep with a setting-stick. They will find their way up the first year; and the second they will be fine large roots, if the ground be trenched deeply and made pretty good. Half a square perch of ground, planted at a foot apart every way, will, if kept clear of weeds, produce enough for a

family that eats roast beef every day of their lives. You must take care that the horse-radish roots do not spread, and that bits of them be not flung about the ground; for, when once in, no tillage will get them out. They must be, like the dock and dandelion roots, absolutely burnt by fire, or by a sun that will reduce them to a state of a dry stick, or must be taken up and carried away from the spot. Though a very valuable and wholesome article of diet, it is a most pernicious weed."—Cobbett.

LEEK. *Allium porrum*.—The *Scotch Flag*, and *Large London* are the most choice kinds.

"Sow early in spring, in rich ground, in drills an inch deep, and twelve inches apart. About the beginning of summer transplant them, six inches apart, in rows. When it is wished to have them blanched, they may be transplanted into shallow trenches, three or four inches deep, and earthed up like celery."

It is used for the various purposes for which the onion is esteemed.

LETTUCE. *Lactuca sativa*.—This is undoubtedly the best of all salads. It is divided into two classes, the *Cos* and *Cabbage* Lettuces. The former class does not succeed well with us. Of the latter, the *Early Curled*, *Silesia*, *Royal Cape*, *India*, *Brown Dutch*, and *Grand Admiral*, are among the esteemed kinds. Lettuces may be raised readily in Hot Beds. The first sowings in open grounds should be made as soon as the weather will permit; say sometime in April. When the plants are two inches high they should be thinned so as to stand four inches apart. Those that are drawn out may be set in another bed or row. When the plants are four or five inches high they should be thinned to eight or ten inches. The ground should be frequently stirred and the plants have an abundance of water, as upon this depends their tenderness. A second sowing may be made four or five weeks later and a third in August. The *India* and the *Cape* are the best for the dry weather of summer and early fall.—By pursuing the above course a person can raise Lettuce that is very fine and tender and heads of a very large size.

MARJORAM. *Origanum*.—There are two varieties, the *Sweet* and the *Winter*. They are propagated by

seed sown in drills and covered half an inch deep.—The middle of Spring is the proper time for sowing. The plants should be thinned to six inches. It grows best on a dry, mellow, and rich soil. When the flowers are about to expand gather a supply for winter and hang it in a shady place to dry. It is used as a seasoning in soups and meats, also as a medicine.

MELON.—The melon holds a conspicuous place among fruits. There are two varieties, the *Musk* (*Cucumis melo*), and the *Water Melon* (*cucurbita citrullus*). There are a large number of kinds of each sort. Of the former, the *Nutmeg*, the *Green fleshed*, the *Early Christina*, the *Beechwood*, and Skillman's *Fine Nettle*, are deservedly popular. Of the latter, the *Black Spanish*, *Mountain Sprout*, *Carolina*, *Long Island*, and *Mountain Sweet* are desirable kinds.

“Manure and dig the ground well for Musk Melons. Plant them in May, six feet apart each way. Put twelve seeds in at each place, and if all grow, pull up all but three at a place when the plants are four inches high. Dust them with lime or ashes, in the mornings while wet with dew, twice a week, until they have four large leaves, to keep off grubs and bugs. The fruit will be ripe in August. It has a sweet scent, and parts from the vine on being touched when ripe. It is a delicious and wholesome fruit.

“The water melon is cultivated in the same way as the musk melon, except that they are planted ten feet apart each way.—Both musk and water melons flourish best on rich, sandy loam.—The water melon is ripe when it has a breaking sound on being pressed by the hand; it is a wholesome fruit.

To have melons a month earlier than by the above method, have boxes made two feet square, sixteen inches deep at back, and eight inches deep at front, with sloping sides, and a glazed sash to fit, with a lath on each side as high as the sash, to keep it from being blown off with high winds. Having all ready about the first of May, dig holes about two feet wide and two feet deep; put eighteen inches of hot horse manure in them, and a foot of earth above it. Plant the seeds an inch deep in the middle, and place the box and sash on it. When the plants are an inch high, push down the sash a little every day to admit air. Be sure to draw it close up at night, and if there appears to be frost, cover the sash with mats or boards over night. Water when needed. The sash can be taken off in warm days; after the plants have four leaves, both box and sash might be taken off altogether by the second week in June.”—*Cottage Garden*.

To hasten the ripening of melons gardeners recommend that a piece of slate or shingle painted black be placed under them that they may have the more full benefit of the sun.

MINT. *Mentha*.—There are three kinds; Pennyroyal, (*M. pulegium*,); Peppermint, (*M. piperita*,); and Spearmint, (*M. viridis*.) They do best on a moist soil and are propagated either by seed or dividing old roots. Save them for winter use the same as *Marjoram*. The last is used for cooking and the others for making herb teas.

MUSTARD. *Sinapis*.—The White is cultivated as a salad. The leaves, when very young, are used like peppergrass. Sow in drills, at different times, from April to June.

NASTURTIUM. *Tropaeolum majus*.—This plant is sometimes known as Indian Cress. It is deserving of cultivation on account of its beautiful orange-colored flowers, and its excellence in salads. The seed of this plant, which it produces abundantly, makes an excellent pickle; It is sown in drills, in April or early in May. Cover about an inch deep. When it is about six inches high, it should have sticks placed for it to climb upon, or it may be planted near a fence and be trained upon that.

To Pickle.—Gather the berries while quite green, but after they are full grown and keep them in salt and water until a sufficient quantity is obtained.—Then pour off the brine and pour upon them hotspiced vinegar.

ONION. *Allium cepa*.—This plant may be raised with success upon the same ground, as has been proved, for three fourths of a century. It seems to prove an exception to rotation of crops as it does better after it has been raised upon the same ground for several years. The kinds that are propagated by seed and most esteemed are, the White Portuguese, Yellow Danvers, Large Red, and the Silver-Skinned. The

latter is used for pickling. The onion is raised on a light soil that has been well enriched with rotten manure. It should be sown from the middle of April to the middle of May. Do not raise your bed. After having raked it smooth and fine, it should be pressed hard either by walking upon it or some other way,—(some use a beetle,) and then levelled with the back of a rake. Draw the drills one foot apart and nearly an inch deep. Scatter the seed moderately thick and cover with fine loam. Smooth the bed, by walking upon it, and then sift ashes upon it. Keep free of weeds and at the first thinning reduce them to two inches and afterwards when they interfere with each other to four or five inches apart. It is thought that they bottom better when the earth is removed from the bulbs.

POTATO ONION. *Allium tuberosum*.—Not unfrequently called the under-ground onion, in consequence of its producing clusters of offsets from the roots. Plant in March or April,—the bulbs being ten inches from each other, in rows one foot apart, and having their crowns one inch below the surface. The soil should be moderately rich, and, for convenience of cultivation, laid into beds four feet wide. Make good use of the hoe throughout the summer, and occasionally draw a little earth around the stems. This practice of “earthing,” as it is called, is generally followed, although condemned by many eminent authorities. The crop will be matured sometime during the month of August, and is to be harvested like the common onion.—*P. A. Schenck.*

TREE ONION. *Allium proliferum*.—This hardy perennial species of the onion family is sometimes called the Canada Onion, because it is much cultivated in cold countries where the other kinds do not flourish well. Small bulbs are produced at the top of the stalks,—hence its name. Propagation is effected by planting the offsets of old roots in spring or autumn, or the top bulbs in the middle of spring. They should be set about six inches apart, in rows that are one foot distant from each other. The only care required, is to keep the ground well tilled, and to support the stems by stakes. The bulbs are to be gathered when the tops decay, dried in a shady place, and preserved in a dry, cool apartment.—*Gardener's Text-Book.*

To boil—Peel the onions, and put them into boiling milk, or milk and water mixed. When they become tender, they are to be taken from the fire, salted, and served with melted butter.—

Changing the water when they are about half-boiled, relieves them of much of their strong flavor.

To pickle.—Peel the onions, and boil them for ten minutes in milk and water. To one gallon of vinegar, put one half ounce of cinnamon and mace, one quarter ounce of cloves, one half ounce of alum, together with a small teacupful of salt. The spiced vinegar is to be heated, and turned, when scalding hot, upon the onions, after they have been drained from the milk and water. Cover them tight until they become cold.

Onion Sauce.—Take peeled onions, boil them till quite tender, and then press out the water which they have absorbed. Chop them fine, add butter melted in milk, and place the dish again upon the fire.

PARSLEY. *Apium petroselinum.*—The Common, the Curled-leaved, and the Hamburg, are the varieties cultivated. Sow early in Spring in drills one inch deep, and ten inches apart. Water the seed with boiling water which greatly hastens vegetation, reducing the time from five weeks to two weeks. Parsley is used for seasoning various dishes and is of value as a garnish.

PARSNIP. *Pastinaca sativa.*—The Large Dutch, and the Hollow Crowned or Sugar, are worthy of cultivation. The ground should be spaded two spades deep and made rich with rotten manure. Sow in drills one inch deep and fifteen inches apart. When the plants are two inches high, thin to three inches and afterwards to six inches apart. Stir the ground frequently and keep clear of weeds. They are sweeter after a severe frost and should not therefore be gathered till late in the fall. Those wanted for spring use may be kept in the ground all winter. Those that are dug should be kept in sand.

To Cook.—Boil them tender in water that has been salted and scrape the skin off and send to the table with other vegetables; or, mash and butter them.

PEA. *Pisum sativum.*—The varieties of Peas cultivated are very numerous. Some of the best are Hill's Extra Early, Hovey's Extra Early, Prince Albert, Cedo Nulli, Dwarf Marrowfat, Dwarf Blue Imperial, Missouri Marrow, and the Champion of England. Ei-

ther will give satisfaction in their place. It is a great object with cultivators to have peas early. Cobbett says the crop may be hastened fifteen days by *fall* sowing. Trench the ground mixing in green manure and sow just as the frost is about to close up the ground. They should not be sown so early as to sprout in the fall. Early in the spring as soon as the frost is out of the ground, sow either of the first three kinds, perhaps, Hovey's or Hill's *Extra Early* would be the best. The seed should be sown thickly and in double drills; that is, in drills six inches apart with a space of two feet between each pair of drills. The large kinds should be sown in single drills two feet apart. In a wet season it is better to bush them, but in a dry one if the vines lay upon the ground they serve as a shade and therefore do not suffer so much from the drought. Seed should be sown once in two weeks until the middle of July. The last sowings should be made in some place sheltered from the scorching rays of the sun, and if the weather should prove very dry, they should be watered.

To boil.—Green peas should be freshly gathered, and not shelled until a few minutes before the time of cooking. Wash them clean, and then put them into boiling water, with salaratus in the proportion of one quarter teaspoonful to one half peck of peas. When they are tender, take them up by means of a skimmer, put a piece of butter in the dish, and sprinkle on a little salt."

PEPPER. *Capsicum*.—The *Squash*, *Bell*, and *Long* or *Cayenne* are most cultivated. Choose a light, dry and rich soil. Loosen it thoroughly. For very early crops, sow in a mild hotbed at the commencement of spring; for later, sow in the open ground when it becomes warm. When the plants are three inches high transplant them into very rich ground, fifteen inches apart. Hoe the ground well and keep it free of weeds.—Pepper is used for seasoning meats and medicinal purposes.

POTATO. *Solanum tuberosum*.—There is a very large variety of potatoes. The early kinds are the ones chiefly cultivated in gardens. The *Early Blues*, *Cow*

Horns, Early Kidney, Chenangos, and Early Hill, are some of the earliest. The *White Jackson* and the *Black* are the most popular late sorts in this region.

This root is the product of almost every soil, although a dry, rich one is best suited to them. A sod turned over in the preceding autumn, so as to become well-rotted in the spring after the grass has well started, is perhaps the best suited to give a fair yield, and at the same time a fine, healthy, well-matured return. They may be planted in hills or drills, according to the judgment of the cultivator. Whole potatoes of a medium size are better for planting than small, or large cut ones. They should be well hilled up in hoeing. The hills may be three and a half feet apart; or, if in drills, they may be three and a half feet asunder, and the potatoes placed about ten inches apart.

“Irish mode of boiling.—Wash the potatoes clean, but do not pare them; then put them into hot water, and boil them until a fork can be readily inserted. Dash in a pint of cold water, and in two minutes afterward, pour off the whole. Now, set the pot, with the lid half drawn, either over the fire, or near it, for the steam to evaporate; when the potatoes may be peeled, and carried to the table in an uncovered dish. If they be of a good kind this mode of cooking will render them sweet, dry and mealy, very different from the water-soaked lumps too often seen.

To roast.—Select potatoes of a nearly equal size, that they may all occupy about the same length of time in cooking. After they are washed clean, put them in a tin pan, and bake in a stove or oven. Send them to the table unskinned.”

“POTATO, (SWEET.) Convolvulus batatas—The best soil for the sweet potato plant is light, dry, of rather a sandy character, and in a warm situation. It should be prepared for planting, by being deeply dug or ploughed, and enriched by a liberal application of manure. All the large clods ought to be pulverized. The ground can then be laid into beds three feet wide, with a very shallow drill through the middle of each, or marked out in hills, three feet apart each way.

Where the season is of sufficient length, the seed potatoes may be planted immediately in the beds prepared for their reception; but, in northern climates, artificial heat is necessary to procure early plants. In the latter case, the roots are to be split and placed about three or four inches deep in the soil of a hot-bed, sometime during the latter part of spring. This bed is composed

of good, warm dung, to the depth of twelve or fifteen inches, covered with eight inches of sandy loam. The runners will show themselves in the course of a fortnight or three weeks, and the bed ought, during the process of sprouting, to receive an occasional sprinkling of water. When three inches high above the surface, they are of the right size for removal to the open ground. In taking them up, place the left hand on the potato, to keep it from moving, and draw them, one by one, with the right hand.—If they be planted in drills, they should be set about nine or ten inches asunder; but, if in hills, two plants must be allotted to each. The operation is most successful, when performed at evening, or in damp, cloudy weather; and, in a dry time, frequent applications of water, until the roots have taken hold firmly, will be found of great advantage. The potatoes in the bed will continue throwing up sprouts, for as much as three or four weeks.

For Seed.—The roots must be taken very carefully from the ground, as the least bruise engenders decay. They are to be packed in leaves or sand, which have been exposed to the influence of the sun or a fire until perfectly dry, and then stored in a room where no injury is to be apprehended from the cold.”—*P. A. Schenck.*

To Cook.—When desired as an accompaniment to meats it should be baked as it is much better than when boiled.

Sweet Potato Pie.—Boil the potatoes very soft; then peel and mash them. To every quarter of a pound, put one quart of milk, three tablespoonsful of butter, four beaten eggs, together with sugar and nutmeg to the taste.

RADISH. *Raphanus sativus.* Select the *Early Scarlet Short Top*, *Long Salmon* and the *Turnip rooted*.

“To produce good clean radishes they must be sown in very rich soil; and especially in old gardens, which are liable to be infested by insects, it should be highly manured and made fine.—The seed may be sown as soon as the ground is free from frost in the spring; and afterwards, at intervals of two weeks, either in drills or broadcast. The *Scarlet Short Top* and *Long Salmon* are the best kinds for early planting. When the weather becomes hot, the *Turnip-rooted* sorts succeed best.”

RHUBARB. *Rheum rhaponticum.*—This is known in many sections as the *Pie-plant*.

Wilmots's Early Scarlet, *Mammoth*, *Tobolsk*, and *Myatt's Victoria* are either worthy of attention. Plants are obtained from seed or portions of old roots.—Where the cultivator is in no especial hurry for the first crop, or where a large plantation is to be made, the

former method is preferred. The seed bed should be made of a light, rich soil and laid out in drills one foot apart. Drop the seed thinly and cover about one inch deep. The time for planting is the same as that of Indian Corn. When the plants are two inches high thin them to six inches. When the leaves are withered in autumn remove them to their permanent location.

The ground should be manured and deeply spaded. The hills should be laid out two and a half feet apart each way. Bury the crowns two inches deep. When winter approaches mulch with coarse manure. The third year from the seed the plants will do to crop a little. When plantations are made with old roots pursue the same course as with seedling roots.

“Rhubarb Pie.”—Take the young stalks, remove the skin, and cut them into thin slices. Line a deep plate with pie crust, and put in the rhubarb, together with layers of sugar. Cover the whole with a thick crust, pressed down on the edges, and pricked by a fork. Bake for about an hour in a slow oven. Some persons are accustomed to stew the fruit before baking, by which means a greater quantity can be put in the plate.

Rhubarb Jam.—Boil gently, for three hours, an equal weight of fine sugar and rhubarb stalks. The juice and grated rind of a lemon to each pound of the stalks, will correct their peculiar flavor, which is unpleasant to some persons.”

SAGE. Salvia officinalis.—The *Green*, and the *Red* or *Purple* are most esteemed for cooking; the *Broad-leaved Balsamic* for medicines. Select a dry, mellow spot for a bed, spade it deeply and in May when the weather becomes warm, sow the seed in drills ten inches apart. When the plants are two inches high thin them to six inches. Those drawn may be transplanted. We prefer to sow every other year, thus cropping only seedlings and plants one year old. Some prefer old roots. To retain these in good order all that is necessary is to give them a slight top-dressing and stir the soil about the roots. It is used for seasoning meats and to make the popular herb drink, “sage tea.”

SALSIFY. *Tragopogon porrifolius*.—This plant is known as the Vegetable Oyster. It is becoming a very popular vegetable. The ground should be light and rich and spaded deeply. Sow the seed *thickly* in drills twelve inches apart and one inch deep. Thin the plants to three inches and stir the ground frequently. Those wanted for spring use can remain in ground over winter the same as parsnips.

To Cook.—Cut into thin slices, soak in water for thirty minutes then boil tender in milk and water.—Add pepper, salt, butter and powdered crackers.

Artificial Oysters.—After the root has been scraped, and laid in water for several minutes, in order to abstract a part of its bitter flavor, it is to be boiled tender, and either cut in thin slices, or grated and pressed into little cakes, of the size of oysters. Dip the slices, or cakes, into a batter made of wheat flour, milk, and eggs; roll them in crumbled bread or crackers; and then drop them into hot lard. When of a light brown color, they are sufficiently cooked, and ready to be carried to the table."

SAVORY. *Satureja*.—There are two species, the Summer (*S. hortensis*) and the Winter (*S. montana*). The former is an annual, the latter a perennial. The Winter is cultivated the same as Sage. The annual is raised by sowing it moderately thick in high ground in drills fifteen inches apart. The leaves should be gathered when the plant is in blossom and dried in a cool place.

SEA-KALE. *Crambe maritima*—The seed of this may be sown early in the season in the open ground, and the plants kept at the distance of a few inches apart the first year. They should then be set three inches deep, in rows 3 feet or more apart, and 18 inches apart in the row and kept in a good state of cultivation that season. In the fall after the leaves have died away, the row should be covered with a good coat of manure to protect them from frost and make them start well in the spring, at which time the manure should be well dug into the ground and the crown of the plant be covered with dirt to the depth of 10 or 12 inches, or with inverted pots, to bleach the leaves, as that part only is eaten which grows under ground. The soil should be a light, rich, sandy loam. Salt is a useful fertilizer.—*By a distinguished gardener.*

To cook.—Soak the stalks in water for thirty minutes, and tie them up in small bundles. Boil them very tender, over a brisk fire, with a little salt in the pot; drain off the water, and lay them on a slice of toast which has been moistened in the liquor. Dress with melted butter, pepper and salt.

SHALLOT. *Allium ascalonicum*.—It is a species of onion, cultivated like the Potato onion.

SPINACH, or SPINAGE. *Spinacia oleracea*.—This requires a richer soil than almost any other culinary vegetable, to bring it to perfection, as it has to yield frequent gatherings or cuttings, and therefore, requires a repeated developement of parts, which cannot be expected without an abundance of food. The varieties most esteemed are the *Round-leaved* or *Summer*, the *Prickly* or *Winter* and the *New Zealand*. The latter is best for very dry lands. Sow the *Round-leaved* in April in deeply trenched ground and the *Winter* in August or September. Thin to six inches and water well in dry weather. When the cold weather sets in it should be covered with straw to protect it from the sun, and from freezing and thawing. It is used for "greens."

SQUASH. *Cucurbita melopepo*.—Plant in May in hills about six feet apart, and the soil well enriched with a good quantity of rotten manure or compost to each hill. Sow a sufficiency of seed to allow for loss by insects. Three or four plants are enough to leave for each hill. The early *Scallop* or *Bush squash* is an excellent variety for summer use. *Canada*, *Winter Crookneck*, and *Autumnal Marrow*, are considered best for winter use. The *Marrow* must be planted at a distance from every other variety, as they are liable to mix.

THYME. *Thymus vulgaris*.—There are two varieties, the *Broad-leaved* and the *Narrow*. It is best suited with a poor soil that is warm and exposed to the sun. Sow in drills six inches apart and thin to six inches in the drill. The after treatment is the same as Sage. The leaves should be gathered when the plant is in blossom. It is highly valued as a seasoning for meats, soups and sauces.

TOMATO. *Solanum lycopersicum*.—This popular vegetable was long cultivated as an ornament to the flower garden, under the name of *Love Apple*. It has recently acquired a very high reputation as a culinary vegetable, and that reputation is still extending.

The tomato comes from the south of Europe and therefore requires a longer season to mature it than we have in New Hampshire. People usually therefore resort to hot beds to forward early plants. Where they have not this convenience plants may be forwarded by planting seeds in pots during the month of March and placing them in kitchen windows exposed to the sun. When the plants are three inches high they should be transferred to small pots, one plant to a pot. When the weather becomes warm, the middle or last of May the ground should be prepared. It is a "gross feeder" and requires rich soil. The rows should be five feet apart and the hills five feet apart in the rows. Dig holes eighteen inches deep and the same distance across. Fill them with well rotted manure and ashes incorporated with rich loam. Over this place three inches of good earth and into this transplant the plant. Draw a little earth about the stock and leave the ground about the plant a little hollowing to retain the water. When the plant is fruiting it requires a large amount of moisture.—Thorough watering at this time hastens the ripening of the fruit. Some recommend that the stalk be trellised up; others that bushes be laid about the vines that they may not touch the ground; but we have always succeeded best when we have let the vines lay upon the ground. Charcoal laid about them draws the sun and causes them to ripen faster than they otherwise would. They are profuse bearers. We have raised nearly a bushel from one stock.

To plant in the open ground.—When the weather becomes warm prepare the ground as above directed and plant six or eight seeds in each hill. When the plants are an inch high draw all but two, and when those are three inches high draw one of them. Afterwards pursue the same treatment as for those raised in a hotbed. They furnish a luscious dish. The *Large Red* and *Large Yellow* are preferred for cooking; the *Pear-*

shaped and Cherry for pickling. They are cooked in various ways. We offer the following:

"To cook.—If the tomatoes are not quite ripe, dipping them into hot water will loosen their skins so that they may be easily peeled. Put them in a stew pan, together with a table-spoonful of water, in case they are not very juicy. Add a little butter and salt, and stew the whole for half an hour."

Another way.—Take nicely peeled tomatoes and put a layer of them into a deep dish. Over these spread a layer of powdered crackers or dried bread. Pursue this course putting in a layer of tomatoes then a layer of bread until the dish is full. The upper layer should be of bread. Each layer should be seasoned with butter, salt, pepper, nutmeg and sugar. Bake slowly for two hours. Nothing adds more to their value than thorough cooking.

"Tomato marmalade.—Gather full-grown tomatoes when quite green. Stew them until soft, when they are to be rubbed through a sieve; again put over the fire, and seasoned highly with pepper, salt, and powdered cloves. Let the pulp stew until it becomes very thick. It will then keep well, and be excellent for seasoning gravies.

Tomato catsup.—To one quart of ripe tomatoes, put two tablespoonfuls of salt, two tablespoonfuls of black pepper, two tablespoonfuls of good mustard, a half-tablespoonful of all-spice, and three red peppers ground fine. Simmer the whole together with a pint of vinegar, in a tin vessel, slowly for three hours. Strain through a sieve. Bottle and cork tight. The later in the season it is made, the better it will keep.

To preserve for winter use.—Put perfectly ripe fruit in a stone pot, or a glazed earthen jar, and cover them with salt and water strong enough to bear an egg. Before being cooked, they ought to be soaked in fresh water for several hours.

Another receipt.—Scald the ripe fruit, which should be of small size, and, after the skins are removed, squeeze them slightly.—

Spread them on earthen dishes, which are to be placed in a brick oven after the bread has been taken out, and let them remain there until the next morning. Then put them in bags, and keep them in a dry place. The tomatoes are in the best condition for preserving, in the months of July and August. Before being cooked, soak them in fresh water for a few hours."—*Gardener's Text-Book.*

TURNIP. *Brassica rapa.*—This is a very valuable vegetable. It is raised on light soil, but yet it should be

rich. The *White Dutch*, *Red Top*, *Early Garden Stone*, the *Yellow* and the *Improved Swedish*, are the best varieties. Bone dust and ashes are the best fertilizers for the Turnip. Stir the ground and rake it smooth. Draw drills twelve inches apart and cover the seed one half inch deep. When the plants are one inch high thin to three inches, and when they are three inches high thin to six inches. The ground should be frequently stirred. Gather the winter crop before frosts, and place in a dry, cool cellar.

To cook.—They should be pared, boiled tender, drained, mashed up and seasoned with butter, salt, and pepper.

WORMWOOD.—*Artemisia Absinthium*.

Culture.—This plant is best suited with a light, dry and poor soil, for when its growth becomes very luxuriant, it loses a good part of its aromatic qualities, and is less able to endure the rigors of winter. It is propagated by seed, as well as by slips and cuttings. Sow thinly in spring, or in autumn soon after the seed ripens. When the plants have attained a height of two inches, thin them to distances of six inches apart. The slips and cuttings are to be taken off at midsummer, and set out in a shaded border, in rows six or eight inches apart each way, to be watered regularly until they have become established. Transplanting to the permanent location, is to be performed in the following spring. Keep the ground light and clean, and clear away the dead stalks in autumn.

Use.—Wormwood is cultivated chiefly for medicinal purposes.

THE FRUIT GARDENER.

PRODUCTION OF NEW VARIETIES.—Some of our choice fruits have been mere chance productions, but by far the greater part of those valued for their great beauty, size, and quality, are produced upon scientific principles. Two celebrated pomologists have devoted their whole lives to it. They had different theories. The one is known as Dr. Van Mons' Theory, the other as Mr. Knight's.

Dr. Van Mons' Theory.—Dr. Van Mons, a Belgian, had in nurseries in 1823, no less than two thousand seedling varieties of Pears of great merit. His attention was chiefly directed to this delicious fruit, although he originated numerous excellent seedlings of other kinds. "All fine fruits are artificial products; the aim of nature, in a wild state being only a healthy, vigorous state of the tree and *perfect seeds* for continuing the species. It is the object of culture, therefore, to subdue, or enfeeble this excess of vegetation; to lessen the coarseness of the tree; to diminish the size of the seeds; and to refine the quality and increase the size of the pulp." These objects Dr. Van Mons effected by sowing and re-sowing seeds, one generation after another. He selected the fruit before fully ripe, from young trees that were in a "*state of variation*," that is, a garden variety and not a wild sort, and when the fruit rotted, he planted them in nursery rows. When these young trees came into bearing, he gathered the fruit in the same condition and planted again. Each generation came into bearing earlier than the former one, the fifth sowing fruiting the third year from the seed. The fifth generation of seedlings were nearly all of great merit. In this way were pro-

duced the Beurre Diel, De Louvain and other well known varieties. But it requires so long a time in this country, to carry this system out, that most horticulturalists have been deterred from pursuing it.—The climate of Belgium is much more favorable to it.

Mr. Knight's Theory.—This is the process almost invariably pursued by successful horticulturalists of the present day, and is much preferred in this country, where so long a time is required to perfect a tree and bring it into bearing. It consists in sowing *cross bred seeds*. These are produced in this way: blossoms of fruit trees, and of most plants, contain *stamens* and *pistils*, which are the male and female parents of the new seed. By examining the flower of the Cherry, for instance, it will be perceived that there is a portion in the centre directly connected with the young fruit, which has a slight expansion at the top. This stem-like substance is called the *pistil* or female parent, and the expansion at the top the *stigma*. Around the *pistil* are numerous threads called *stamens* and at their summit are little substances called *anthers* which secrete the *pollen* or fertilizing dust. To produce a new variety, select a flower that you intend shall be the female parent of the new kind, and as soon as it begins to expand, cut out the stamens with a pair of scissors, using care not to injure the other parts. After this, cover the flower with gauze to keep out the bees. When the stamens of the other plant are grown and the anthers matured, which may be determined by their being covered with *dust* or *pollen*, remove them and after removing the gauze from the other flower, give it a twirl over it so that the fertilizing dust shall touch the pistil. When the fruit ripens save the seeds of the blossoms thus treated and plant them. The trees produced will bear a fruit different from either of the parent-trees, yet having some points of resemblance to both. Thus, Coe's Golden Drop Plum was cross between the Magnum Bonum or Egg-Plum and the Green Gage; and the Elton Cherry was raised from a

cross bred seed of the Bigarreau and White Heart.—This process has been carried to an almost unlimited extent with flowers.

GRAFTING AND BUDDING.—Having obtained a valuable variety of fruit, it becomes desirable to propagate it, but as this cannot be done by sowing the seeds, we are obliged to resort to some other methods. Those usually practised are grafting and budding. There are several ways of performing the former, usually called, *cleft, splice, tongue and saddle grafting*.

The best time for grafting is when the buds begin to swell, say from the first of April to the first of June. Stone fruit should be grafted a little earlier, as the bark is inclined to peel and roll when the wood is growing. Some recommend that grafts be inserted into the cherry and plum, while the frost is in the ground. Budding is more successful than grafting with stone fruit. Scions for stone fruit should not be kept long before setting. Scions for other kinds of fruit may be cut any time during winter, or in the spring before the buds swell. They should be closely packed in saw-dust and put away in some dark, cool place. Care should be taken that they are not kept too damp, as it causes premature growth, or spoils them by saturation.

Grafting Wax.—Take two pounds beeswax and four pounds good rosin, and melt them together; then add one pound good beef tallow and mix the whole thoroughly. Turn the composition into a tub of water to cool it sufficiently so that it may be worked. Pull it until it presents a light color. Another wax may be made by mixing one pint linseed oil, one pound beeswax, and six pounds of rosin, and pursuing the course as above directed.

Grafting Clay.—This is made by mixing two parts of good blue clay with one part of fresh horse-dung, adding a little hair as in mortar. It is sometimes necessary to add a very small portion of sand. It

should be thoroughly worked daily; several days previous to use.

FIG. 4.

Cleft Grafting.

CLEFT GRAFTING.—This is the method used in changing the heads of large trees, and of stocks one or more inches in diameter. Select some place free of knots and saw the limb off with a sharp fine toothed saw, and smooth the end remaining with a knife. A cleft should be made about one and a half or two inches deep, with a hammer and a splitting knife.—

Now select a scion from the last years growth that is full and well ripened, and with a very sharp knife slope it in the shape of a wedge, from one to one and a half inches long, making the outside a little thicker than the inside. With a chisel open the split in the stock and insert it so that the inner barks of the scion and the stock shall come together. When the stock is large insert two scions as in Figure (4). After this,

Fig. 5. spread grafting wax over the top of the stock and over the cleft or out side of the scion, so as to exclude the air and water. When the stock does not close up firmly upon the scion, it is necessary to bind it up with cloth dipped in melted grafting wax.

A Scarfed Stock.

SCARFING THE STOCK.—When only one scion is used in a small stock, it is well to scarf off the side of the stock opposite to it and cover with wax as before. It heals very much sooner and presents a much more neat appearance.

Splice-grafting.—This is done very neatly and perfectly, upon stocks which are of the exact size of the scion. Cut off the stock, with an upward slant of an inch or more in length, and the scion with a similar downward slant; tie the two firmly together with bass-matting, always fitting their inner barks, or sap-vessels, to each other; next, cover the joint with wax or clay, and you have performed one of the neatest and surest modes of grafting yet known.

When the stock is larger than the scion, the latter must be fitted to one side of the former.

It is often more convenient in practice, to *tongue* the stock and scion together, that is, to cut a corresponding notch or slit in each, and then fit the two carefully together, tying and claying or waxing the joint, as before.

Small stocks, taken up in the fall and kept in a cellar, are often grafted in winter, by the fire-side, in either of the above-described modes, and then kept in the cellar until spring.

Saddle-grafting.—When the stock and scion are of about the same size, the operation may be reversed, the cleft being made in the scion, and the stock wedge-shaped and fitted into it. This mode is called *saddle-grafting*. A little wood should be pared out, on each inner side of the cleft of the scion, so as to fit it better to the stock.—*G. Jaques*.

Budding.—This is always an easy and convenient method of working small stocks. It is usually performed, in the latter part of summer, although it *may* be done late in the spring; but it is not advisable to resort to *budding* in the spring, except where we have a very valuable scion, which we wish, by subdividing, to increase the chances of saving. In this case, we may cut off the buds of the scion, and insert them separately, in the manner which we are about to describe, waiting of course till the sap of the stock is in full motion. We, in this latitude, (Worcester,) commence budding Plums, Cherries, Apricots and Pears, the latter part of July. From the middle of August to the middle of September, is the season for Apples. From the first to the middle of September, is better than earlier, for Peaches and Nectarines. It is essential to success,—1st *That the bark of the stock should part freely from the wood*; for whenever, either from the season of the year or the feeble condition of the stock, the bark

FIG. 6.

Stick of Buds.

adheres to the wood, the operation will certainly prove a failure. 2d. *The bud which is to be inserted, should be well ripened*; otherwise it will not have vital energy sufficient to establish itself, in its new location.—*N. E. Fruit Trees*.

“Before commencing you should provide yourself with a budding knife, (about four and a half inches long,) having a rounded blade at one end, and an ivory handle terminating in a thin rounded edge called the *haft*, at the other.

In choosing your buds, select thrifty shoots that have nearly done growing, and prepare what is called a *stick of buds*, Fig. 6, by cutting off a few of the imperfect buds at the lower, and such as may yet be too soft at the upper ends, leaving only smooth, well developed, single buds; double buds being fruit buds. Cut off the leaves;

allowing about half an inch of the *foot-stalks* to remain for conveniently inserting the buds. Some strands of bass-matting about twelve or fourteen inches long, previously soaked in water to render them soft and pliable, (or in the absence of these some soft woollen yarn,) must also be at hand for tying the buds."—*Downing*.

FIGS. 7 8 9 10 11

Figure 7, Stock prepared for the bud.

" 8, Bud with the wood taken out.

" 9, Bud with the wood in.

" 10, Stock with the bud inserted.

" 11, The bud bound in with bass matting.

American shield budding.—"Having your stick of buds ready, choose a smooth portion of the stock. When the latter is small, let it be near the ground, and, if equally convenient, select also the north side of the stock, as less exposed to the sun. Make an upright incision in the bark from an inch to an inch and a half long, and at the top of this make a cross cut, so that the whole shall form a T, Fig. 7. From the stick of buds, your knife being very sharp, cut a thin, smooth slice of wood and bark containing a bud, Fig. 9. With the ivory haft of your budding knife, now raise the bark on each side of the incision just wide enough to admit easily the prepared bud. Taking hold of the footstalk of the leaf, insert the bud under the bark, pushing it gently down to the bottom of the incision. If the upper portion of the bud projects above the horizontal part of the T, cut it smoothly off now, so that it may completely fit, Fig. 10. A bandage of the soft matting is now tied pretty firmly over the whole wound, Fig. 11, commencing at the bottom, and leaving the bud, and the footstalk of the leaf only exposed to the light and air."—*Downing*.

The European method of preparing buds is somewhat different. Having cut it out as in Fig. 9, take

the bud between the forefinger and thumb, enter the point of the knife blade under the wood at the lower extremity, then raise and draw out the wood by bending it up and down until it loosens from the bark.—There should be a small portion of wood remaining at the heart of the bud or it is worthless. This course is not recommended by American Fruit-growers on account of our hot, dry summers.

FIG. 12.

Growing Bud.

After Management.—In two or three weeks after inserting the bud, it can be ascertained, whether or not, it has taken, by its freshness and plumpness. If it has not, and the bark still peels, another may be inserted. In about four weeks after budding, the matting may be removed. In the spring when the bud begins to swell, the stock can be cut off within two or three inches of it. When the bud starts, all “robber” shoots should be trimmed off, to produce a vigorous growth. When the bud has grown three inches it may be tied to the stock to insure an upright tree. The last of July the remaining portion of the stock may be cut off as marked Fig. 12, *a*.

Propagating by Cuttings.—The Currant, the Gooseberry, the Vine, the Quince and the Fig, are the chief fruits propagated in this way. The wood should be, of the last years growth and well ripened. Select stocks about one foot long, and if it is desired to raise stocks without suckers, cut out the buds as far as you insert them into the ground, which should be about two thirds of their length. Cuttings require a deep, rich, moist soil, and are more successful when planted on the North side of a fence or wall, and heavily mulched. The proper time for putting out cuttings is early in the spring. They should be cut from the parent stock in the last part of winter and kept in moderately moist loam.

FIG. 13.

Propagation by Layers.—Layering is performed by bending some of the stocks down, and confining them by a little hooked peg or a stick drove into the ground obliquely. Cover the

stock two or three inches deep with good rich earth. Some nurserymen cut little notches or tongues on the under side of the twigs bent; others twist the limb so as to cause the bark and wood to crack. Mulch them thoroughly, and when the roots have taken hold, the layer should be separated from the stock.

Suckers.—When it is desirable to retain a seedling fruit upon its own stock, suckers may be used. They do not make good stocks to graft or bud upon, as they are liable to produce a large amount of suckers.—Raspberries and Blackberries are propagated in this way.

Stocks for Grafting.—"It is generally best to raise stocks of all kinds of fruit trees, from seeds. In the cultivation of the apple, the pear, and also of the plum and the cherry, *sucker*-stocks should be carefully avoided, unless no others can be procured."

Apple Seedling Stocks may be raised by planting pomace, in autumn, as soon as it can be obtained from the cider-mill. It should be before fermentation takes place. That from young trees is preferred. Sow in drills four feet apart and cover one inch deep. Keep the plants clear of weeds during the next summer.—If the soil is sufficiently rich, the plants will be large enough the second or third spring, to remove to the nursery row. Their tap roots should be shortened, and, the stocks planted one foot apart, with four feet between the rows. If they are thrifty and make a good growth, they may be budded the following autumn. All small seedlings should be thrown away.—The soil in the nursery should be deep and rich.

"Pear stocks may be raised from seed, precisely in the mode

we have described for Apple seedlings, only let the soil be deeper and richer. But the climate of New England is not well adapted to their growth, and it is not, therefore, advisable to attempt to raise them, so long as the foreign stocks can be so cheaply purchased of importing houses, in Boston or New York.

Cherry stocks are generally raised from seeds of the common Black Mazzard cherry. Gather the fruit when it is fully ripe, and sow it immediately in drills, covering, &c., precisely as directed for the apple-seedlings.

Plum-stocks may be had of the importers, or they may be raised from the seeds of any free growing kinds, in the same way as cherry-stocks, (avoiding the seeds of the damsons, as they are not easily budded.) A rich, heavy, moist soil suits the plum best."—*Jaques*.

Peach Stocks are raised by planting the stones in the spring, about the time that corn is planted. They should be gathered in the fall, and kept in sand in the cellar, or covered in the ground until wanted for planting, when they should be taken up and cracked with a hammer, and planted in drills the same as apples.—The following autumn they should be budded, If the buds do not live, the stocks should be cut down to the ground in the spring, and one shoot permitted to grow which should be budded the following autumn.

Quince Stocks may be raised from cuttings or seed. When from the latter pursue the same course as with apples.

Taking up Trees.—Much of the success attending transplanting depends upon this operation. It should be borne in mind, that a tree is a thing of life, and should be treated accordingly. If it is convenient, it is desirable to preserve all the roots and fibres whole, but as this cannot be done, especially, where the trees stand in nurseries, it should be the aim of every one taking them up to do it as carefully as possible. The fibrous roots are all important, as it is through these that the tree receives its nourishment from the ground. We have seen people in performing this operation, use great care to preserve the large roots, but break off the small fibrous ones as though they were entire-

ly useless. Nothing could be more fatal than this usage. After the tree is taken up, all bruised places should be smoothly pared with a knife, and the ends of the roots that have been broken, trimmed off. If the tree is not set out immediately, it should be heeled in; that is, there should be a trench dug and the trees laid in, in horizontal position, so that loam can be worked in among the roots sufficiently to exclude air. Trees are frequently kept so for months before transplanting.

Transplanting.—This is one of the most important operations performed by the fruit-grower, and one too, that is oftener performed amiss, than any other. The ground should be well prepared by plowing and subsoiling and a thorough cultivation of a root crop, the year previous to transplanting. Having the ground in good condition, commence by preparing the place to set the tree. Remove the soil from it, from four to eight feet in diameter, according to the size of the tree to be set, and place it in a pile by itself; then remove the subsoil to a pile by itself also. Make a little mound in the centre with sods and rotted turf, and place the tree upon it. Be extremely careful not to have it too deep. This is the error of most gardeners. The loss of more than one half of the trees that die is attributable to this error alone.—The tree should not be set any deeper than it stood in the nursery. The roots should be straightened out into their original positions, and then some fine loam scattered upon them. It is well to put about the roots, but not so as to touch them, a little old and well rotted manure, or a compost made of two parts of peat and one of stable manure, which had been incorporated the year previous. Fallow soil answers a very good purpose. As you proceed, work the soil about the roots, so that it shall touch them in every part, otherwise, they mould and decay. Be careful to save all the fibrous roots as it is through these that the tree receives nourishment. Occasionally mix in a lit-

tle of the subsoil, but reserve the most of it for finishing off about the tree, where it is enriched by cultivation and exposure to the air and frosts. When the place is nearly filled, pour in a pailful of water, and let it settle about the roots. Level the ground about the tree and press the soil with the feet. Be careful not to lift the tree up and down during the process of transplanting, thinking thereby to fix the soil more firmly about the roots, for it is a pernicious practice; treading with the feet is sufficient.

The proper time for transplanting is in the fall, after the tree has done growing, and is in a dormant state, say from the last of September to the middle of October; or early in the spring before the sap is in active circulation. The latter time, is undoubtedly much the more favorable season for New Hampshire. Tender trees like the Peach, Apricot, &c., should always be transplanted in the spring.

FIG. 14.

Label.

Labels.—When a tree is transplanted, and budded or grafted, it should be labelled. It is vexatious to loose the name of a fruit, as a person

will frequently do, if he trusts to memory. Many a nurseryman has found this out to his loss. Where the fruit stands in rows a stick labelled with its name may be placed at the head of the row, and answer for all the trees in it. Where this is not the case, there must be a label for each tree. A cheap way of making them, is to take thin pieces of pine wood, paint them with white lead paint, and write the name upon it with a black lead pencil while the paint is yet undried. These may be attached to the tree with small iron or copper wire. As the tree enlarges, loosen the wire so that it shall not girdle it. Fig. 14 is a sample of this kind of label. Another way is to cut the number in the bark, or attach a piece of lead or zinc, stamped with the number, and keep the num-

bers with the name of the fruit annexed, in a small memorandum book. A little time spent in this way saves much trouble when it is desirable to increase any kind of fruit.

Pruning.—Very compact tops may need thinning. Be cautious about going into a tree to prune with hard boots or shoes on, when the bark peels. Use a fine saw for large branches, then pare smoothly. Various applications are made where large limbs are cut.—Grafting composition, also a mixture of equal parts of clay and cow manure, are used for large wounds from cutting of limbs and injuries. Alcohol, with as much shellac dissolved in it as will make it of the consistence of paint, applied with a painter's brush is excellent. It excludes the air and water, and is unaffected by change of weather.

Many prune in the spring from custom, and others in June because the wound heals quickly, not reflecting that it is of more importance that the wound heal soundly than quickly. We give directions according to our experience for 30 years.

Slight pruning, in which very small limbs, or dead limbs of any size, are removed, may be performed when most convenient, in any season. Moderate pruning should be done in June, July or August, though it will answer very well till Dec. If trees are pruned in July, Aug., or September, the wood will become hard, sound, and well seasoned, and commence healing over; and it is not material, otherwise than for appearance, whether it heals over the first, second, or third year, as it will remain in a healthy state.

We should prefer Oct., Nov., or even Dec., to the spring, which is the worst season. The trees then are full of sap, and it oozes out at the wound, which turns black and decays, like a tree cut in the spring, and allowed to retain the bark. But if limbs, ever so large, are cut in Aug. and Sept., the wood will become hard and remain so, if it never heals over."

"Side shoots of young or nursery trees should not be cut off at first, as it will induce weakness in the stem, the trees will bend over, and staking cannot save them. The only remedy is to cut them off, and let them start anew."—*S. W. Cole.*

Training.—This is not much practiced in this State but might undoubtedly be made serviceable in ornamenting grounds and also in producing some kinds of fruits in greater abundance. There are several methods in use. The *Horizontal* is adapted to training apples, pears, grapes, &c.; the *Fan*, grapes, peaches, apricots, plums, figs, &c.; and the *Pyramidal* and *Quenouelle* to pears.

“Horizontal training consists in preserving an upright leader, with lateral shoots trained at regular intervals. These intervals may be from a foot to eighteen inches for pears and apples, and about nine inches for cherries and plums. ‘A maiden plant with three shoots having been procured, the two side shoots are laid in horizontally, and the centre one upright, all the buds being rubbed off the latter but three, viz, one next the top for a vertical leader, and one on each side near the top, for horizontal branches. In the course of the first summer after planting, the shoots may be allowed to grow without being stopped. In the autumn of the first year the two laterals produced are nailed or tied in, and also the shoots produced from the extremities of the lower laterals; the centre shoot being headed down as before. But in the second summer, when the main shoot has attained the length of ten or twelve inches, it may be stopped; which, if the plant is in proper vigor, will cause it to throw out two horizontal branches, in addition to those which were thrown out from those of the preceding year. The tree will now be in its second summer, and will have four horizontal branches on each side of the upright stem, and by persevering in this system four horizontal branches will be produced in each year till the tree reaches the top of the wall (or espalier,) when the upright stem must terminate in two horizontal branches.”

“Fan-training.—A maiden plant (a tree but one year from the graft,) being planted ‘is to be headed down to four buds or eyes, placed in such a manner as to throw out two shoots on each side. The following season the two uppermost shoots are to be headed down to three eyes, placed in such a manner as to throw out one leading shoot, and one shoot on each side; the two lowermost shoots are to be headed down to two eyes, so as to throw out one leading shoot, and one shoot on the uppermost side. We have now five leading shoots on each side, well placed, to form our future tree. Each of these shoots must be placed in the exact position in which it is to remain; and as it is these shoots which are to form the future tree, none of them are to be shortened. The tree should by no means be suffered to bear any fruit this year. Each shoot must now be allowed to produce, besides the leading shoot at its extremity, two other shoots on the uppermost side, one near the bottom and one about midway up the stem; there must also be one shoot on the undermost side, placed about midway between the other two. All the other shoots must be pinched off in their infant state. From this time it may be allowed to bear what crop of fruit the gardener thinks it able to carry; in determining which, he ought never to overrate the vigor of the tree. All of these shoots, excepting the leading ones, must at the proper season be shortened, but to what length must be left entirely to the judgment of the gardener, it of course depending upon the vigor of the tree. In shortening the shoot, care should be taken to cut back to a wood bud that will produce a shoot for the following

year. Cut close to the bud, so that the wound may heal the following season."

"In nailing to a wall, care must be taken not to bruise any part of the shoot; the wounds made by the knife heal quickly, but a bruise often proves incurable. Never let a nail gall any part of the tree; it will endanger the life of the branch. In nailing-in the young shoots, dispose them as straight and regular as possible; it will look workman-like."—*Suburban Horticulturalist*.

"*Quenouille Training*.—To produce Quenouille standards, plant a young tree, three or four feet high, and, after the first summer's growth, head back the top, and cut-in the side branches. The next season the tree will shoot out three or four tiers of side branches, according to its strength. The lowest should be left about eighteen inches from the ground, and, by pinching off superfluous shoots, others may be made to grow pretty regularly, so as not to crowd the head. At the end of this season head back the leader to strengthen the side shoots. Next season a fresh series of lateral shoots will be produced, four or five of which may be kept every year; and, the third or fourth year, the lower branches may be bent down in midsummer, and kept in a pendulous position for a year or two, by tying them to stakes driven in the ground, or to the main stem. The successive growth at the top, and arrangement of the limbs below, must be continued till the requisite height—say ten feet—is attained. A moderate pruning to produce new wood, and the occasional tying in of a rambling shoot, will be all that is required."

FIG. 15.

Pyramidal Training.

Pyramidal Training.—This is performed like the last with the exception of tying down the branches, which is omitted. It gives a beautiful form and exposes all parts equally to light and air.

To induce Early Bearing.—"Root Pruning has been practiced of late years, for this purpose. The roots are laid bare, and some of the longest are cut off a few feet from the tree; this checks its growth, and early bearing is the result. This is practised also for the purpose of dwarfing in gardens, where small trees are preferred. The fall is a favorable season for this operation, but it shortens the life and restricts the size of the tree, and ranks with the fancy work of the amateur."

"Bending the limbs down, and fastening them in that position,

as in quenouille training, retains the sap in them, inducing bearing and improvement in fruit, without injury to the tree. Hence there is more philosophy than whim in the saying, that the bending down of fruit trees by heavy snows indicates a fruitful season.

Transplanting a tree frequently has a tendency to check its growth, and cause early bearing; but it will reduce its size, and shorten its life. The effect is the same as root pruning, as roots are lost by removal.

Stocks.—By putting scions into stocks of slow growth, as pears on quince and thorns, luxuriant plums on Canada stocks, peaches on plums, apples on paradise stocks, the effect is similar to root pruning, both in causing early bearing and in the final effect on the tree.

Shortening-in is the most successful, convenient, and least injurious mode. In July, clip off about a third of the present year's growth; this will cause the formation of blossom buds, instead of an extension of wood, as would be the case without clipping. We have found this very effectual with the peach. If buds have set naturally, cutting off half the last year's growth early in the spring will generally improve the fruit by reducing its quantity.—*Cole's Fruit Book.*

To protect Trees from Mice.—During winter mice from want of food often girdle trees. To prevent this, tread the snow about the trunks after each storm; or raise a mound of earth about each tree. If they come out upon the snow as they sometimes do, tie about the trunks, shingles, old barrel staves, old canvass, &c.

Insects. "*Insects are kept away from plants and trees, chiefly by strong offensive odors. Some of those that have proved effectual, are the odor of chamomile, that of coal-tar from the gas works, the vapor from oil of turpentine, &c.*

Insects may be killed by liquid applications. The best liquids yet known for this purpose are tobacco water, and diluted whale oil soap.

Tobacco water is made by boiling any refuse tobacco in water. It must not be excessively strong.

The whale oil soap is prepared, by mixing one pound of it with seven or eight gallons of water. These liquids may be applied to plants, with a water-pot, or a syringe having a water-pot rose upon the end of it so as to scatter the water more effectually.

Half a pound of quassia, boiled a few minutes in six quarts of water, is a liquid said to be quite as efficacious as the tobacco-water.

All plant lice and almost all small insects, can be killed, by the application of either of these liquids. A mixture of them might

possibly be even more effectual than either used by itself. Strong suds made of common soap answers tolerably well, in many cases.

Much has been accomplished, by kindling bonfires in a fruit-garden, at night. Thousands of winged insects, from a sort of instinctive fondness for the light, fly into these fires and perish at once.

Wide-mouthed bottles, filled with molasses and water, and suspended among the trees, will speedily become full of insects."

APPLE TREE BORER.—This insect "is from the larva of the two striped sapeda (*Sapeda bivittati*.) The upper part of the body of the perfect insect is marked with two longitudinal white stripes, among others of a light brown, while the face, antennæ, the under side of the body and legs, are white. It is about 3-4 of an inch long. This beetle comes from the tree in June and feeds upon the leaves. From June to Aug. it deposits its eggs on the bark of the tree at the ground." The larvæ or young borers, from the eggs, are fleshy, round, whitish grubs, without legs, tapering from the first ring. The first season it eats through the bark—the next, it penetrates the wood about twelve inches. The third season it comes to the mouth of the hole, a full sized borer, and there changes to the beetle, (*sapeda bivittati*.)

To kill them, run a piece of wire or whalebone into their holes, or smoke them with lighted brimstone matches, or put a small piece of gum camphor in the hole and plug it up. To prevent their depositing eggs, wash the trunks of the trees with a solution of whale-oil soap and hendung, or lye of wood ashes that will bear up an egg.

Apple Worm or Codling Moth.—This beautiful moth deposits its eggs in the eye of apples and summer pears, during the last part of June and July. They hatch in a few days, and eat into the apples, which causes them to ripen prematurely and fall upon the ground. They then make their egress and entering some crevice of the tree, spin a cocoon about them, in which they remain until spring. To destroy them, pick up the defective fruit as fast as it falls and feed it

to hogs. Scrape the loose bark from the trees in the spring, and crush the cocoons. When they are in the winged state, build bonfires.

Bark Louse.—This is a small, oval, white insect, that deposits its eggs under a thin scale upon the bark of apple trees. Wash the trees with a solution made of 2 lbs. Potash to 2 gall. Water.

The Canker Worm. This worm, (*anisopteryx pometaria*, of *Harris*,) is very destructive to apple trees in some parts of N. E. The male is a moth with wings; the female is without wings. They come out of the ground as soon as the frost is out, and the females slowly climb up the tree where the males mate with them. The eggs are deposited in the forks of limbs and on young twigs. They number about one hundred to an insect, and are arranged in rows. About the middle or last of May, they hatch out and brown or ash colored worms, with yellow stripes on their backs, commence their devastation upon the foliage. After feeding about four weeks, they descend into the ground and there remain in a chrysalis form until the ensuing spring.

To destroy them, place a band of canvass four or six inches wide around the trunk of the tree, and cover it with tar and oil mixed, or with melted India rubber. The female when attempting to climb is caught in this and killed. Dig the ground over late in the fall, so that the worm in the chrysalis form may freeze.

FIG. 16.

Curculio.—The *Curculio*, known to naturalists by the name, *Rhynchaenus Nemophur*, is one of the most serious hindrances to the cultivation of the plum. Its habits are not fully known. It is a small, dark brown, winged beetle, scarcely one fifth of an inch long, with spots of white, yellow, and black. It has two humps on its back and a pretty long curved neck and snout,

which when at rest are bent between the forelegs.— It makes its appearance during the month of April and commences its destructive operation soon after the blossoms have fallen and the young fruit is formed. It flies from the ground into the tree. This occurs sometime during the month of May. It continues its depredations until August. By examining the young fruit in districts where the curculio works small semicircular punctures may be found. These punctures are the “crescent-shaped insignia of that little Turk, the curculio.” In each of these, an egg, so small as to be invisible to the eye, is deposited. In July the egg is hatched and becomes a small white grub or larva, which eats its way to the stone. This causes the fruit to fall. The larva works its way out of the plum and into the ground. Here it remains in the chrysalis form until it emerges in the spring a perfect beetle. In some few cases it has been proved that it comes out in about twenty days after it entered. But this is supposed to arise from not having worked its way into the ground but a short distance. No plan as yet has been devised by which we can entirely rid ourselves of this pest of the plum tree. Strong and powerful odors are very offensive to most insects.— Some have been successful in raising crops of plums after years of disappointment, by smoking the trees. This is done by taking a pan of coals and putting upon them leaf tobacco, scraps of leather, brimstone, &c., and holding them so that the fumes may pass through the foliage. This should be done frequently from the time the plum forms until it gets out of the way of the weevil. Some build up fires near the trees and partly smother them so that the smoke will arise during the whole day. Others syringe the trees with strong scented solutions, such as tobacco water, solutions of whale oil soap, and we think that a very weak solution of Kreosote from its strong smoky scent might be useful. Care should be taken that the solutions are not so strong as to injure the leaves.—

Salt is also useful. It should be spread under the tree when the plums begin to fall. The ground should be made smooth and hard. Downing recommends that it be spread to the depth of one fourth of an inch as far out as the limbs extend. The plums falling upon this the larvæ die before they can work their way into the ground. The salt is an excellent fertilizer for the plum. Another method is to place sheets under the tree at morning and night and strike the trunk with a padded mallet and as the curculios fall kill them. Large crops of plums are saved in this way. Another way is to pick the plums as they fall and burn them. This should be done whichever way is pursued, as this destroys the next years brood of insects.

By pursuing some or all of the above processes, our plum crops would be very much benefited. We hope our plum cultivators will try them. Above we give a cut of a plum with a curculio and two crescent marks upon it, although the insect seldom makes but one if there are plums enough for its purposes.

Caterpillars.—These well known insects make a web for shelter and are in it morning, noon, night and during wet weather. They may then be crushed, or burnt with sulphur or turpentine, or destroyed with strong tobacco water.

Peach Tree Borers.—The perfect insects are slender, dark blue, four-winged moths, resembling wasps. They deposit their eggs from June to Oct. in the soft bark of the trunk at the ground. These hatch and become the borers. They enter and destroy the bark and sap of the tree, causing it to die. After passing the winter in the tree, they enfold in cocoons, and emerge again in June. *To protect the trees*, put ashes or air-slacked lime about the base of the trunks.

Slugs.—These are dark olive colored insects, somewhat resembling snails. They prey upon the leaves of cherry and pear trees and rose bushes. *To kill*

them, dust the trees with ashes when the dew is on, or shower them with strong soap suds.

APPLES.

"The apple will flourish in almost every soil and location, under good management; but the best soil is a tolerably moist, deep loam, inclining to marl or clay, with a good portion of vegetable mould. Most tillage, suitable for grass, potatoes, cabbages, and where corn will well flourish in dry seasons, is better for the apple than dryer soils. Rocky and stony lands are preferable, and all the small stones should not be removed. A hard pan forms a good bottom, but a porous sub-soil is unfavorable.

Moderate elevations, or undulating lands, or hills, are the most suitable locations. In very low, sheltered situations, there is more exposure to the extremes of heat and cold, and late spring frosts, and early fall freezes; yet the apple is hardy and will generally succeed in such situations. On very high locations, especially on the tops of mountains and high hills, and some other bleak places, there is too great exposure to winds and pelting storms, which may injure the blossoms, fruit, and foliage."

"**EARLY HARVEST.**—*Prince's Harvest, July Pippin of Floy, Yellow Harvest, Large White Juneating, Tart Bough, An American apple*; and taking into account its beauty, its excellent qualities for the dessert and for cooking, and its productiveness, we think it the finest early apple yet known. It begins to ripen about the first of July, and continues in use all that month. The smallest collection of apples should comprise this and the Red Astrachan. Form round, above medium size, rarely a little flattened. Skin very smooth, with a few faint white dots, bright straw color when fully ripe. *Stalk* half to three fourths of an inch long, rather slender, inserted in a hollow of moderate depth.—*Calyx* set in a shallow basin. *Flesh* very white, tender and juicy, crisp, with a rich, sprightly, sub-acid flavor. The young trees of moderate vigor, with scarcely diverging shoots. Manning errs by following Coxe in calling this a flat apple."

"**RED ASTRACHAN.**—A fruit of extraordinary beauty, first imported into England with the White Astrachan, from Sweden, in 1816. It bears abundantly with us, and its singular richness of color is heightened by an exquisite bloom on the surface of the fruit, like that of a plum. It is one of the handsomest dessert fruits, and its quality is good, but if not taken from the tree as soon as ripe, it is liable to become mealy. Ripens from the last of July to the middle of August.

Fruit pretty large, rather above the middle size, and very smooth and fair, roundish, a little narrowed towards the eye.—Skin almost entirely covered with crimson, with sometimes a little greenish yellow in the shade, and occasionally a little russet near

the stalk, and covered with a pale white bloom. Stalk rather short and deeply inserted. Calyx set in a slight basin, which is sometimes a little irregular. Flesh quite white, crisp, moderately juicy, with an agreeable, rich, acid flavor."—*A. J. Downing.*

"SWEET BOUGH, *August Sweeting, Bough, Yellow Bough.*—Large; roundish-conical; smooth, greenish-yellow; stem rather slender, in a deep narrow cavity; calyx medial, deeply sunk; flesh whitish, very tender, juicy, of a rich, sprightly, saccharine flavor. During August. Good grower, good and constant bearer. Throughout the country the best early sweet apple known. Hardy, and adapted to various climates and soils. Native."—*S. W. Cole.*

"EARLY STRAWBERRY APPLE.—*American Red Juneating.* A beautiful variety, which is said to have originated in the neighborhood of New York, and appears in the markets there from July till September. Its sprightly flavor, agreeable perfume, and fine appearance, place it among the very finest summer apples. It is quite distinct from the early Red Margaret, which has no fragrance, and a short stem.

Fruit roundish, narrowing towards the eye. Skin smooth and fair, finely striped and stained with bright and dark red, on yellowish or white ground. Stalk an inch and a half long rather slender and uneven, inserted in a deep cavity. Calyx rather small, in a shallow, narrow basin. Flesh white, slightly tinged with red next the skin, tender, sub-acid, and very sprightly and brisk in flavor, with an agreeable aroma."—*Downing.*

"PORTER.—Large; oblong-ovate; smooth, rich yellow, a dull blush in the sun; stem medial, in a rather narrow, deep cavity; calyx large, open, in a rather narrow, deep basin: flesh tolerably fine and tender, very juicy, of a rich, excellent, slightly acid flavor. For cooking and the dessert. September and into October. A good grower and great bearer. The principal September apple in the Boston market. It also succeeds well in the Middle States, and in the West. Generally yields about twice as much in even as in odd years. By Rev. S. Porter, Sherburne, Ms."—*Cole.*

"GRAVENSTEIN.—Fruit large, about three inches and a half in diameter, broadest at the base, generally flattened, sometimes rather oblong, with angles which terminate in the crown. Eye rather wide, sunk in a deep hollow, surrounded by several projecting folds or knobs. Stalk very short, deeply inserted. Skin smooth, of a clear yellowish green or straw color, streaked and mottled with red on the sunny side. Flesh pale yellow, crisp, with a highly-flavored vinous juice. A dessert apple, ripening in the autumn, but will keep till April."—*Lindley.*

"JEWETT'S RED, *Nodhead.*—Medial; flattish-round; bright dark red, very little greenish yellow; very short stem, in a very shallow cavity; small calyx in a slight basin; flesh yellowish, remark-

ably tender, almost melting, like a fine pear; mild, approaching to saccharine, of a delicious aromatic flavor. For the dessert only. Oct. and Nov. A good grower till it begins to bear; a good bearer. Adapted to the North. Requires a good soil and high culture, else the fruit will not be fair. Origin, Hollis, N. H.—Much cultivated in that State and Maine. It is beautiful and of the first quality.”—*Cole*.

“FALL PIPPIN.—Fruit large, somewhat pyramidal in form, a little higher on one side than the other. Eye rather deeply sunk in an even basin. Stalk short and thick, the fruit sitting close to the branch. Skin of a yellowish green, with a tinge of blush, or rather brownish cast, on the sunny side. Flesh tender, white and juicy, of a rich aromatic flavor. Ripe in November.

This is one of our finest fall apples; and when in full perfection is not surpassed by any, either for the dessert when ripe, or for culinary purposes a month earlier; it however does not keep long.”—*Floy*.

“MOTHER APPLE.—Rather large; roundish, slightly ovate; very little yellow, marbled and striped with red, very dark and bright in the sun, the red is interspersed with russety dots; stem three quarters of an inch long, rather slender, in a broad, tolerably deep cavity; calyx small, nearly closed, in a narrow, tolerably deep, irregular basin; flesh yellowish, very tender, almost melting, mild, rich, highly aromatic, with a delightful mingling of slightly sub-acid and saccharine qualities; aroma resembling Chick-winter-green. Last of Oct. to Jan. We find it perfectly hardy in Me., moderate grower, a good and constant bearer. In quality it has no superior, and very few equals. Origin, Bolton, Ms.”—*Cole*.

“BALDWIN.—*Woodpecker, Pecker*. The Baldwin stands at the head of all New England apples, and is unquestionably a first rate fruit in all respects. It is a native of Massachusetts, and is more largely cultivated for the Boston market than any other sort. It bears most abundantly with us, and we have had the satisfaction of raising larger, more beautiful, and highly flavored specimens here, than we ever saw in its native region. The Baldwin, in flavor and general characteristics, evidently belongs to the family of *Esopus Spitzenburgh*, and deserves its extensive popularity.

Fruit large, roundish, and narrowing a little to the eye. Skin yellow in the shade, but nearly covered and striped with crimson, red, and orange, in the sun; dotted with a few large russet dots, and with radiating streaks of russet about the stalk. Calyx closed, set in a rather narrow, plaited basin. Stalk half to three fourths of an inch long, rather slender for so large a fruit, planted in an even, moderately deep cavity. Flesh yellowish white, crisp, with that agreeable mingling of the saccharine and acid which constitutes a rich, high flavor. The tree is a vigorous, upright grower, and bears most abundantly. Ripe from November to March, but with us, is in perfection in January.”

"**SWEETING, LADIES**'.—The Ladies' Sweeting we consider the finest winter sweet apple, for the dessert, yet known or cultivated in this country. Its handsome appearance, delightful perfume, sprightly flavour, and the long time which it remains in perfection, render it universally admired wherever it is known, and no garden should be without it. It is a native of this neighborhood, and thousands of trees of this variety, have been sent from this garden, to various parts of the union. The wood is not very strong, but it grows thriftily, and bears very abundantly.

Fruit large, roundish-ovate, narrowing pretty rapidly towards the eye. Skin very smooth, nearly covered with red in the sun, but pale yellowish-green in the shade, with broken stripes of pale red. The red is sprinkled with well marked, yellowish-gray dots, and covered, when first gathered, with a thin white bloom. There is also generally a faint marbling of cloudy white over the red, on the shady side of the fruit, and the rays of the same around the stalk. Calyx quite small, set in a narrow, shallow, plaited basin. Stalk half an inch long, in a shallow cavity. Flesh greenish-white exceedingly tender, juicy and crisp, with a delicious, sprightly, agreeably perfumed flavor. Keeps without shrivelling, or losing its flavor, till May."—*Downing*.

"**RHODE ISLAND GREENING**.—Large; flattish; smooth, pale-green, brownish cheek, full in the sun; stalk two thirds of an inch long, rather slender; calyx small, closed, in a shallow, plaited basin; flesh yellowish, fine, tender, crisp, juicy, slightly acid and aromatic. Last of Nov. to Feb. Rapid and stout grower, great bearer. Excellent for cooking, and pretty good for eating. One of the very best for main crops. It succeeds well on rather light, sandy soil. It is the leading apple in R. I., the place of its origin; one of the principal in New England, generally, and N. Y. In this section the Baldwin is more profitable for the market, but this is equally valuable for family use."

"**ROXBURY RUSSET**, *Boston Russet*, *Putnam Russet* in O. Rather large; flattish; yellow russet, rarely a faint blush; stem medial, slender, in a rather shallow cavity; calyx closed, in a moderate basin; flesh greenish-white, rather dry, when fully ripe, slightly acid and pleasant. Pretty good for cooking, not first-rate for the dessert. Late Winter, Spring, and early Summer. A moderate grower, and great bearer, in a very moist, strong, rich soil, otherwise unprofitable. Very apt to fail from unfavorable weather in spring, or other causes; yet important from its late keeping. Origin, Roxbury, Ms."—*Cole*.

"**NORTHERN SPY**.—This beautiful new American fruit is one of the most delicious, fragrant, and sprightly of all late dessert apples. It ripens in January, keeps till June, and always commands the highest market price. The tree is of rapid, upright growth, and bears moderate crops. It originated on the farm of Oliver Chapin, of Bloomfield, near Rochester, N. Y.

Fruit large, conical flattened. Skin thin, smooth, in the shade greenish or pale yellow, in the sun covered with light and dark stripes of purplish-red, marked with a few pale dots, and a thin, white bloom. Stalk three-fourths of an inch long, rather slender, planted in a very wide, deep cavity, marked with russet. Calyx small, closed; basin narrow, abrupt, furrowed. Flesh white, fine-grained, tender, slightly sub-acid, with a peculiarly fresh and delicious flavor."—*Downing*.

Those who would go beyond the above descriptive list can select from the following kinds those that will prove satisfactory and profitable.

Benoni, Summer Rose, William's Early Red, Pumpkin Sweeting, Shaker's Pippin of Pineo, Lyscom, Maiden's Blush, Hubbardston Nonsuch, Leland's Spice, Esopus Spitzenburg, Broadwell, Ribstone Pippin, and Danvers Winter Sweeting. The *Red* and *Yellow Siberian Crab* apples are ornamental and fine for preserving.

APRICOTS.

These require a warm situation and a protection of straw in the winter in our latitude. They are well adapted to wall training. They should be budded upon Plum stocks and headed in during the month of August. When budded on the Plum, it does best on strong, moist soils. "The fruit resembles that of a peach externally; the stone is like that of a plum, and the flesh of some kinds seems to be intermediate between the two."

BREDA.—Fruit rather small, its general form roundish, but often approaching to be somewhat four-sided. The Suture is moderately deep, with a depression at its termination on the summit. The Skin, where exposed to the sun, is of a deep, brownish orange.—Flesh deep orange, parting freely from the stone, juicy, rich, and high flavored. Stone rather small, roundish, compressed, but not so much as in some others. Kernel sweet, like a hazel-nut. Ripens from the beginning to the middle of August."

MOORPARK.—"Fruit large, of a roundish figure, about seven inches and a half in circumference each way, deeply hollowed at the base, and compressed on its sides, one of which is swelled considerably more than the other at the suture, which gives it an oblique appearance. Skin pale yellow on the shaded side, but of a deep orange color, shaded and marbled with brownish red on the side next the sun, and full of dark specks. Flesh very firm, bright orange, separating clean from the stone. Juice plentiful and ex-

cellent. Stone rather rugged, with a pervious passage, containing a bitter kernel. Ripe the end of August and beginning of September."

ROMAN.—Fruit middle sized, in form slightly compressed, inclining to oval. Skin dull straw color, with a little dotting of orange or red on the sunny side, but in such small quantity, that the skin has always a pallid appearance. Suture shallow. Flesh dull pale straw color, soft, dry, rather mealy, with a little sweetness and acidity. Stone flat, oblong, rather obtuse at each end, with a very even surface, separating from the flesh. Kernel very bitter. Ripe the middle of August. The Roman Apricot is the most common in our gardens; its principle recommendations are its hardness and plentiful bearing. It is best before fully ripe."—*Lindley*,

BLACKBERRIES.

This fruit is being much improved by cultivation and where the wild berry is not easily obtained it pays to cultivate it. It grows on either a tolerably dry, or a deep, moist soil. The ground should be cultivated and made rich and mellow. The methods of propagation are by off-sets of old roots or by seeds. The improved High Bush and the Buff, are the most esteemed kinds.

CHERRIES.

The Cherry does best on a good sandy or gravelly loam. Being hardy it will produce fruit in a variety of soils, but if planted in a very moist place it is short lived. It is propagated by budding the finer sorts upon seedlings of the common black mazzard.

EARLY WHITE HEART.—"Fruit below medium size, rather oblong heart shaped, often a little one-sided. Suture quite distinct. Stalk an inch and three fourths long, rather slender, inserted in a wide shallow cavity. Skin dull whitish yellow, tinged and speckled with pale red in the sun. Flesh half tender, unless fully ripe, when it is melting, with a sweet and pleasant flavour. Tree grows rather erect, with a distaff-like head when young. In the nursery the young trees are easily known by their long and slender shoots, with few branches. First of June."

MAYDUKE.—"This valuable cherry is one of the most popular sorts in all countries, thriving almost equally well in cold or warm climates. This, the Black Heart, and the Bigarreau, are the most extensively diffused of all the finer varieties in the United States. And among all the new varieties none has been found

to supplant the Mayduke."

"Fruit roundish or obtuse heart-shaped, growing in clusters.—Skin at first of a lively red, but when fully ripe of a rich *dark* red. Flesh reddish, tender and melting, very juicy, and, at maturity, rich and excellent in flavour. This fruit is most frequently picked while it is yet red, and partially acid, and before it attains its proper color or flavour. It begins to color, about New York, in favorable seasons, the last of May, and ripens during the first half of June."—*Downing*.

BLACK TARTAREAN.—"A very large heart-shaped fruit, of most superior quality; color dark shining purple, or black; flesh firm, dark red or purple, sweet and of most excellent flavour. The very best cherry yet known with us. The tree and fruit combine an assemblage of good qualities which never meet but in a very extraordinary fruit; an elegant, very rapid growing tree, of great productiveness, very large and beautiful fruit, and excellent quality. Supposed to have originated in Spain; thence carried to Circassia, or Russia; from Russia it was brought to England by Mr. John Frazier."—*Wm Kenrick*.

BLACK HEART.—"Fruit pretty large, growing, for the most part, singly, heart-shaped, a little flattened at the apex, compressed on one side, with a slight suture. Stalk one inch and a half long, slender. Skin of a dark purple, approaching to black when fully ripe. Flesh pale red, rather firm, but mellow, with a rich, well flavored juice. Ripe the end of July or beginning of August."—*Lindley*.

BLACK EAGLE.—"Tolerably large; obtuse, heart-shaped; purplish-black; stalk medial length, rather slender; flesh deep-purple, rather tender, with the richest and finest flavor. A standard of excellence. Ripens the last of June, a few days later than the Black Tartarean. Hardy and suitable for the North; a good bearer, a good grower, rather spreading, forming a round, compact head. Leaves large. English origin."—*Cole*.

DOWNER'S LATE RED.—"This valuable late cherry was raised by Samuel Downer, Esq., an ardent cultivator of Dorchester, near Boston. It is a very regular and great bearer, ripens about a week after the cherry season, and hangs for a considerable time on the tree. It is a delicious, melting fruit, and deserves a place in every garden. Fruit of medium size, roundish, heart-shaped, inclining to oval. Skin very smooth, of a soft but lively red, mottled with a little amber in the shade. Stalk inserted with a very slight depression. Flesh tender, melting, with a sweet and luscious flavor. Ripens from the 4th to the 10th of July."—*Downing*.

The list may be increased by adding the Elton, Belle de Choisy, Flesh colored Bigarreau and Honey Heart.

CURRANTS.

Currant bushes are propagated by cuttings and by dividing old roots; the former method is preferable. The cuttings should be taken off in the fall and kept like scions during winter, or they should be cut early in the spring and immediately inserted in the ground. In two years they should be set in rows eight feet apart and six feet apart in the row. They require an occasional pruning of the old wood. They should be cultivated and manured. A deep soil suits them best.

Red Dutch.—A kind much larger than the common red, produces large clusters and is less acid.

White Dutch.—Large yellowish white, transparent, and less acid than the red. Perfectly hardy.

MAY'S VICTORIA.—“A new variety from England. We have had bunches over five inches long. The berries are very large, bright red, excellent flavor, and hang long on the bush in perfection. Foliage thick, deep green, Of great excellence.”—*Cole.*

CRANBERRIES.

These are propagated by taking sods from natural cranberry meadows and dividing them before setting them out. They require a soil that is submerged at least a small part of the year. They have been cultivated on high lands with tolerable success by enriching them with peat and meadow muck.

GOOSEBERRIES.

These are propagated the same as currants are.—They are more apt to suffer from heat and drought; they should therefore be planted the north side of buildings or walls, in a deep moist soil. They are subject to mildew. To prevent this, prune liberally, enrich the ground with wood ashes, lime and salt, the latter at the rate of two quarts per square rod. They should be mulched deeply.

Crown Bob.—Large; roundish-oval, hairy, red and of first quality. Measures one and one half inches through. Foreign.

Early Sulphur.—Fruit middle size and very early, roundish, hairy; flavor first rate.

Farrow's Roaring Lion.—An immense berry and hangs late. Fruit oblong and smooth, flavor excellent. Foreign.

HOUGHTON'S SEEDLING.—“Rather small; oval; skin thin; reddish brown; flesh very fine, tender, sweet and superior, particularly for the dessert. A prodigious grower and great bearer. We set small layers, and the next year, all the shoots were covered with fruit. Hardy; the only kind free from mildew. Habits like Crown Bob.”—*Cole*.

GRAPES.

Grapes are propagated by layers, cuttings and by grafting old vines. The former method is preferable. Where grafting is pursued it is necessary to defer it until the vine is in full leaf as otherwise it suffers from severe bleeding. The scions should be kept as other scions are. The grape vine requires a liberal pruning in Nov. or Dec. A shoot bears but one year, the fruit being wholly on the previous years growth of wood. Hence severe pruning induces fruitfulness.—The practice of picking off leaves at midsummer to expose fruit to the sun is injurious. The leaves are required to perfect the sap that nourishes the fruit.—Vines may be trained to walls, buildings, or trellises either in the fan or horizontal manner and a portion of the shoots cut back every year so that the vine shall be constantly producing new and bearing wood. The soil proper for the grape is a deep, rich, dry loam, resting upon a dry gravelly subsoil. The crop is neither so sure or valuable when on wet grounds. Animal manure is good for growing vines, but ashes, coal dust, Blacksmith's sinders, bone chips, and soap suds are much better for those in bearing.

Grapes may be preserved for winter use, simply by picking before fully ripe when they are free from dew and packing them in a jar between layers of cotton batting or fire dried sawdust.

For very warm situations, we would recommend the *Isabella* and *Catawba*; but unless the cultivator has

such a situation, it is useless to attempt their culture as they fail to ripen. It is supposed that the Diana will be more successful in cold regions and is therefore attracting a good deal of attention. Perhaps it would be best for the cultivator to make his main dependence upon some native grape of his own particular neighborhood, as these are usually much improved by cultivation, and generally ripen well.

ISABELLA.—“Bunches large, rather compact, shouldered. Berries large; oval; purplish, with blue bloom; skin thick; flesh tender, with little pulp, juicy, sweet, and rich, with slight musky and aromatic flavor. Ripens in N. England the last of Sept., and in Oct.”

CATAWBA.—“Bunches medial; loose; shouldered; berries large; roundish or slightly oval; reddish-purple; with a purple bloom; thick skin; flesh a little pulpy, but juicy, sweet, with a rich, musky, aromatic flavor. Ripens two weeks later than the Isabella.”

DIANA.—“Fruit in bunch and berry very much like its parent, the Catawba, but with less color. Berries round; juicy, rich, sweet, with musky aroma. Ripens about the time of Isabella. Hardy, vigorous, and productive.”

SHURTLEFF'S SEEDLING.—“Bunches large; berries medial; oval; skin thick, lilac; flesh of a sweet, rich flavor. Ripe early in September.”—*Cole*.

PEACHES.

These are propagated as directed upon page 62.—Some cultivators plant stones of the best varieties and of superior native seedlings and never bud. These trees are undoubtedly more hardy than the budded trees in our latitude, and many of them produce superior peaches.

“The peach will flourish in any friable soil, under good culture, but the best soil is a light and rather dry loam. It succeeds well with good, deep culture, and suitable manure, on light, sandy, and gravelly soils; but in such cases it is necessary to guard against severe drought by manures, inducing moisture, frequent stirring of the soil, mulching, or by all these advantages. Any soil suitable for indian corn is adapted to the peach. The subsoil should be dry and porous.”

“Elevated situations are best for the peach, especially in the North, where the tree, but more especially the blossom buds, are often killed, not so much, perhaps, by severe cold, as by sudden changes from thawing and freezing, and the reverse. In this way

buds are often killed in Dec. and Jan., as may be seen by a black speck in the centre of the bud, indicating its destruction."

"In most cases, the north sides of hills and ridges are preferable for peaches; there is less heat by day, and less frost by night, as the north wind, which prevails in the time of frost, prevents its severity. Owing to the situation of some sections of the country, and certain currents of air, this rule is not invariable."—*Cole*.

The peach requires a yearly pruning as the fruit is borne on the last years growth of wood. The best method is to shorten-in the branches by cutting off about half of the length of the new wood, either in the fall or early in the spring. Some prefer the month of Aug. as it gives time for the wood to ripen before winter.

There is a disease called the Yellows very destructive to the peach. Premature ripening of the fruit and the production of small wiry branches a few inches in length are the symptoms by which it is recognized. To restore an orchard affected with it, exterminate, root and branch every tree that has the Yellows; select seeds from healthy trees and from districts where the disease has not appeared, and finally keep the trees in a good condition by cultivation and thorough shortening-in.

COOLEGE'S FAVORITE.—"Leaves with globose glands. Fruit large, roundish (the suture prominent at the top only), but rather the largest on one side. Skin clear smooth white, with a fine crimson mottled cheek. Flesh very melting and juicy, with a rich, sweet, and high flavor. Middle of August. Flowers small."

GEORGE THE FOURTH.—"Leaves large, with globose glands, often obscure. Fruit large, round, deeply divided by a broad suture, and one half a little larger than the other. Skin pale, yellowish white, finely dotted with bright red, and deepening into a rich dark red cheek on one side. Flesh pale, marked with red at the stone (which is small), melting, juicy, with a remarkably rich, luscious flavor. Ripens the last of August. Flowers small."

GROSSE MIGNONNE.—"Leaves with globose glands. Fruit large, roundish, always somewhat depressed and marked with a hollow suture at the top. Skin pale greenish yellow, mottled with red, and having a purplish red cheek. Flesh yellowish white, marked with red at the stone, melting, juicy, with a very rich, high, vinous flavor. Stone small and very rough. Middle of August, before the Royal George. Flowers large."

SNOW.—"Leaves with reniform glands. Fruit large, globular; suture faintly marked except at the top. Skin thin, clear beautiful white, on all sides. Flesh, white to the stone, juicy, and melting

with a sweet, rich, and sprightly flavor. Beginning of September. Flowers small."—*Downing*.

CRAWFORD'S EARLY MELOCOTON, *Crawford's Early*, *Hill's Lemon Rarissime*. Extremely large; roundish, point prominent; slight suture; yellow, with a red cheek; flesh yellow, melting, rather acid, pretty good. 1st to 15th of Sept. Hardy vigorous and productive. Quality medial, but salable, from its size and beauty. Globose glands. Small flowers."

"CRAWFORD'S LATE MELOCOTON, *Crawford's Superb*. Extremely large; roundish-oval, slight suture; yellow; nearly half covered with dark red; flesh deep yellow, red at the stone, melting, juicy, with a very fine, rich, vinous flavor. Freestone. Last of Sept. and 1st of Oct. Hardy, vigorous, and productive. Globose glands. Small flowers. Splendid, beautiful, one of the finest."—*Cole*.

PEARS.

Pears are propagated by grafting or budding the more choice varieties upon seedling stocks. The best soil for the pear is a strong loam of good depth, resting on a dry subsoil. Moist situations are not favorable to long life of tree or perfection of fruit. Care should be exercised in transplanting, as the pear has but few fibrous roots. Prune out only dead or defective limbs. The pear is affected with three disorders similar in results, called, Frozen Sap Blight, Insect Blight and Sun Blight. During the summer, the limbs turn brown or black and the leaves wither. As a preventive, when the trees make wood late in the fall, prune off the ends of the roots and the ends of the shoots so that the wood will ripen. When the disease appears, cut off immediately the affected part down to perfectly healthy wood.

"GATHERING AND KEEPING THE FRUIT.—The pear is a peculiar fruit in one respect, which should be always kept in mind, viz:—*that most varieties are much finer in flavor if picked from the tree and ripened in the house*, than if allowed to become fully matured on the tree. There are a few exceptions to this rule, but they are very few. And, on the other hand, we know a great many varieties which are only second or third rate, when ripened on the tree, but possess the highest and richest flavor if gathered at the proper time, and allowed to mature in the house. This proper season is easily known, first, by the ripening of a few full grown, but worm-eaten specimens, which fall soonest from the tree; and,

secondly, by the change of color, and the readiness of the stalk to part from its branch, on gently raising the fruit. The fruit should then be gathered—or so much of the crop as appears sufficiently matured—and spread out on shelves in the fruit room or upon the floor of the garret. Here it will gradually assume its full color, and become deliciously melting and luscious.

Winter dessert pears should be allowed to hang on the tree as long as possible, until the nights become frosty. They should then be wrapped separately in paper, packed in *kegs*, *barrels*, or *small boxes*, and placed in a cool, dry room, free from frost.—Most kinds of the finer winter dessert pears, should be brought into a warm apartment for a couple of weeks before their usual season of maturity. They should be kept covered, to prevent shrivelling.—*Downing*.

DWARF PEARS.—Dwarf Pears come into bearing much sooner than standards and bear more abundantly. Most of the market pears of Europe are raised on Dwarfs. They are produced by root pruning small standards, by grafting upon the Quince, Mountain Ash, and our native Thorn Bush. Quince-bottomed Dwarfs are much the most popular. When they are very thrifty they require root pruning and heading-in once in one or two years. Where the soil is sandy or gravelly, clay may be used with advantage with the compost that is placed about the tree. All pears do not succeed well on the Quince. Those marked with a * in the following list are adapted to the Quince.

MADELEINE.*—“Fruit below the middle size, turbinate, with a thickening on one side of the stalk, about two inches and three quarters long, and two inches and one quarter in diameter. Eye slightly hollowed. Stalk an inch long, slender, rather obliquely inserted. Skin yellowish green, with a little light bloom upon it, and a slight tinge of red when fully exposed to the sun. Flesh white, melting, buttery, sweet, and highly flavored. Ripe the latter part of July.”—*Lindley*.

BLOODGOOD.—“Fruit of medium size, turbinate, inclining to obovate, thickening very abruptly into the stalk. Skin yellow, sprinkled with russet dots, and net-work markings, giving it a russetty look on one side. Calyx strong, open, set almost without depression. Stalk obliquely inserted, without depression, short, dark brown, fleshy at its base. Flesh yellowish white, buttery, and melting, with a rich, sugary, highly aromatic flavor. The thin skin has a musky perfume. Core small. Ripe from the 25th of July to the 10th of August.”

ROSTIEZER.—"Fruit of medium size, oblong-pyriform. Skin a dull, yellowish-green, with a reddish-brown cheek, and whitish dots, light russet. Stalk very long, nearly two inches, irregular, slender, set with very little depression. Calyx open, but little sunk. Flesh juicy, a little coarse, but very melting, sweet and delicious, with a rich perfume. August and September."

BARTLETT.*—"Fruit of large size, irregularly pyramidal. Skin very thin and smooth, clear yellow, (with a soft blush on the sunny side, in exposed specimens,) rarely marked with faint russet. Stalk one to one and a half inches long, stout, inserted in a shallow, flat cavity. Calyx open, set in a very shallow, obscurely plated basin. Flesh white, and exceedingly fine-grained and buttery; it is full of juice, sweet, with a highly perfumed, vinous flavor.—Ripens from the last of August to the middle and last of September." The most popular of pears in this region.—*Downing.*

FLEMISH BEAUTY.*—"Large; obovate; roughish, pale yellow, with marbling russet, brownish in the sun; stalk $1\frac{1}{4}$ inches long, in a narrow cavity; calyx open, in a small basin; flesh yellowish-white, little coarse, melting, juicy, with a saccharine, musky flavor. Sept. into Oct. Gather rather early and ripen in the house; sometimes good nearly ripened on the tree. In an open situation and warm soil, it comes up to a high state, and ranks among the best. Great grower, and bearer."

LOUISE BONNE OF JERSEY.*—"Large; pyriform; smooth, pale green, brownish-red in the sun, numerous large gray dots; stalk an inch long, curved, set obliquely, without depression; calyx open, in a shallow basin; flesh greenish-white, melting, very juicy, of a rich and excellent flavor, as good as the Bartlett. Last of Sept., and Oct. For hardiness, growth, production, uniform fairness, and excellence, this fruit is very promising."—*Cole.*

SECKEL.—"Fruit small, (except in rich soils,) regularly formed, obovate. Skin brownish-green at first, becoming dull yellowish-brown, with a lively russet red cheek. Stalk half to three-fourths of an inch long, slightly curved, and set in a trifling depression. Calyx small, and placed in a basin scarcely at all sunk. Flesh whitish, buttery, very juicy and melting, with a peculiarly rich, spicy flavor and aroma. It ripens gradually in the house from the end of August to the last of October.

DUCHESSE D'ANGOULEME.*—"Fruit very large, oblong-obovate, with an uneven, somewhat knobby surface. Skin dull greenish-yellow, a good deal streaked and spotted with russet. Stalk one to two inches long, very stout, bent, deeply plated in an irregular cavity. Calyx set in a somewhat knobby basin. Flesh white, buttery, and very juicy, with a rich and very excellent flavor. October." On the quince, in warm situations, very fine.—*Downing.*

WINTER NELIS.*—"Medial; roundish-obovate; rough, grayish-yellowish-green, with darker green, and patches of brownish-russet; stem rather long, slim, in a narrow cavity; calyx open in a

shallow basin; flesh whitish, fine, melting, very juicy, of a rich saccharine, highly luscious flavor, and musky perfume. Dec. and Jan. Hardy, good grower and productive; and fruit uniformly good. The best winter pear for those who prefer a sweet luscious flavor."—*Cole*.

Those who would like a larger variety will find the following excellent. *Jurgonelle**, *Summer Frank Real**, *Dearborn's Seedling*, *Golden Beurre of Bilboa**, *Belle Lucrative*, *Buffum*, *White Dojenne**, *Urbaniste**, *Van Mon's Leon le Clerc*, *Vicar of Winkfield**, and *Knight's Monarch*.

PLUMS.

Plums are propagated by budding choice varieties upon seedling stocks of any free growing kinds.—They thrive best in a rich, deep, heavy loam. There are some kinds that succeed well on a dry soil. These are marked with a * in the following list.

FIG. 17. The plum is often injured by a disease called Knots or Black Warts. Fig. 17 represents a limb covered with it. Writers are not agreed as to its cause, but all recommend that it be cut off as soon as it appears, and the wound washed with shellac and alcohol or some other protective mixture.

EARLY YELLOW GAGE.—"Branches smooth, short-jointed, with glossy leaves, and forming a large, spreading head. Fruit a little above medium size, oval, rather broadest towards the stalk. Suture a mere line. Skin golden yellow, a little clouded, and covered with a copious white bloom. Stalk an inch long, inserted in a small round cavity. Flesh deep yellow, rich, sugary and melting, though sometimes rather dry; parts freely from the stone. Ripens rather early, about the first week in August."—*Downing*.

GREEN GAGE.—"Branches smooth. Fruit middle sized, round, having a narrow suture extending from the stalk to the apex.—Stalk half an inch long, a little bent, and inserted in a small, funnel-shaped cavity. Skin yellowish green, but when fully exposed to the sun of a purplish color, marbled with russety muddy red. Flesh yellowish green, very melting, and separates partly from the stone, leaving part of the pulp behind. Juice abundant, saccharine, of the richest and most exquisite flavor. Ripe on open standard the middle of August."—*Lindley*.

The best flavored of all plums.

IMPERIAL GAGE.* "Large medial; oval, distinct suture; pale

green, with a yellow tinge, and clouding of darker green, thick white bloom; stem medial, in a moderate cavity; flesh greenish, melting, very juicy, of a rich, sprightly, delicious flavor. Mostly freestone. 1 to 15 Sept. A vigorous grower and prodigious bearer."—*Cole*.

JEFFERSON.—"Branches slightly downy, leaves oval, flat. Fruit large, oval, slightly narrowed on one side, towards the stalk.—Skin golden yellow, with a beautiful purplish-red cheek, and covered with a thin white bloom. Stalk an inch long, pretty stout, very slightly inserted. Suture indistinct. Flesh deep orange, (like that of an Apricot,) parts freely, and almost entirely from the stone, which is long and pointed; very rich, juicy, luscious and high flavored. Hangs a fortnight on the tree."—*Downing*.

COE'S GOLDEN DROP.*—"Fruit oval, of the largest size among Plums, about two inches and a half long, and two inches in diameter, deeply marked by the suture, pitted at the point, abruptly tapering and hollowed out at the base for the reception of the stalk. Stalk three quarters of an inch long, slender. Skin greenish yellow, with numerous red spots of bright violet red next the sun. Flesh greenish yellow, adhering firmly to the stone.—Juice very sweet and delicious. Stone sharp pointed." October.—*Lindley*.—Requires a warm situation to perfect it.

The Peach Plum, M'Laughlin*, Royal Hative, Egg Plum, Cruger's Scarlet*, Lawrence's Favorite, Schenectady Catharine, Smith's Orleans, Columbia, Lombard*, and Blue Imperatrice are all excellent plums.

QUINCES.

Quinces are propagated by seed, cuttings, or layers. They will succeed in a deep, rich soil, either wet, or dry. There are three kinds; the Apple-shaped, the Pear-shaped, and the Portugal. The former is the most popular as it produces more abundantly and is earlier than the others. The Portugal is very fine flavored but a shy bearer.

RASPBERRIES.

This fruit requires a deep, moist soil. It is propagated by suckers or offsets of old roots. The fruit is borne on the canes of the last year's growth, which die down after the crop is ripened. The old canes, when dead, should be removed and the young ones cultivated.

Red Antwerp.—This is a large, delicious, deep red berry; extremely hardy and prolific.

White Antwerp.—This is a large and very excellent fruit, of a dull yellow color. Canes rather tender for cold situations.

Fastolff.—One of the best of raspberries. Fruit dull red, juicy, melting, highly perfumed, and very prolific.

Franconia.—A choice French variety. Fruit large, dull red, melting, juicy, and perfumed. Very prolific.

STRAWBERRIES.

This most delicious fruit should be found in every garden. It propagates itself very rapidly by runners which take root and send up new plants. These are usually taken up in August and set in the permanent bed. The ground should be spaded from one to two feet deep and thoroughly manured. Set the plants in rows two feet apart and from six to twelve inches apart in the row. Keep free of weeds and before the fruit ripens, place clean straw or new mown grass around the plants to preserve the berries clean. Some lay out their ground in beds three feet wide, leaving a space of three feet between the beds. Set in each bed three rows of plants, 12 inches apart in the rows. The third year, spade the space between the beds, liberally enrich them, and permit the runners to take root in them. The fourth spring from setting, dig up the old beds and use them for walks. To produce large and perfect crops of fruit, the beds should have a yearly coating of manure and liberal waterings from the time they blossom till the fruit is nearly perfected. The blossoms of wild vines have stamens and pistils, and are called *hermaphrodite* or perfect blossoms; those of some of the many seedlings now popular are *staminate* or male, and some *pistillate* or female. The last two kinds do not bear well when planted alone. The course pursued by successful cultivators, is to plant a row of staminate, then three or four rows of pistillate, alternating the one

with the other. Under this treatment enormous crops of fruit are raised.

Large Early Scarlet.—Fruit large, scarlet, juicy, melting and richly perfumed; prolific. Staminate.

Boston Pine.—Fruit large, deep red, juicy, and of delicious flavor. Staminate.

Black Prince.—Fruit large, dark polished red approaching black, flesh firm and of excellent flavor.—Pistillate. Requires a staminate with it.

Hovey's Seedling.—Fruit extremely large, deep scarlet, flesh firm, with a rich delicious flavor. A prodigious bearer. Pistillate. The most popular strawberry in the U. S. Plant Early Scarlet or Boston Pine with it.

Burr's New Pine.—Fruit large, crimson, sweet, rich and aromatic. Pistillate.

T H E F L O R A L G A R D E N E R .

SOIL.—The plants cultivated in our gardens were gathered from various countries, and therefore require a diversity of soils. The kind adapted to most of them is a deep friable loam, that pulverizes easily, in which sand exists, but does not predominate. Some require a soil composed almost entirely of savannah; others, one the chief constituent of which is sand.

Laying out the grounds.—“Having obtained the proper soil, the next step is to lay out the grounds, which must be governed in some degree by their shape and location, but mainly by the taste of the proprietor. Some are pleased with regular beds and borders—others can see no beauty in straight lines, and form their grounds into ovals, circles, and irregular figures of many forms.

Perhaps a union of the two modes is the truer taste; in either case they should be edged with neatness, and for that purpose box-wood, the vernal iris, thrift, grass, &c., are used; where it is desired to combine utility and ornament, the strawberry may be used with advantage. That work performed, it then becomes necessary to enrich the soil, or supply the exhaustion of repeated cropping; for this purpose, in the flower-garden, decomposed manure and such as is least likely to contain the seeds of weeds, or grasses, only should be used. It may be applied immediately preceding the spring digging, or, which is preferable, in the autumn. At the proper time, in the spring, the ground should be deeply dug and thoroughly pulverized, preparatory to receiving the seeds"—*Flower Gardener*.

Annuals and Biennials.—These are, as a general thing, showy plants, and, although they require more attention than perennials, they well repay the care necessary to their cultivation. Many of the seeds are exceedingly small, therefore, should be carefully planted. Some require to be covered an inch deep, others should be scattered upon the top of the ground and kept moist until they sprout. Every cultivator should regard the size of the seed when determining the depth to which they should be planted. Even when planted by skillful hands many seeds fail to germinate. The *Double Larkspur*, *all varieties of Poppies*, *Gillia*, *Pinks*, *Evening Primrose*, *Coreopsis*, *Cypress Pine*, *Marvel of Peru*, *Balsamines*, and some other kinds, succeed best when sown just before the ground closes in the fall. Other hardy annuals may be sown in the open ground from April to June; half hardy annuals in May, and tender annuals, the last of May or first of June. Where the cultivator has the convenience of hot beds, it is well to start many kinds in them, and transplant to the open ground about the first of June. The following plants are not usually successfully transplanted, therefore should be sown where they are to stand. Annual Sunflower, convolvulus—Major and Minor, Candy Tuft, Dwarf Lychnis, Dwarf Poppy, Nigella, Flos Adonis, Larkspur, Lobels, Catchfly, Lupines, Lavatera, Hawk Weed, Scarlet Pea, Sweet-scented Pea, Tangier Pea, Venus' Looking Glass, Venus' Navel Wort.

Annuals perfect their flowers and seed in the fall from the seed sown in the spring, then die; Biennials blossom the second year after sowing, and then die or decline ; and Perennial plants bloom year after year, and are propagated either by seed or dividing roots. The following list of Annuals and Biennials will produce a fine show of flowers most of the season. ha, stands for hardy annual ; hha, half hardy annuals ; ta, tender annuals ; hb, hardy biennials, &c.

- ha, Asters, Chinese and German, many varieties, beautiful.
- ta, Balsams, double and single, various colors, superb.
- hb, Canterbury Bells, blue and white, fine.
- ha, Candytuft, various colors.
- ha, Coreopsis, many kinds, some perennial.
- ha, Catchfly, white and large clustered.
- ha, Chrysanthemum, white and yellow, showy.
- ta, Clarkia, divers colors, very pretty.
- ta, Coxcomb, several colors, bears cold better than too hot sun.
- ha, Erysimum, yellow.
- ha, Eternal flower, divers colors, fine for drying.
- ha, Eschscholtzia, many kinds.
- ha, Forget-me not, blue.
- hb, Foxglove, white, red and yellow.
- ha, Flos Adonis, scarlet.
- ha, Gilia, many colors.
- ha, Hawkweed, golden, purple and silvery.
- ha, Hibiscus, African.
- hb, Honesty, curious.
- ha, Larkspur, various kinds, very fine.
- ha, Love-lies-bleeding, red.
- ha, Lupins, mixed, fine.
- hha, Marigolds, mixed, very showy.
- ha, Marvel of Peru, mixed.
- ha, Mignonette, odorous, perfumes the garden or house.
- ha, Morning Glory, a climbing and showy plant.
- ha, Nasturtiums, free bloomers, showy, climbers.
- ha or p, Pansies, mixed, one of the most choice of florists' flowers.
- ha, Sweet Peas, mixed, delicate flowers, climbers.
- ha, Poppies, many varieties, showy.
- ha, Phlox, Drummond's, 20 var., elegant..
- hha, Portulaca, many colors, fine.
- ha, Petunia, divers colors, beautiful, should be in every garden.
- hbb, Stocks, Queen and Brompton, splendid.
- ha, Verbenas, 40 var., elegant, no finer flowers.
- a, Zinnia.

Perennials.—These afford a fine display of flowers from spring

till fall. They are mostly propagated by layering or dividing old roots. Some few are raised from slips.

hp, Aconitum, very hardy and showy, but poisonous.

hp, Bee Larkspur.

hp, Cardinal Flower.

bp, Carnations, beautiful winter pot-flowers, propagated by layers or seed.

hrp, Chrysanthemum, Indian, should be removed to the house in pots before frosts.

hp, Campanula pyramidalis, produces pyramidal clusters.

hp, Picotee, superb pot-flower, by seed or layers.

hp, Columbine, many colors, fine.

hp, Gentians.

hp, Hollyhocks, double and single, divers colors, superb.

hp, London Pride, gorgeous.

hp, Monkey flower, requires a moist situation.

hp, Pea, Everlasting, requires support.

hp, Phlox, various colored, elegant and showy.

hp, Pinks, China, Clove, and Pheasant's-eye, fragrant, fine.

hp, Primrose, beautiful for border or pot.

hp, Sweet William, very fragrant.

hp, Valerian, showy border flowers.

hp, Wall Flower, brilliant.

BULBOUS ROOTS.—These are general favorites. The beauty of their flowers and their agreeable odor make them very popular. The following directions for their culture we copy from Mr. Hovey's Catalogue.

In the Open Ground.—"The proper season for planting all the hardy kinds is during the months of October and November; in favorable seasons they may be planted later; but they will flower stronger if put into the ground not later than the middle of November. They are of the easiest cultivation, and will grow and flower well in any tolerable good garden soil, but flourish best in a light soil, made rich with thoroughly decomposed manure. Let the ground be dug or trenched a good spade deep, and made fine and light—if it is intended to plant the roots in beds, make them about four feet wide, and of any convenient length, and raise them two or three inches above the surrounding paths. Hyacinths, Tulips, Lilies, Crown Imperials, Double Narcissus, and Jonquils, should be planted about four inches deep; Crocusses, Snowdrops, Fritillarias and Spanish Iris, two inches; English Iris and Polyanthos Narcissus, six inches, and from six to eight inches apart, each way, when grown in beds. When planted in borders, or on the side of walks, they look best in clumps or patches, each clump to contain enough roots, rather thickly planted, to produce, when in bloom, a mass of flowers. Hyacinths and Tulips of different colors produce a fine effect, when planted in this manner,

which is preferable to scattering them over the border, and also renders it more convenient to protect bulbous roots from disturbance in digging and cultivating the ground.

In Pots.—Hyacinths, Double Roman and Polyanthus Narcissus, Early Tulips, Jonquils, and Crocusses, are all proper for cultivation in pots, and make a beautiful display in the parlour or green-house, during the winter.

Pots of five, six or more inches in diameter, according to the number of roots to be grown in each, should be filled with rich light soil, and the bulbs planted very shallow, just covering them with the soil; give a moderate sprinkling of water, to settle the soil about them, and place the pots in any convenient spot, protected from the sun and wind, until the roots commence growing, when they should be exposed to the sun and light as much as possible. When kept in parlours or rooms where the air is generally very dry, they require water often, and the best way is to set the pots in saucers, with water daily. A solution of guano water, made by dissolving a tea-cup full of guano in four gallons of water, and applied once or twice a week, on the surface of the soil, will give them a more vigorous growth, and also add to the brilliancy of their colors.

In Glasses.—Hyacinths and Polyanthus Narcissus flower freely in glasses; the single varieties of the Hyacinth being generally preferred for this mode of culture.

Remove any offsets that may be attached to the bulbs, and after placing them in the glasses, fill up with clear rain water, just to the bottom of the bulbs, then set them in a dark room or closet until the roots have grown two inches, when they may be exposed to the full light, and any waste of water by evaporation must be regularly supplied. The water should be renewed every five or six days, always taking care when fresh water is supplied, that it is of a milk warm temperature. Should any green matter collect on the roots, draw them out of the glasses and rinse them carefully in clean water."

We think that the following will afford satisfactory flowers. Those who desire a larger collection are referred to the catalogues of respectable florists.

HYACINTHES.

A la Mode, double light blue, dark eye.

Anna Maria, double white, purple eye.

Lord Noel, double lilac blue.

Mars, single crimson.

Amilius, single light blue, extra.

Grootvorst, double rose, large and fine.

Appelius, single crimson, very fine.

Prince of Waterloo, double white, superb.

Louis d'Or, double yellow, red eye.

Nimrod, single light blue, extra.

TULIPS.

Tulips are divided into *Bizarres*, *Bybloemens*, *Roses* and *Selfs*. *Bizarres* have yellow grounds, broken or variegated with various shades from red to black; *Bybloemens* have white grounds with various shades of purple and violet; *Rose Tulips* have white grounds variegated with rose and cherry color; *Selfs* are of one color. Those having feather edges are called *Parrot Tulips*.

EARLY TULIPS.—*Bride of Harlem*, *Canary Bird*, *Isabella*, *Claramond*, *Ma Favorite*, *Yellow Rose* and *Rose Florentine*.

BIZARRES.—*Cato*, *Trafalgar*, *Prince of Orange*, *Duke of Wellington*, *Regent*, and *Liberty*.

BYBLOEMENS.—*Cleopatra*, *Ely's Victoria*, *Incomparable*, *Prince of Tulips*, *Washington*, *Queen of May*.

ROSE.—*Heroine*, *Hebe*, *Vesta*, *Walworth*, *Cameux*, *Cerise*, and *Diana*.

POLYANTHOS NARCISSUS.

Grand Monarch, white and citron.

Soleil d'Or, yellow and orange.

Double Roman, double cups.

Grand Prima, white and citron.

DOUBLE AND SINGLE NARCISSUS.

Double White, *Orange Phoenix*, *Poets*, *Incomparable*, *Trumpet Major*, *Campernell's*.

JONQUILS.

Sweet Scented and *Single*.

IRIS.

English, *Spanish*, and *Susiana*.

CROCUS.

Golden Yellow, *Large White*, and *Blue*, *Prince Albert*, and *Queen Victoria*.

CROWN IMPERIALS.

Red, and *Yellow*, single and double.

LILIES.

Chalcedonicum, scarlet.

Lancifolium album, white.

—*punctatum*, pink spotted.

—*rubrum*, crimson spotted.

Bright Yellow Day Lily.

Martagon album, white.

Tigrinum, tiger spotted.

Testaceum, buff spotted.

Umbellatum, orange.

Blue Japan Day Lily.

White Japan, splendid.

MISCELLANEOUS.

Ranunculus, *Anemones*, *Fritillarias*, *Gladiolus*, *Colchicums*, *Aconites*, and *Arums*.

TUBEROUS ROOTS.—These are propagated by dividing the roots, which are fleshy and multiply very fast.—They are usually dug late in the fall and kept in dry sand in a cool, dry cellar during the winter. Some remain in the ground over winter. They should have a rich mellow soil.

Asclepias Tuberosa—produces orange flowers in Aug. and Sept.

Madeira Vine—grows thirty feet, has white, sweet scented flowers.

Hemerocallis Flava—has yellow lily-like flowers.

“ *Fulva*—buff flowers.

Paeonia—has double flowers of various colors. They stand out during winter. We think the following will prove satisfactory.—Superb double White, Double Rose, Double Red, Sweet Scented, Chinese double purple crimson, Double Blush, Double Lilac, Double dark Crimson.

DAHLIA.

“From the middle of May to the middle of June, is the time to plant the Dahlia in this latitude. It will grow on almost any kind of soil, but sandy loam suits it best: a single tuber with one sprout, is enough to make a good plant. Dig a hole of the size of the tuber, and four inches deep—lay it in flat, and cover it up; do not let more than one shoot arise from it, and displace all laterals the first twelve inches from the ground, above that let it branch. Drive a stick two or three inches in diameter, and of a length suitable to the growth of the plant, into the ground, close to the side of each plant. The plant is to be tied to the stick as it advances in growth; this will prevent its being blown down and destroyed by high winds. If the head gets crowded, cut out some of its branches. September is the month in which the Dahlia shows its pride. As soon as the frost has killed down the top, cut off the stem six inches from its base, and dig up the root carefully; after drying two days in the sun, pack it in a box with dry earth, and place it in a cool, airy part of the cellar.”

In the following spring during the month of April, plant the tubers in a hot bed and after they have sprouted separate them from the old stem and when it becomes warm, set them into their permanent places.—If there is not a hot bed near, start them in a box in a warm kitchen. We offer the following list.

Desdemona, primrose.

Mrs. Jones, dove color.

Admiral, lilac, fine form.

El Dorado, pale yellow, fine.

Fearless, lilac extra fine.

Hon. Mrs. Ashley, waxy peach, tipped and decked with rose.

Nil Desperandum, vivid scarlet.

Jeanette, carmine tipped with white.

Miss Weyland, amber edged with scarlet and tipped white.

Duke of Cambridge, silvery lilac.

Beauty of Philadelphia, yellow tipped with rose.

Beauty of England, white edged with crimson.

Philadelphia, white spotted with purple.

Rainbow, yellow edged with purple.

Miss Percival, pure white.

Argo, pure yellow.

Othello, dark maroon.

Scarlet Gem, scarlet.

ROSES.

“Plant out all everblooming roses in spring; those that bloom once a year should be planted out in fall. Dig out large holes eighteen inches deep, and mix the earth with one third of its size of very short manure, or black mould from the woods. Fill up the holes to nine inches deep, place the plants in them in a way that all their roots will lay out in their natural positions; fill up the holes and tramp the earth firm about their roots.”

“A rose left to nature would soon become a confusion of shoots—the flowers would be few, small, and single. The finest flowers are produced on young shoots, of the previous year’s growth. So all shoots over two years old, should be cut out every spring. If the plant is a bush, prune it in a neat and symmetrical manner; if it covers a fence, pillar, arbour, &c., train up the young shoots where the old ones were: but do not cross one shoot over another. The shoots on a fence or building should be four inches apart.”

“Late in the fall, get a strong stick as long as the height of the rose, drive it firmly in close to its side, tie up all the branches of the rose around it; then cover it with long straw, beginning at the bottom; place the straw in a standing manner around it, and tie neatly up with twine. If more than one length of straw is needed, let the upper tiers lap over the lower—so as to carry off the rains and melting snows.”

“The winter covering should never be removed until the frost is entirely out of the ground, and not until after March. A wet or cloudy day should be taken for the removal. The frosts get through the straw and into the shoots of the rose, and it takes as long to draw it out of them as out of the ground. If they were uncovered while the frost was in the shoots, they would likely all die.”

Growing Roses in Pots.—“Get sods three inches thick from an old pasture, lay it in a heap, and turn it over two or three times in a year, breaking it fine every time it is turned over. Three parts of this, one part of very short well-rotted manure, and one part of sharp sand, mixed well together, are an excellent com-

post for roses. The ingredients should be mixed some time before using, so that they may become incorporated. If the soil from which the sod is taken be of a sandy nature, no sand will be needed in the compost; if it be a stiff clay, more sand will be needed. Black mould from the woods is better than manure to mix in the compost. A quart of fresh slacked lime, or charcoal dust, mixed in a bushel of the compost, serves to kill worms and other insects which may be in it. They should not get too much heat, nor too much water in winter, but give them as much light as possible."

Climbing Roses. *Michigan*, flowers clustered.

Queen of the Prairies, magnificent flowers in clusters.

Baltimore Belle, rose colored.

Perpetual Pink, fine.

Boursalt Roses. *Amadis* crimson.

Blush, pale flesh colored.

Elegans purple striped.

Ayrshire Roses. *Splendens*, creamy white.

Noistte Roses. *Bengal Lee*, creamy white or blush.

Conque de Venus, creamy white with dark centre.

Cloth of Gold, deep sulphur yellow, fragrant.

Fellenberg, bright crimson.

Lutea, pale yellow, double flowers.

Ophire, orange yellow tinged with red.

Washington, pure white.

Hybrid Roses. *Brennus*, scarlet and large.

Coup de Hebe, delicate pink.

Duke of Devonshire, rosy lilac striped with white.

George the IV, crimson, beautiful and large.

Abbe Berlese, crimson spotted with violet.

Camaieu, delicate rose with lilac stripes.

Sandeur, bright rose color, spotted and striped with white.

Reine des Belges, lilac.

L'Isle de Bourbon Roses. *Anna Beluze*, waxy blush.

Henry Clay, carmine.

Duval, scarlet crimson.

Mad. Desprez, dark rose.

Paul Joseph, brilliant crimson.

Tea Roses. *Clara Sylvain*, pure white.

Magnolia, yellowish white.

Eliza Sauvage, pale yellow.

Elvira, creamy blush, tinted with rose.

Flavescens, pale straw color, beautiful.

Floralie, blush, rare.

Adorata, fine blush.

Princess Marie, flesh color.

Moss Roses. *Bath White*, very mossy.
Luxembourg, deep crimson.
Crested, mossy and fine.
Princess Royal, darkest crimson, fine.

ORNAMENTAL SHRUBS.

These are usually propagated by cuttings, layers, suckers, and by budding and grafting. A full description may be found in the fruit department of this work. They need an occasional pruning of dead and straggling limbs. Some are half hardy and require protection; see roses.

Dwarf double-flowering Almond, a very beautiful shrub, about three feet high; blooms profusely.

Azalea, a magnificent shrub. flowers of all shades from white to brilliant flame.

Pyrus Japonica, blossoms very early, whilst
 "Winter lingers in the lap of Spring."

Sweet scented shrub, has fragrant, strawberry-scented flowers.

Fring Tree, has white flowers which hang like a fringe; of great beauty.

Southernwood, fragrant foliage.

Deutzia Scabra, produces white flowers resembling the *Mock Orange*.

Althea, many colors, double and single, all fine.

Golden Chain produces long clusters of yellow flowers.

Japan Globe Flower, a profuse bloomer; hardy.

Missouri Currant, hardy and flowers abundantly.

Guelder Rose, or Snowball, a showy shrub, produces large balls of snow-white flowers in May.

Syringa, or Mock Orange, produces highly perfumed flowers.

Snowberry, has pink flowers in spring and white berries in fall.

Smoke Tree, looks like a light cloud of smoke, when in bloom.

Lilac, fine bloomer, hardy and fragrant. It has white and purple flowers.

Rhododendron, is of the Laurel tribe and very beautiful; requires moist soil and shade.

PARLOR PLANTS.

The soil proper for pot plants, is composed of peat, leaf mould, sand and well rotted manure. They should be mixed sometime before wanted. Powdered charcoal added gives darker and more brilliant colors to flowers. The soil in the pot should be kept moist, but not saturated. When plants are in a dormant state

much water is injurious. When growing plants are watered, enough should be given to moisten the whole soil in the pots. The top soil should be frequently stirred, and occasionally, waterings with a guano solution are beneficial. Plants should have as much air as can be given conveniently. Kill insects, by washing with soap suds, then syringe the plants with pure water. Keep both plants and pots clean. Plants which cannot support themselves should have sticks inserted close to their side and be tied to them.

Abutilon, is increased by cuttings, grows in a rich loomy soil. It has white or buff grounds striped with rose or crimson.

Cactus, requires considerable heat and a sandy soil. Flowers pink, scarlet and purple. The night blooming *Cercus* is much celebrated.

Calla, or *Ethiopian Lily* has a large white flower of great beauty. It requires a peat soil and a great amount of water when growing. In fact it may stand in water. Propagated by offsets.

Carnations and Picotees, are propagated by cuttings, layers and seed. They require a rich soil and frequent waterings while blossoming. Colors various; flowers superb.

Fuchsia, or *Ladies' Eardrop*, is propagated by cuttings. It has pendant flowers of great beauty. Colors, scarlet, crimson, white, and red and white.

Geraniums are great favorites. They require three parts peat, one part sand, one of manure. The *Harrisonii*, *Mrs. Peck*, *Lenoxii*, *Mrs. Clay* and *President* are large flowered and splendidly colored.

Hydrangea hortensis, is a well known plant, of pink color which changes to blue when iron cinders are added to the soil. It should be kept in the shade and have an abundance of water.

Oleander, an evergreen shrub, has fine flowers. The plant is troubled with a white scaly insect. To remove it, wash with soap suds then shower the plant with pure water.

Petunias, are fine parlor flowers, and succeed well if planted in the open ground when the weather becomes warm. The purple, the white and the pink penciled and with a dark throat, are admired varieties. Propagated by cuttings and seed.

Roses, *Tea* and *Moss*, succeed well in pot culture. Every parlor should have a variety.

Stocks, *Queens* and *Brompton*, furnish a beautiful display.—Propagated by seed; require a rich friable loam.

Verbenas, require rich soil and sticks to support them. There are 40 varieties, and owing to their beauty and hardiness they are everywhere popular. Propagated by seed and cuttings.

INDEX.

<i>Kitchen Gardener.</i>			<i>Vegetables.</i>		
Crops, Rotation of	- -	25	Artichoke, Jerusalem	-	28
Cultivators, Hand	- -	14	Asparagus,	- -	28
Dibble,	- - -	13	Balm,	- - -	31
Drill-rakes,	- - -	14	Bean,	- - -	31
Engines, Garden	- -	14	Beet,	- - -	33
Garden, Situation of	-	5	Cabbage,	- - -	33
Glasses, Hand	- -	12	Carrot,	- - -	34
Hot Beds, Frame and Sash	11		Cauliflower,	- - -	34
“ Management of	22		Celery,	- - -	35
“ German	- -	12	Chive,	- - -	36
Hoes,	- - -	14	Corn,	- - -	36
Manures,	- - -	7	Cress,	- - -	37
Observations, Preliminary	-	5	Cucumber,	- - -	37
Plowing, Subsoil	- -	15	Egg-Plant,	- - -	38
“ Double	-	16	Endive,	- - -	39
Propagation in general	-	17	Fennel,	- - -	39
Plants, Early	- -	21	Horse Radish,	- - -	39
Rakes, Garden	- -	14	Leek,	- - -	40
Spades and Shovels,	-	13	Lettuce,	- - -	40
Soil,	- - -	6	Majoram,	- - -	40
“ Preparation of	-	14	Melon,	- - -	41
Shields, Vine	- -	13	Mint,	- - -	42
Seed, to save	- -	19	Mustard,	- - -	42
“ Vitality of	- -	21	Nasturtium,	- - -	42
“ To start quick,	-	19	Onion,	- - -	42
Tools and Tool House,	-	10	“ Potato	- - -	43
Trowel, Garden	- -	13	“ Tree	- - -	43
Tools, Miscellaneous	- -	14	Parsley,	- - -	44
Trenching,	- -	16	Parsnip,	- - -	44
Transplanting,	- -	21	Pea,	- - -	44
Vermin, Destruction of	-	26	Pepper,	- - -	45
Water-Carrier,	- -	14	Potato,	- - -	45
Whale Oil Soap,	- -	27	“ Sweet	- - -	46
Wheelbarrow,	- -	13	Radish,	- - -	47

Rhubarb, - - -	47		
Sage, - - -	48		
Salsify, - - -	49		
Savory, - - -	49		
Sea-Kale, - - -	49		
Shallot, - - -	50		
Spinach or Spinage, -	50		
Squash, - - -	50		
Thyme, - - -	50		
Tomato, - - -	50		
Turnip, - - -	52		
Wormwood, - - -	53		
<i>Fruit Gardener.</i>			
Budding, - - -	58		
“ American Shield, -	59		
Cuttings, Propagation by	60		
Grafting and Budding, -	56		
Grafting Wax and Clay, -	56		
Grafting, Cleft - - -	57		
“ Stock scarfed - - -	57		
“ Splice - - -	57		
“ Saddle - - -	58		
Insects, - - -	68		
“ Apple Tree Borer -	69		
“ Apple Worm or Cod-			
ling Moth, - - -	69		
“ Bark Louse, - - -	70		
“ Canker Worm, - - -	70		
“ Curculio, - - -	70		
“ Caterpillars, - - -	72		
“ Peach Tree Borer, -	72		
“ Slugs, - - -	72		
Labels, - - -	64		
Layers, Propagation by	61		
New Varieties, production of	54		
Dr. Van Mons' Theory, -	54		
Mr. Knight's Theory, -	55		
Pruning, - - -	65		
Suckers, - - -	61		
Stocks for grafting, -	61		
Training, - - -	65		
“ Horizontal - - -	66		
“ Fan - - -	66		
“ Quenouille - - -	67		
“ Pyramidal - - -	67		
Trees, Taking up - - -	62		
“ To protect from Mice,	68		
Transplanting, - - -	63		
To induce early bearing, -	67		
		<i>Fruits.</i>	
		Apples, - - -	63
		Astracham, Red - - -	73
		Baldwin, - - -	75
		Bough, Sweet - - -	74
		Gravenstein, - - -	74
		Harvest, Early - - -	73
		Jewett's Red, - - -	74
		Mother, - - -	75
		Northern Spy, - - -	76
		Pippin, Fall - - -	75
		Porter, - - -	74
		Rhode Island Greening, -	76
		Roxbury Russet, - - -	76
		Strawberry, Early - - -	74
		Sweeting, Ladies' - - -	76
		Apples, List of - - -	77
		Apricots, - - -	77
		“ Breda, - - -	77
		“ Moorpark, - - -	77
		“ Roman, - - -	78
		Blackberries, - - -	78
		Cherries, - - -	78
		“ Early White Heart, -	78
		“ Mayduke, - - -	78
		“ Black Tartarean, - -	79
		“ Black Heart, - - -	79
		“ Black Eagle, - - -	79
		“ Downer's late Red, -	79
		Currants, - - -	80
		“ List of - - -	80
		Cranberries, - - -	80
		Gooseberries, - - -	80
		“ Crown Bob, - - -	80
		“ Early Sulphur, - - -	81
		“ Farrow's Roaring	
		“ Lion, - - -	81
		“ Houghton's Seed-	
		ling, - - -	81
		Grapes, - - -	81
		“ Isabella, - - -	82
		“ Catawba, - - -	82
		“ Diana, - - -	82
		“ Shurtleff's Seedling, -	82
		Peaches, - - -	82
		“ Coolidge's Favorite, -	83
		“ George IV, - - -	83
		“ Grosse Mignonne, - -	83
		“ Snow, - - -	83

" Crawford's Early,	84	" List of	- - 92
" " Late,	- 84	Bulbous Roots,	- - 93
Pears,	- - 84	To cultivate in open ground,	93
" Gathering of	- 84	" in Pots,	- 94
" Dwarf,	- - 85	" in Glasses,	- 94
" Madeline,	- - 85	Crocus,	- - 95
" Bloodgood,	- - 85	Crown Imperial,	- - 95
" Rostiezer,	- - 86	Dahlia,	- - 96
" Bartlett,	- - 86	" List of	- - 96
" Flemish Beauty,	- 86	Hyacinths,	- - 94
" Louise Bonne de Jersey,	86	Iris,	- - 95
" Seckel,	- - 86	Jonquils,	- - 95
" Duchesse d'Angouleme	86	Lilies,	- - 95
" Winter Nelis,	- 86	Miscellaneous Bulbs,	- 95
Pears, List of	- - 87	Narcissus, double and single,	95
Plums,	- - - 87	" Polyanthos,	- 95
" Black Warts on	- 87	Parlor Plants,	- - 99
" Early Yellow Gage,	- 87	" List of	- 100
" Green Gage,	- - 87	Roses,	- - 97
" Imperial Gage,	- 87	" Growing in pots,	- 97
" Jefferson,	- - 88	" List of	- 98
" Coe's Golden Drop,	- 88	Shrubs Ornamental	- 99
Plums, List of	- - 88	" List of	- - 99
Quinces,	- - - 88	Soil,	- - 90
Raspberries,	- - 88	Tuberous Roots,	- - 96
Strawberries,	- - 89	" List of	- - 96
" List of	- 90	Tulips,	- - 95
<i>Floral Gardener.</i>			
Annuals and Biennials,	- 91