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OF

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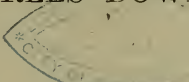
WITH SOME NEW VARIETIES:

INCLUDING

THEIR CULTURE, PROPAGATION, AND MANAGEMENT
IN THE GARDEN AND ORCHARD.


BY

CHARLES DOWNING.

14

Illustrated

WITH UPWARDS OF FOUR HUNDRED OUTLINES
OF APPLES, CHERRIES, GRAPES,
PLUMS, PEARS, &c.



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P R E F A C E .

THE present edition of the FRUITS AND FRUIT-TREES OF AMERICA has been prepared, at our request, by Mr. CHAS. DOWNING, with a view of meeting the wants and convenience of practical Fruit-growers who wish to cultivate only those varieties which have been tested and approved as very good, or best for general use, or most profitable for market. To these have been added also some new varieties, which are promising.

The larger volume, from which this is chiefly taken, has been pronounced by the Hon. MARSHALL P. WILDER "A Complete Encyclopedia of American Pomology," and as "a work of reference having no equal in this country," and "deserving a place in the library of every Pomologist in America," &c.;—for general use, however, the present volume will be found a most convenient manual even to those who possess the larger edition.

The number of those who appreciate and cultivate fine fruit, for their own use only, is rapidly increasing in all parts of the country, and to such also this volume is especially valuable as supplying, in a convenient form, the great desideratum—a most trustworthy guide in the selection of the choicest fruits of every kind.

We commend it to all who need such a work, with the utmost confidence.

THE PUBLISHERS.

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FRUITS AND FRUIT-TREES.

CHAPTER I.

THE PRODUCTION OF NEW VARIETIES OF FRUIT.

IN our survey of the culture of fruits, let us begin at the beginning. Gradual amelioration, and the skilful practice of the cultivator, have so filled our orchards and gardens with good fruits, that it is necessary now to cast a look back at the types from which these delicious products have sprung.

In the tropical zone, amid the surprising luxuriance of vegetation of that great natural hot-house, Nature offers to man, almost without care, the most refreshing, the most delicious, and the most nutritive fruits. The Plantain and Banana, excellent either raw or cooked, bearing all the year, and producing upon a rood of ground the sustenance of a family; the refreshing Guava and Sapodilla; the nutritious Bread-fruit; such are the natural fruit-trees of those glowing climates. Indolently seated under their shade, and finding a refreshing coolness both from their ever-verdant canopy of leaves, and their juicy fruits, it is not here that we must look for the patient and skilful cultivator.

But, in the temperate climates, Nature wears a harsher and sterner aspect. Plains bounded by rocky hills, visited not only by genial warmth and sunshine, but by cold winds and seasons of ice and snow; these are accompanied by sturdy forests, whose outskirts are sprinkled with crabs and wild cherries, and festooned with the clambering branches of the wild grape. These native fruits, which at first offer so little to the eye or the palate, are nevertheless the types of our garden varieties. Destined in these climates to a perpetual struggle with Nature, it is here that we find man ameliorating and transforming her.

Transplanted into a warmer aspect, stimulated by a richer soil, reared from selected seeds, carefully pruned, sheltered, and watched, by slow degrees the sour and bitter crab expands into a Golden Pippin, the wild pear loses its thorns and becomes a Bergamotte or a Beurré, the Almond is deprived of its bitterness, and the dry and flavorless Peach is at length a tempting and delicious fruit. It is thus only, in the face of obstacles, in a climate where Nature is not prodigal of perfections, and in the midst of thorns and sloes, that MAN, THE GARDENER, arises and forces Nature to yield to his art.

These improved sorts of fruit, which man everywhere causes to share his civilization, bear, almost equally with himself, the impress of an existence removed from the natural state. When reared from seeds they always show a tendency to return to a wilder form, and it seems only *chance* when a new seedling is equal to, or surpasses its parent. Removed from their natural form, these artificially created sorts are also much more liable to diseases and to decay. From these facts arises the fruit-garden, with its various processes of grafting, budding, and other means of continuing the sort; with also its sheltered aspects, warm borders, deeper soils, and all its various refinements of art and culture.

In the whole range of cares and pleasures belonging to the garden, there is nothing more truly interesting than the production of new varieties of fruit. It is not, indeed, by sowing the seeds that the lover of good fruit usually undertakes to stock his garden and orchard with fine fruit-trees. Raising new varieties is always a slow, and, as generally understood, a most uncertain mode of bringing about this result. The novice plants and carefully watches his hundred seedling pippins, to find at last, perhaps, ninety-nine worthless or indifferent apples. It appears to him a lottery, in which there are too many blanks to the prizes. He therefore wisely resorts to the more certain mode of grafting from well-known and esteemed sorts.

Notwithstanding this, every year, under the influences of garden culture, and often without our design, we find our fruit-trees reproducing themselves; and occasionally there springs up a new and delicious sort, whose merits tempt us to fresh trials after perfection.

To a man who is curious in fruit,—the pomologist,—who views with a more than common eye the crimson cheek of a peach, the delicate bloom of a plum, or understands the epithets, rich, melting, buttery, as applied to a pear, nothing in the circle of culture can give more lively and unmixed pleasure than thus to produce and to create—for it is a sort of

creation—an entirely new sort, which he believes will prove handsomer and better than anything that has gone before. And still more: as varieties which originate in a certain soil and climate are found best adapted to that locality, the production of new sorts of fruit of high merit may be looked on as a most valuable as well as interesting result.

Besides this, all the fine new fruits which of late figure so conspicuously in the catalogues of the nurseries and fruit-gardens, have not been originated at random and by chance efforts. Some of the most distinguished pomologists have devoted years to the subject of the improvement of fruit-trees by seeds, and have attained, if not certain results, at least some general laws, which greatly assist us in this process of amelioration. Let us therefore examine the subject a little more in detail.

In the wild state, every genus of trees consists of one or more *species*, or strongly marked individual sorts; as, for example, the white birch and the black birch; or, to confine ourselves more strictly to the matter in hand, the different species of cherry,—the wild or bird cherry, the sour cherry, the mazard cherry, &c. These *species, in their natural state*, exactly reproduce themselves; to use a common phrase, they “come the same” from seed. This they have done for centuries, and doubtless will do forever, so long as they exist under natural circumstances only.

On the other hand, suppose we select one of these *species* of fruit-trees and adopt it into our gardens. So long as we cultivate that individual tree, or any part of it, in the shape of sucker, graft, or bud, its nature will not be materially altered. It may, indeed, through cultivation, be stimulated into a more luxuriant growth; it will probably produce larger leaves and fruit; but we shall neither alter its fruit in texture, color, or taste. It will always be identically the same.

The process of amelioration begins with a new generation, and by sowing the seeds. Some species of tree, indeed, seem to refuse to yield their wild nature, never producing any variation by seed; but all fruit-trees, and many others, are easily *domesticated*, and more readily take the impress of culture.

If we sow a quantity of seed in garden soil of the common black mazard cherry (*Cerasus avium*), we shall find that, in the leaves and habit of growth, many of the seedlings do not entirely resemble the original species. When they come into bearing, it is probable we shall also find as great a diversity in the size, color, and flavor of the fruit. Each of these individual plants differing from the original type (the mazard)

constitutes a new *variety*; though only a few, perhaps only one, may be superior to the original species.

It is worthy of remark, that exactly in proportion as this reproduction is frequently repeated, is the change to a great variety of forms or new sorts increased. It is likely, indeed, that to gather the seeds from a wild mazard in the woods, the instances of departure from the form of the original species would be very few; while if gathered from a garden tree, itself some time cultivated, or several removes from a wild state, though still a mazard, the seedlings will show a great variety of character.

Once in the possession of a *variety* which has *moved out* of the natural into a more domesticated form, we have in our hands the best material for the improving process. The fixed original habit of the species is broken in upon, and this variety which we have created has always afterwards some tendency to make further departures from the original form. It is true that all or most of its seedlings will still retain a likeness to the parent, but a few will differ in some respects, and it is by seizing upon those which show symptoms of variation that the improver of vegetable races finds his hopes.

We have said that it is a part of the character of a species to produce the same from seed. This characteristic is retained even where the *sport* (as gardeners term it) into numberless varieties is greatest. Thus, to return to cherries: the Kentish or common pie-cherry is one species, and the small black mazard another, and although a great number of varieties of each of these species have been produced, yet there is always the likeness of the species retained. From the first we may have the large and rich Mayduke, and from the last the sweet and luscious Black-Hearts; but a glance will show us that the duke cherries retain the distinct dark foliage, and, in the fruit, something of the same flavor, shape, and color of the original species; and the heart cherries the broad leaves and lofty growth of the mazard. So too the currant and gooseberry are different species of the same genus; but though the English gooseberry-growers have raised thousands of new varieties of this fruit, and shown them as large as hens' eggs, and of every variety of form and color, yet their efforts with the gooseberry have not produced anything resembling the common currant.

Why do not varieties produce the same from seed? Why, if we plant the stone of a Green Gage plum, will it not always produce a Green Gage? This is often a puzzling question to the practical gardener, while his every-day experience forces him to assent to the fact.

We are not sure that the vegetable physiologists will undertake to answer this query fully. But in the mean time we can throw some light on the subject.

It will be remembered that our garden varieties of fruits are not natural forms. They are the artificial productions of our culture. They have always a *tendency to improve*, but they have also another and a stronger *tendency to return to a natural or wild state*. "There can be no doubt," says Dr. Lindley, "that if the arts of cultivation were abandoned for only a few years, all the annual varieties of plants in our gardens would disappear and be replaced by a few original wild forms." Between these two tendencies, therefore, the one derived from nature, and the other impressed by culture, it is easily seen how little likely is the progeny of varieties always to reappear in the same form.

Again, our American farmers, who raise a number of kinds of Indian corn, very well know that, if they wish to keep the sorts distinct, they must grow them in different fields. Without this precaution they find, on planting the seeds produced on the yellow-corn plants, that they have the next season a progeny not of yellow corn alone, but composed of every color and size, yellow, white, and black, large and small, upon the farm. Now many of the varieties of fruit-trees have a similar power of intermixing with each other while in blossom by the dust or pollen of their flowers, carried through the air by the action of bees and other causes. It will readily occur to the reader, in considering this fact, what an influence our custom of planting the different varieties of plum or of cherry together in a garden or orchard must have upon the constancy of habit in the seedlings of such fruits.

But there is still another reason for this habit, so perplexing to the novice, who, having tasted a luscious fruit, plants, watches, and rears its seedling, to find it, perhaps, wholly different in most respects. This is the influence of *grafting*. Among the great number of seedling fruits produced in the United States, there is found occasionally a variety, perhaps a plum or a peach, which will nearly always reproduce itself from seed. From some fortunate circumstances in its origin, unknown to us, this sort, in becoming improved, still retains strongly this habit of the natural or wild form, and its seeds produce the same. We can call to mind several examples of this; fine fruit-trees whose seeds have established the reputation in the neighborhood of fidelity to the sort. But when a *graft* is taken from one of these trees, and placed upon another stock, this grafted tree is found to lose its singular power of producing the same by seed, and becomes like all other worked trees. The stock exercises some, as yet, unex-

plained power in dissolving the strong natural habit of the variety, and becomes, like its fellows, subject to the laws of its artificial life.*

When we desire to raise new varieties of fruit, the common practice is to collect the seeds of the finest table fruits—those sorts whose merits are everywhere acknowledged to be the highest. In proceeding thus, we are all pretty well aware that the chances are generally a hundred to one against our obtaining any new variety of great excellence. Before we offer any advice on rearing seedlings, let us examine briefly the practice and views of two distinguished horticulturists abroad, who have paid more attention to this subject than any other persons whatever: Dr. Van Mons, of Belgium, and Thos. Andrew Knight, Esq., the late President of the Horticultural Society of London.

The Van Mons Theory.

Dr. Van Mons, Professor at Louvain, devoted the greater part of his life to the amelioration of fruits. His nurseries contained, in 1823, no less than two thousand seedlings of merit. His perseverance was indefatigable, and, experimenting mainly on Pears, he succeeded in raising an immense number of new varieties of high excellence. The Beurré Diel, De Louvain, Frederic of Wurtemberg, &c., are a few of the many well-known sorts which are the result of his unwearied labors.

The Van Mons theory may be briefly stated as follows:—

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 flesh or pulp.

There is always a tendency in our varieties of fruit-trees to return by their seeds towards a wild state.

* The doctrine here advanced has perhaps no foundation in fact, nor has there been any test made that, to our knowledge, would controvert it. Observation of many years, however, leads to the belief that the mere engrafting a variety upon another stock in no way affects its habit or capacity for reproducing itself just the same as it would if retained upon its parent root. The great vitality possessed by some varieties, their strong character, &c., prevent them, as it were, from receiving impregnation while in flower from any less vigorous sort, and hence, as a strong variety is oftener than otherwise surrounded by those of less vitality, it mainly fertilizes itself from its own blossoms and thus reproduces its leading qualities.

This tendency is most strongly shown in the seeds borne by *old* fruit-trees. And "the older the tree is of any cultivated variety of Pear," says Dr. Van Mons, "the nearer will the seedlings raised from it approach a wild state, without however ever being able to return to that state."

On the other hand, the seeds of a young fruit-tree of a good sort, being itself in the state of amelioration, have the least tendency to retrograde, and are the most likely to produce improved sorts.

Again, there is a certain limit to perfection in fruits. When this point is reached, as in the finest varieties, the next generation will more probably produce bad fruit, than if reared from seeds of an indifferent sort in the course of amelioration. While, in other words, the seeds of the oldest varieties of good fruit mostly yield inferior sorts, seeds taken from recent varieties of bad fruit, and *reproduced uninterruptedly for several generations*, will certainly produce good fruit.*

With these premises, Dr. Van Mons begins by gathering his seeds from a young seedling tree, without paying much regard to its quality, except that it must be in a *state of variation*; that is to say, a garden variety, and not a wild sort. These he sows in a seed-bed or nursery, where he leaves the seedlings until they attain sufficient size to enable him to judge of their character. He then selects those which appear the most promising, plants them a few feet distant in the nursery, and awaits their fruit. Not discouraged at finding most of them mediocre in quality, though differing from the parent, he gathers the first seeds of the most promising and sows them again. The next generation comes more rapidly into bearing than the first, and shows a greater number of promising traits. Gathering immediately, and sowing the seeds of this generation, he produces a third, then a fourth, and even a fifth generation, uninterruptedly, from the original sort. Each generation he finds to come more quickly into bearing than the previous ones (the fifth sowing of pears fruiting at three years), and to produce a greater number of valuable varieties; until in the fifth generation the seedlings are nearly all of great excellence.

Dr. Van Mons found the pear to require the longest time to attain perfection, and he carried his process with this fruit through five generations. Apples he found needed but four races, and peaches, cherries, plums, and other stone fruits were brought to perfection in three successive reproductions from the seed.

* Experience of American growers does not bear out the supposition here taken. The Seckel, one of the finest and most perfect pears, has perhaps given more valuable seedlings than any other one kind.

It will be remembered that it is a leading feature in this theory that, in order to improve the fruit, we must *subdue or enfeeble* the original coarse luxuriance of the tree. Keeping this in mind, Dr. Van Mons always gathers his fruit before fully ripe, and allows them to rot before planting the seeds, in order to refine or render less wild and harsh the next generation. In transplanting the young seedlings into quarters to bear he cuts off the tap root, and he annually shortens the leading and side branches, besides planting them only a few feet apart. All this lessens the vigor of the trees, and produces an impression upon the nature of the seeds which will be produced by their first fruit; and, in order to continue in full force the progressive variation, he allows his seedlings to bear on their own roots.*

Such is Dr. Van Mons' theory and method for obtaining new varieties of fruit. It has never obtained much favor in England, and from the length of time necessary to bring about its results, it is scarcely likely to come into very general use here. At the same time it is not to be denied that in his hands it has proved a very successful mode of obtaining new varieties.

It is also undoubtedly true that it is a mode closely founded on natural laws, and that the great bulk of our fine varieties have originated by chance.

The first colonists here, who brought with them many seeds gathered from the best old varieties of fruits, were surprised to find their seedlings producing only very inferior fruits. These seedlings had returned, by their inherent tendency, almost to a wild state. By rearing from them, however, seedlings of many repeated generations, we have arrived at a great number of the finest apples, pears, peaches, and plums. According to Dr. Van Mons, had this process been continued *uninterruptedly*, from one generation to the next, a much shorter time would have been necessary for the production of first-rate varieties.

To show how the practice of chance sowing works in the other hemisphere, it is stated by one of the most celebrated of the old writers on fruits, Duhamel of France, that he had been in the habit of planting seeds of the finest table pears for fifty years without ever having produced a good variety. These seeds were from trees of old varieties of fruit.

* "I have found this art to consist in regenerating in a direct line of descent, and as rapidly as possible, an improving variety, taking care that there be no interval between the generations. To sow, to re-sow, to sow again, to sow perpetually, in short, to do nothing but sow, is the practice to be pursued, and which cannot be departed from; and in short this is the whole secret of the art I have employed."
--Van Mons' *Arbres Fruitiers*, 1, p. 22, 223.

The American gardener will easily perceive, from what we have stated, a great advantage placed in his hands at the present time for the amelioration of fruits by this system. He will see that, as most of our American varieties of fruit are the result of repeated sowings, more or less constantly repeated, he has before him almost every day a part of the ameliorating process in progress; to which Dr. Van Mons, beginning *de novo*, was obliged to devote his whole life. Nearly all that it is necessary for him to do in attempting to raise a new variety of excellence by this simple mode, is to gather his seeds (before they are fully ripe) from a *seedling* sort of promising quality, though not yet arrived at perfection. The seedling must be quite young—must be on its own root (not grafted); and it must be a healthy tree, in order to secure a healthy generation of seedlings. Our own experience leads us to believe that he will scarcely have to go beyond one or two generations to obtain fine fruit. These remarks apply to most of our table fruits commonly cultivated.

In order to be most successful in raising new varieties by successive reproduction, let us bear in mind that we must avoid—1st, the seeds of old fruit-trees; 2d, those of grafted fruit-trees; and 3d, that we have the best grounds for good results when we gather our seeds from a young seedling tree, which is itself rather a *perfecting* than a *perfect* fruit.

It is not to be denied that, in the face of Dr. Van Mons' theory, in this country new varieties of rare excellence are sometimes obtained at once by planting the seeds of old grafted varieties; thus the Lawrence's Favorite and the Columbia plums were raised from seeds of the Green Gage, one of the oldest European varieties.

Such are the means of originating new fruits by the Belgian mode. Let us now examine another more direct, more interesting, and more scientific process—cross-breeding; a mode almost universally pursued now by skilful cultivators in producing new and finer varieties of plants; and which Mr. Knight, the most distinguished horticulturist of the age, so successfully practised on fruit-trees.

Cross-breeding.

In the blossoms of fruit-trees, and of most other plants, the seed is the offspring of the *stamens* and *pistil*, which may be considered the male and female parents, growing in the same flower. Cross-breeding is, then, nothing more than removing out of the blossom of a fruit-tree the stamens, or male parents, and bringing those of another and different variety of fruit, and dusting the pistil or female parents with them,—a

process sufficiently simple, but which has the most marked effect on the seeds produced. It is only within about fifty years that cross-breeding has been practised; but Lord Bacon, whose great mind seems to have had glimpses into every dark corner of human knowledge, finely foreshadowed it. "The compounding or mixture of plants is not found out, which, if it were, is more at command than that of living creatures; wherefore, it were one of the most notable discoveries touching plants to find it out, for so you may have great varieties of fruits and flowers yet unknown."

In Figure 1 is shown the blossom of the Cherry. The central portion, *a*, connected directly with the young fruit, is the *pistil*. The numerous surrounding threads, *b*, are the *stamens*. The summit of the stamen is called the *anther*, and secretes the powdery substance called *pollen*. The *pistil* has at its base the embryo fruit, and at its summit the *stigma*. The use of the stamens is to fertilize the young seed contained at the

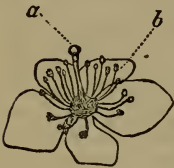


FIG. 1.

base of the pistil; and if we fertilize the pistil of one variety of fruit by the pollen of another we shall obtain a new variety, partaking intermediately of the qualities of both parents. Thus, among fruits owing their origin directly to cross-breeding, Coe's Golden Drop Plum was raised from the Green Gage, impregnated by the Magnum Bonum or Egg Plum; and the Elton Cherry from the Bigarrieu, impregnated by the White Heart.* Mr. Knight was of opinion that the habits of the new variety would always be found to partake most strongly of the constitution and habits of the female parent. Subsequent experience does not fully confirm this, and it would appear that the parent whose character is most *permanent*, impresses its form most forcibly on the offspring.

The process of obtaining cross-breed seeds of fruit-trees is very easily performed. It is only necessary, when the tree blooms which we intend to be the mother of the improved race, to select a blossom or blossoms growing upon it not yet fully expanded. With a pair of scissors we cut out and remove all the anthers. The next day, or as soon as the blossom is quite expanded, we collect with a camel's-hair brush

* The seedlings sometimes most resemble one parent, sometimes the other; but more frequently share the qualities of both. Mr. Cox describes an Apple, a cross between a Newtown Pippin and a Russet, the fruit of which resembled externally at one end the Russet and at the other the Pippin, and the flavor at either end corresponded exactly with the character of the exterior.

the pollen from a fully blown flower of the variety we intend for the male parent, applying the pollen and leaving it upon the stigma or point of the pistil. If your trees are much exposed to those busy little meddlers, the bees, it is well to cover the blossoms with a loose bag of thin gauze, or they will perhaps get beforehand with you in your experiments in cross-breeding. Watch the blossoms closely as they open, and bear in mind that the two essential points in the operation are : 1st, to extract the anthers carefully, before they have matured sufficiently to fertilize the pistil; and 2d, to apply the pollen when it is in perfection (dry and powdery), and while the stigma is moist. A very little practice will enable the amateur to judge of these points.

There are certain limits to the power of crossing plants. What is strictly called a *cross-bred* plant or fruit is a sub-variety raised between two varieties of the same species. There are, however, certain species, *nearly allied*, which are capable of fertilizing each other. The offspring in this case is called a *hybrid*, or mule, and does not always produce perfect seeds. "This power of hybridizing," says Dr. Lindley, "appears to be much more common in plants than in animals. It is, however, in general only between nearly allied species that this intercourse can take place; those which are widely different in structure and constitution not being capable of any artificial union. Thus the different species of Strawberry, of the gourd or melon family, intermix with the greatest facility, there being a great accordance between them in general structure and constitution. But no one has ever succeeded in compelling the pear to fertilize the apple, nor the gooseberry the currant. And as species that are very dissimilar appear to have some natural impediment which prevents their reciprocal fertilization, so does this obstacle, of whatever nature it may be, present an insuperable bar to the intercourse of the different genera. All the stories that are current as to the intermixture of oranges and pomegranates, of roses and black currants, and the like, may therefore be set down to pure invention."

In practice this power of improving varieties by crossing is very largely resorted to by gardeners at the present day. Not only in fruit-trees, but in ornamental trees, shrubs, and plants, and especially in florists' flowers, it has been carried to a great extent. The great number of new and beautiful Roses, Azaleas, Camellias, Fuchsias, Dahlias, and other flowering plants so splendid in color and perfect in form, owe their origin to careful cross-breeding.

In the amelioration of fruits it is by far the most certain and satisfactory process yet discovered. Its results are more

speedily obtained, and correspond much more closely to our aim, than those procured by successive reproduction.

In order to obtain a new variety of a certain character, it is only necessary to select two parents of well known habits, and which are both varieties of the same or nearly allied species, and cross them for a new and intermediate variety. Thus, if we have a very early but insipid and worthless sort of pear, and desire to raise from it a variety both early and of fine flavor, we should fertilize some of its pistils with the pollen of the best flavored variety of a little later maturity. Among the seedlings produced we should look for early pears of good quality, and at least for one or two varieties nearly or quite as early as the female parent, and as delicious as the male. If we have a very small but highly flavored pear, and wish for a larger pear with a somewhat similar flavor, we must fertilize the first with the pollen of a large and handsome sort. If we desire to impart the quality of lateness to a very choice plum, we must look out for a late variety as the mother, and cross it with our best flavored sort. If we desire to impart hardness to a tender fruit, we must undertake a cross between it and a much harder sort; if we seek greater beauty of color or vigor of growth, we must insure these qualities by selecting one parent having such quality strongly marked.

As the seeds produced by cross fertilization are not found to produce precisely the same varieties, though they will nearly all partake of the mixed character of the parents, it follows that we shall be most successful in obtaining precisely all we hope for in the new race in proportion to the number of our cross-bred seedlings; some of which may be inferior, as well as some superior to the parents. It is always well, therefore, to cross several flowers at once on the same plant, when a single blossom does not produce a number of seeds.

We should observe here, that those who devote their time to raising new varieties must bear in mind that it is not always by the first fruits of a seedling that it should be judged. Some of the finest varieties require a considerable age before their best qualities develop themselves, as it is only when the tree has arrived at some degree of maturity that its secretions, either for flower or fruit, are perfectly elaborated. The first fruit of the Black Eagle cherry, a fine cross-bred raised by Mr. Knight, was pronounced worthless when first exhibited to the London Horticultural Society; its quality now proves that the tree was not then of sufficient age to produce its fruit in perfection.

CHAPTER II.

REMARKS ON THE DURATION OF VARIETIES OF FRUIT-TREES.

It was for a long time the popular notion, that when a good variety of fruit was once originated from seed, it might be continued by grafting and budding forever,—or, at least, as some old parchment deeds pithily gave tenure of land—“as long as grass grows and water runs.”

About 1830, however, Thomas Andrew Knight, the distinguished President of the Horticultural Society of London, published an essay in its transactions tending entirely to overthrow this opinion, and to establish the doctrine that all varieties are of very limited duration.

The theory advanced by Mr. Knight is as follows: All the constitutional vigor or properties possessed by any variety of fruit are shared at the same time by all the plants that can be made from the buds of that variety, whether by grafting, budding, or other modes of propagating. In similar terms, all the plants or trees of any particular kind of pear or apple being only parts of one original tree, itself of limited duration, it follows, as the parent tree dies, all the others must soon after die also. “No trees, of any variety,” to use his own words, “can be made to produce blossom or fruit till the original tree of that variety has attained the age of puberty; * and, under ordinary modes of propagation, by grafts and buds, all become subject, at no very distant period, to the debilities and diseases of old age.”

It is remarkable that such a theory as this should have been offered by Mr. Knight, to whose careful investigations the science of modern horticulture is so deeply indebted—as, however common it is to see the apparent local decline of certain sorts of fruit, yet it is a familiar fact that many sorts have also been continued a far greater length of time than the life of any one parent tree. Still, the doctrine has found supporters abroad, and at least one hearty advocate in this country.

Mr. Kenrick, in his new American Orchardist, adopts this doctrine, and in speaking of Pears says: “I shall, in the fol-

* This part of the doctrine has of late been most distinctly refuted, and any one may repeat the experiment. Seedling fruit-trees, it is well known, are usually several years before they produce fruit. But if a graft is inserted on a bearing tree, and, after it makes one season's fair growth, the grafted shoot is bent directly down and tied there, with its point to the stock below, it will the next season—the sap being checked—produce flower-buds and begin to bear, long before the parent tree,

lowing pages, designate some of these in the class of old varieties, once the finest of all old pears, whose duration we had hoped, but in vain, to perpetuate. For, except in certain sections of the city, and some very few and highly favored situations in the country around, they (the old sorts) have become either so uncertain in their bearing—so barren—so unproductive—or so miserably blighted—so mortally diseased—that they are no longer to be trusted; they are no longer what they once were with us, and what many of them are still described to be by most foreign writers.”

Mr. Kenrick accordingly arranges in separate classes the *Old* and *New* Pears; and while he praises the latter, he can hardly find epithets sufficiently severe to bestow on the former poor unfortunates. Of the Doyenné he says: “This most eminent of all Pears has now become an outcast, intolerable even to sight;” of the Brown Beurré, “once the best of all Pears—now become an outcast.” The St. Germain “has long since become an abandoned variety,” &c., &c.

Many persons have, therefore, supposing that these delicious varieties had really and quietly given up the ghost, made no more inquiries after them, and only ordered from the nurseries the new varieties. And this not always, as they have confessed to us, without some lingering feeling of regret at thus abandoning old and tried friends for new-comers—which, it must be added, not unfrequently failed to equal the good qualities of their predecessors.

But, while this doctrine of Knight’s has found ready supporters, we are bound to add that it has also met with sturdy opposition. At the head of the opposite party we may rank the most distinguished vegetable physiologist of the age, Professor De Candolle, of Geneva. Varieties, says De Candolle, will endure and remain permanent so long as man chooses to take care of them, as is evident from the continued existence to this day of sorts, the most ancient of those which have been described in books. By negligence, or through successive bad seasons, they may become diseased, but careful culture will restore them, and retain them, to all appearance, forever.

Our own opinion coincides, in the main, with that of De Candolle. While we admit that, in the common mode of propagation, varieties are constantly liable to decay or become comparatively worthless, we believe that this is owing not to natural limits set upon the duration of a variety; that it does not depend on the longevity of the parent tree; but upon the care with which the sort is propagated, and the nature of the climate or soil where the tree is grown.

It is a well-established fact, that a seedling tree, if allowed

to grow on its own root, is always much longer lived, and often more vigorous than the same variety when grafted upon another stock; and experience has also proved that in proportion to the likeness or close relation between the stock and the graft is the long life of the grafted tree. Thus a variety of pear grafted on a healthy pear seedling lasts almost as long as upon its own roots. Upon a thorn stock it does not endure so long. Upon a mountain ash or quince stock still less; until the average life of the pear-tree when grafted on the quince is reduced to one-third of its ordinary duration on the pear stock. This is well known to every practical gardener, and it arises from the want of affinity between the quince stock and the pear graft. The latter is rendered dwarf in its habits, bears very early, and perishes equally soon.

Next to this, the apparent decay of a variety is often caused by grafting upon unhealthy stocks. For although grafts of very vigorous habit have frequently the power of renovating in some measure, or for a time, the health of the stock, yet the tree, when it arrives at a bearing state, will, sooner or later, suffer from the diseased or feeble nature of the stock.

Carelessness in selecting scions for engrafting is another fertile source of degeneracy in varieties. Every good cultivator is aware that if grafts are cut from the ends of old bearing branches, exhausted by overbearing, the same feebleness of habit will, in a great degree, be shared by the young graft. And, on the contrary, if the thrifty straight shoots that are thrown out by the upright extremities, or the strong limb-sprouts, are selected for grafting, they insure vigorous growth and healthy habit in the graft.

Finally, unfavorable soil and climate are powerful agents in deteriorating varieties of fruit-tree. Certain sorts that have originated in a cold climate are often short-lived and unproductive when taken to warmer ones, and the reverse. This arises from a want of constitutional fitness for a climate different from its natural one.

Most varieties of apples originating in the climate of the Middle States, if their period of maturity be mid-winter, when taken to the extreme northern limits lose their value, because of the season not being long enough for their juices to become fully matured. Again, if they are taken to the Southern States their period of maturity is hastened by a greater amount of continued heat, and the quality impaired.

Varieties, however, that originate at the North, and have their maturity naturally in the warm summer months, are improved by their removal South. But this only proves that

it is impossible to pass certain natural limits of fitness for climate, and not that the existence of the variety itself is in any way affected by these local failures.

Any or all of these causes are sufficient to explain the apparent decay of some varieties of fruit, and especially of pears, over which some cultivators, of late, have uttered so many lamentations, scarcely less pathetic than those of Jeremiah.

Having stated the theories on this subject, and given an outline of our explanation, let us glance for a moment at the actual state of the so-called decayed varieties, and see whether they are really either extinct, or on the verge of annihilation.

Mr. Knight's own observation in England led him to consider the English Golden Pippin and the Nonpareil, their two most celebrated varieties of apple, as the strongest examples of varieties just gone to decay, or, in fact, the natural life of which had virtually expired twenty years before. A few years longer he thought it might linger on in the warmer parts of England, as he supposed varieties to fall most speedily into decay in the north, or in a cold climate.

Lindley, however, his contemporary, and second to no one in practical knowledge of the subject, writing of the Golden Pippin,* very frankly states his dissent, as follows: "This apple is considered by some of our modern writers on Pomology to be in a state of decay, its fruit of inferior quality, and its existence near its termination. I cannot for a moment agree with such an opinion, because we have facts annually before our eyes completely at variance with such an assertion. In Covent Garden, and indeed in any other large market in the southern or midland counties of England, will be found specimens of fruit as perfect and as fine as have been figured or described by any writer, either in this or any other country whatever. Instead of the trees being in a state of 'rapid decay,' they may be found of unusually large size, perfectly healthy, and their crops abundant; the fruit perfect in form, beautiful in color, and excellent in quality." And the like remarks are made of the Nonpareil.

Certain French writers, about this time, gladly seized Knight's theory as an explanation of the miserable state into which several fine old sorts of pears had fallen about Paris, owing to bad culture and propagation. They sealed the death-warrant, in like manner, of the Brown Beurré, Doyenné, Chaumontel, and many others, and consigned them to oblivion in terms which Mr. Kenrick has already abundantly quoted.

* *Guide to the Orchard*, by George Lindley.

Notwithstanding this, and that ten or fifteen years have since elapsed, it is worthy of notice that the repudiated apples and pears still hold their place among all the best cultivators in both England and France. And the "extinct varieties" seem yet to bid defiance to theorists and bad cultivators.

But half the ground is not yet covered. How does the theory work in America? is the most natural inquiry. In this country we have soil varying from the poorest sand to the richest alluvial, climate varying from frigid to almost torrid—a range wide enough to include all fruit-trees between the apple and the orange.

We answer that the facts here, judged in the whole, are decidedly against the theory of the extinction of varieties. While here, as abroad, unfavorable soil, climate, or culture have produced their natural results of a feeble and diseased state of certain sorts of fruit, these are only the exceptions to the general vigor and health of the finest old sorts in the country at large.

Recent experiments have proved that it is not sufficient to bring healthy trees of the old varieties from the interior of the seaboard to insure, in the latter localities, fair and excellent crops. But, on the other hand, the complete renovation of blighted trees by the plentiful use of wood-ashes, bone-dust, lime, and blacksmith cinders, along with common manure, shows us distinctly that it is not the *age* of these varieties of fruit which causes their apparent decline, but a want of that food absolutely necessary to the production of healthy fruit.*

But there is another interesting point in this investigation. Do the newly originated sorts really maintain in the unfavorable districts the appearance of perfect health? Are the new pears uniformly healthy where the old ones are always feeble?

* Since the writing of this, in 1845, there have occurred seasons when nearly every variety of fruit perfected, and there have also been seasons when the old as well as new varieties have failed, and that too in almost all soils and in many varied sections of the country. To our knowledge, no continued experiments in the practice of applying special manures as remedial agents have been tried, but, from the fact that old as well as new sorts have frequently failed in our rich Western soils and inland climates, we have come to regard the cause of cracking and other diseases of the pear more to proceed from climatic or atmospheric influence than from any special condition or quality of the soil. It is now generally conceded that our seasons are more changeable and the extremes greater than they were half a century back, and to this influence do we attribute in a great measure the deterioration noted in occasional seasons and localities.

Undoubtedly this question must be answered in the negative. Some of the latest Flemish pears already exhibit symptoms of decay or bad health in these districts. Even Mr. Kenrick, with all his enthusiasm for the new sorts, is obliged to make the following admission respecting the Beurré Diel pear, the most vigorous and hardy here of all: "I regret to add, that near Boston this noble fruit is liable to crack badly." We predict that many of the Flemish pears originated by Van Mons will become feeble, and the fruit liable to crack, in the neighborhood of Boston, in a much less time than did the old varieties.

And this leads us to remark here, that the hardiness of any variety depends greatly upon the circumstances of its origin. When a new variety springs up accidentally from a healthy seed in a semi-natural manner, like the Seckel, the Dix, and other native sorts, it will usually prove the hardiest. It is, as it were, an effort of nature to produce a new individual out of the materials in a progressive state which garden culture has afforded. Cross-bred seedlings—one parent being of a hardy nature, and both healthy; such as Knight's own seedlings, the Monarch and Dunmore pears—are next in hardiness. Lastly, we rank varieties reared by Van Mons' method—that of continually repeated reproductions. This, as Van Mons distinctly states, is an *enfeebling* process—without any compensating element of vigor. Hence it follows, as a matter of course, that seedlings of the fifth or sixth generation, as are some of his varieties, must in their origin be of feeble habit. Van Mons himself was fully aware of this, and therefore resorted to "grafting by copulation,"—in fact, root-grafting,—well knowing that on common stocks these new varieties would, in light soils, soon become feeble and decayed. It is needless for us to add that hence we consider the Belgian mode of producing new varieties greatly inferior to the English one, since it gives us varieties often impaired in health in their very origin.

If any further proof of this is desired, we think it is easily found by comparing the robust vigor and longevity of many native pear-trees to be found in the United States—some of them 80 or 100 years old, and still producing large crops of fruit—with the delicate trees of several new varieties now in our gardens from Europe. These varieties are delicate not only with respect to their constitutional vigor, but they are also more susceptible to injury from the severity of our winter's cold and summer's sun.

There are great advantages, undoubtedly, for soils naturally unfavorable, and for small gardens, in grafting the pear upon quince stocks; yet, as it diminishes the vigor of the

tree, it is not impossible that continued propagation from dwarf trees may somewhat lessen the vital powers and the longevity of a given variety.

The decay of varieties of the Apricot, or Peach, much shorter lived trees by nature, we seldom or never hear of. Varieties of both are now in cultivation, and in the most perfect vigor, of 200 years' duration. This, probably, is owing to the more natural treatment these trees receive generally. Varieties of the vine are said never to degenerate, and this is perhaps owing to their having very rarely been propagated by grafting.*

We are not without remedy for varieties that have partially decayed in a certain district. If the trees have once been productive of excellent fruit, and are still in a sound condition, though enfeebled, a thorough renewal of their powers will again restore them to health. To effect this, the soil about the roots should be replaced by new, enriched by manure or peat-compost, and mixed with the mineral substances named in the preceding page. The bark of the trunk and large branches should be well scraped, and, as well as all the limbs, thoroughly washed with soft soap; the head should be moderately pruned; and finally, the tree should be suffered to bear no fruit for the two following seasons. After this it will generally bear excellent fruit for several years again.

In making plantations of fine old varieties, in districts where the stock has become feeble, something may be gained by procuring grafts or trees from more favorable localities, where the fruit is still as fair as ever, and care should be exercised in selecting only the healthiest grafts or trees. Nurserymen in unfavorable districts should endeavor to propagate only from trees of healthy character; and if those in their own vicinity are diseased, they should spare no pains to bring into their nurseries and propagate only such as they feel confident are healthy and sound. On them, next to the soil, depends very considerably the vigor or debility of the stock of any given variety in the country around them.

* We do not deny that in any given soil there is a period at which a variety of tree or plant exhibits most vigor, and after having grown there awhile it ceases to have its former luxuriance. The same is true of wheat or potatoes, and accordingly farmers are in the habit of "changing their seed." The nutriment for a given variety is after a time exhausted from the soil, and unless it is again supplied the tree must decline. In light soils this speedily happens. In strong clayey or rocky soils, the natural decomposition of which affords a continual store of lime, potash, &c., the necessary supply of inorganic food is maintained, and the variety continues healthy and productive.

In Mr. Knight's original essay on the Decay of Varieties, he clearly stated a circumstance that most strongly proves what we have here endeavored to show, viz. : that the local decline of a variety is mainly owing to neglect, and to grafting on bad stock. We allude to the fact repeatedly verified, that healthy young shoots, taken from the *roots* of an old variety in apparent decline, produce trees which are vigorous and healthy. "The decay," says he, "of the powers of life in the roots of seedling trees is exceedingly slow comparatively with that in the branches. Scions (or shoots) obtained from the roots of pear-trees two hundred years old afford grafts which grow with great vigor, and which are often covered with thorns like young seedling stocks; whilst other grafts, taken at the same time from the extremities of the branches of such trees, present a totally different character, and a very slow and unhealthy growth. I do not conceive that such shoots possess all the powers of a young seedling, but they certainly possess no inconsiderable portion of such powers."

This is nothing more, in fact, than going back to the roots—the portion of the tree least exhausted—for the renewal of the health of a variety when the branches of the tree have been exhausted by overbearing, &c. It is a simple and easy mode of increasing the vigor of a sort of delicate habit, to take scions from young root-suckers for grafting anew. This can of course only be done with trees that grow on their own roots, or have not been grafted.

CHAPTER III.

PROPAGATION OF VARIETIES—GRAFTING—BUDDING—CUTTINGS, LAYERS, AND SUCKERS.

AFTER having obtained a new and choice kind of fruit, which in our hands is perhaps only a single tree, and which, as we have already shown, seldom produces the same from seed, the next inquiry is how to continue this variety in existence, and how to increase and extend it, so that other gardens and countries may possess it as well as ourselves. This leads us to the subject of the propagation of fruit-trees, or the continuation of varieties by grafting and budding.

Grafting and budding are the means in most common use for propagating fruit-trees. They are, in fact, nothing more than inserting upon one tree the shoot or bud of another, in such a manner that the two may unite and form a new compound.

No person having any interest in a garden should be unable to perform these operations, as they are capable of effecting transformations and improvements in all trees and shrubs, no less valuable than they are beautiful and interesting.

Grafting is a very ancient invention, having been well known and practised by the Greeks and Romans. The latter, indeed, describe a great variety of modes, quite as ingenious as any of the fanciful variations now used by gardeners. The French, who are most expert in grafting, practise occasionally more than fifty modes, and within a few years have succeeded perfectly in grafting annual plants, such as the tomato, the dahlia, and the like.

The uses of grafting and budding, as applied to fruit-trees, may be briefly stated as follows:—

1. The rapid increase of propagation of valuable sorts of fruit not easily raised by seeds or cuttings, as is the case with nearly all varieties.

2. To renew or alter the heads of trees partially or fully grown, producing in two or three years, by heading-in and grafting, a new head, bearing the finest fruit, on a formerly worthless tree.

3. To render certain foreign and delicate sorts of fruit more hardy, by grafting them on robust stocks of the same species native to the country, as the foreign grape on the native; and to produce fine fruit in climates or situations not naturally favorable, by grafting on another species more hardy, as in a cool climate and damp strong soil by working the Peach on the Plum.

4. To render *dwarf* certain kinds of fruit, by grafting them on suitable stocks of slower growth, as in the case of the Pear on the Quince, the Apple on the Paradise stock, &c.

5. By grafting several kinds on the same tree, to be able to have a succession of fruit, from early to late, in a small garden.

6. To hasten the bearing of seedling varieties of fruit, or of such as are a long time in producing fruit, by grafting them on the branches of full-grown or mature bearing trees. Thus a seedling pear, which would not produce fruit on its own root in a dozen years, will generally begin to bear the third or fourth year if grafted on the extremity of the bearing branches of a mature tree.

The proper time for grafting fruit-trees is in the spring, as soon as the sap is in motion, which commences earliest with the Cherry and Plum, and ends with the Pear and Apple. The precise time of course varies with the season and the climate, but is generally comprised from February to the middle of April. The grape-vine, however, which suffers by

bleeding, is not usually grafted until it is in leaf. The most favorable weather for grafting is a mild atmosphere with occasional showers.

The scions are generally selected previously, as it is found, in nearly all kinds of grafting by scions, that success is more complete when the stock upon which they are placed is a little more advanced—the sap in a more active state than in the scion. To secure this, we usually cut the scions very early in the spring, during the winter, or even in the autumn, burying their lower ends in the ground in a shaded place, or keeping them in fine soil in the cellar till wanted for use. In cutting scions we choose straight thrifty shoots of the last year's growth, which may remain entire until we commence grafting, when they may be cut into scions of three or four buds each. In selecting scions from old trees it is always advisable to choose the most vigorous of the last year's shoots growing near the centre or top of the tree. Scions from sickly and unhealthy branches should be rejected, as they are apt to carry with them this feeble and sickly state. Scions taken from the lower bearing branches will produce fruit soonest, but they will not afford trees of so handsome a shape or so vigorous a growth as those taken from the thrifty upright shoots near the centre or top of the tree. Nurserymen generally take their scions from young grafted trees in the nursery-rows, these being usually in better condition than those taken from old trees, not always in a healthy state.

The stock for grafting upon is generally a tree which has been standing, at least for a year previously, on the spot where it is grafted, as success is much less certain on newly moved trees.

In the case, however, of very small trees or stocks, which are grafted below the surface of the ground, as is frequently the practice with the Apple in American nurseries, the stocks are grafted in the house in winter, or early spring, put away carefully in a damp cellar, and planted out in the spring; but this method is only successful when the root is small, and when the top of the stock is taken off, and the whole root is devoted to supplying the graft with nourishment.

The theory of grafting is based on the power of union between the young tissues or organizable matter of growing wood. When the parts are placed nicely in contact, the ascending sap of the stock passes into and sustains life in the scion; the buds of the latter, excited by this supply of sap and the warmth of the season, begin to elaborate and send down woody matter, which, passing through the newly granulated substance of the parts in contact, unites the graft firmly with the stock. "If," says De Candolle, "the descending

sap has only an incomplete analogy with the wants of the stock, the latter does not thrive, though the organic union may have taken place; and if the analogy between the albumen of stock and scion is wanting, the organic union does not operate, the scion cannot absorb the sap of the stock, and the graft fails."

Grafting therefore is confined within certain limits. A scion from one tree will not, from the want of affinity, succeed on every other tree, but only upon those to which it is allied. We are, in short, only successful in budding or grafting where there is a close relationship and similarity of structure between the stock and the scion. This is the case with *varieties* of the same species which take most freely, as the different sorts of Apple; next with the different *species* of a genus, as the Apple and the Pear, which grow, but in which the union is less complete and permanent; and lastly with the *genera* of the same natural family, as the Cherry on the Plum, which die after a season or two. The ancients boasted of Vines and Apples grafted on Poplars and Elms; but repeated experiments, by the most skilful cultivators of modern times have clearly proved that although we may, once in a thousand trials, succeed in effecting these ill-assorted unions, yet the graft invariably dies after a few months' growth.*

The range in grafting or budding, for fruit-trees in ordinary culture, is as the following: Apples, on apple or crab seedlings for orchards (standards), or on Paradise apple stocks, for dwarfs; Pears, on pear seedlings for common culture, or Quince stocks for dwarfs, and sometimes on the thorn for clayey soils; Peaches, on their own seedlings for standards or for orchards; on Almonds, for hot and dry climates; on Plums in cold or moist soils, or to secure them against the worm; Apricots, on Plum stocks, to render them hardy and productive, or on their own seedlings to render them long-lived. Nectarines are usually worked on the Peach or Plum; and Cherries on mazard seedlings, or on the perfumed Cherry, and on the morello for forming half dwarfs.

* The classical horticulturist will not fail to recall to mind Pliny's account of the tree in the garden of Lucullus, grafted in such a manner as to bear Olives, Almonds, Apples, Pears, Plums, Figs, and Grapes. There is little doubt, however, that this was some ingenious deception, as to this day the Italian gardeners pretend to sell Jasmynes, Honeysuckles, &c., growing together and grafted on Oranges and Pomegranates. This is ingeniously managed, for a short-lived effect, by introducing the stems of these smaller plants through a hole bored up the centre of the stock of the trees—their roots being in the same soil, and their stems, which after a little growth fill up these holes, appearing as if really grafted.



FIG. 2.
Splice-Grafting.

The manual operation of grafting is performed in a very easy and complete manner when the size of the stock, or branch to be grafted, corresponds precisely with that of the scion. In this case, which is called *splice-grafting*, it is only necessary with a smooth sloping cut, upwards on the stock *a*, and downwards on the scion *b*, Fig. 2, to make the two fit precisely, so that the inner bark of one corresponds exactly with that of the other, to bind them firmly together with a strand of matting, and to cover the wound entirely with grafting clay or wax, and the whole is finished. In this, which is one of the neatest modes, the whole forms a complete union nearly at once, leaving scarcely any wounded part to heal over. But, as it is only rarely that the stock is of so small a size as to fit thus perfectly to the scion, the operation must be varied somewhat, and requires more skill. The method in most common use to cover all difficulties is called tongue grafting.

We may remark here that grafting the shoots of Peaches, Nectarines, and Apicots, owing to their large pith, is more difficult than that of other fruit-trees. A variation of splice-grafting, Fig. 3, has been invented to obviate this. This consists in selecting the scion *a*, so as to leave at its lower end about a fourth of an inch of two years old wood, which is much firmer. The bottom of the slope on the stock is cut with a dovetail notch, *b*, into which the scion is fitted.

Tongue-grafting (or whip-grafting), Fig. 4, resembles very nearly splice-grafting, except, instead of the simple splice, a tongue is made to hold the two together more firmly. In order to understand this method, let us explain it a little in detail.

Having chosen your stock of the proper size, cut it off at the point where, *a*, it appears best to fix the graft. If the stock is quite small, it may be within three or four inches of the ground. Then, with a *very sharp knife*, make a smooth cut upwards, *b*, about two inches in length. Next make a slit from the top of this cut about one-fourth of the way downwards, *c*, taking out a thin tongue of wood. Cut the scion four or five inches long, so as to have three buds; then shape the lower end with a single smooth sloping cut, *e*, about the same length as that on the stock, and make the tongue upward, *f*, to fit in the downward slit of the stock. Now apply the scion accurately to the stock, making the *inner bark of the scion fit exactly the inner bark of the stock, at least on one*

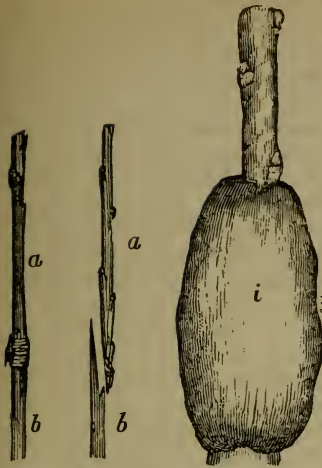


FIG. 3.
Splice-Grafting the Peach.

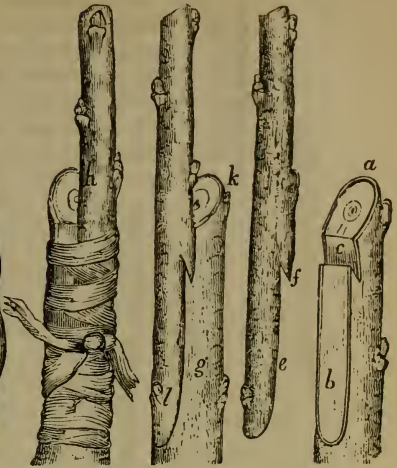


FIG. 4.
Tongue-Grafting, progressive stages.

side, *g*. Without changing their position, tie them together carefully with a piece of bass matting or tape, *h*. And finally cover the wound with well-prepared grafting clay or wax, *i*. This ball of clay should more than cover the union, by an inch above and below, and should be about an inch thick. If grafting-wax is used the covering need not be above half an inch thick.

American Whip Tongue-Grafting—the mode generally practised by American nurserymen—is similar to the foregoing method, but much more rapid in its execution. The scion and stock are first cut, as represented in Fig. 2, for splice-grafting, and then the knife is passed upward in the scion, *a*, Fig. 5, and downward in the stock, *b*, forming a sliced tongue in appearance, and when joined together, *c*, serves to hold the scion in place. The tying for out-door

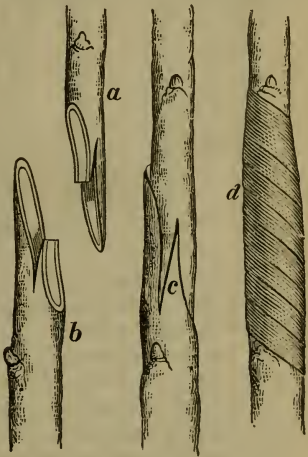


FIG. 5.
American Whip Tongue-Grafting in its different stages.
(*a*.) Scion cut for insertion. (*b*.) Stock prepared to receive the scion. (*c*.) Stock and scion united. (*d*.) The same tied up.

grafting is then done by a narrow strip of cloth, say half an inch to an inch wide, one side of which is saturated or coated with grafting-wax, and as each turn round the graft and stock is made, the adhesive power of the wax holds the strip firmly and renders the work complete (*d*).

Whip-grafting large stocks is frequently practised, and is a very successful manner of operating upon quite large trees

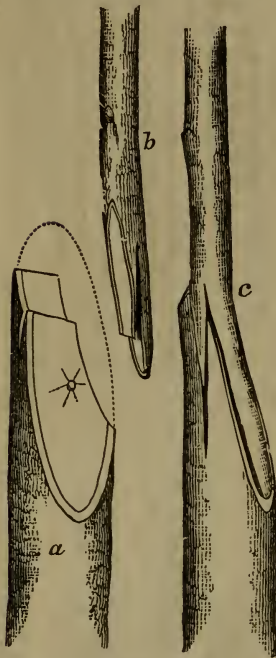


FIG. 6.

Whip-Grafting large stock.

- (a). Stock prepared to receive the scion. (b). Scion cut for insertion. (c). Stock and scion united.

in the nursery row. The sloping cut upon the stock, and the forming of the graft, is the same as in the ordinary American whip tongue-grafting, except that one side of the stock, opposite that on which the graft is placed, should be cut away upon the same slope as the grafted side, as indicated by the dotted lines in Fig. 6. As soon as the graft has taken, and commenced expanding its leaves and sending out shoots, it will be necessary to rub or cut off all shoots between the ball and the ground, if it is a small stock, or all those which would rob it of a principal share of nourishment, if upon a large tree. If the scion or stock is very weak, it is usual to leave one or two other buds for a time, to assist in drawing up the sap. When the graft has made a growth of two or three inches the ball of clay may be removed, and if the graft is securely united, the bandage may be loosened and re-tied, or it may be cut partially away at the back of the graft, for the purpose of permitting the expansion of growth, that otherwise would soon be checked, and cause the graft to break off. In the use of the wax-cloth strips, passing the knife at the back and cutting the tie is all that is requisite. Early in August the angle left at the top of the stock should be cut off smoothly, in order to allow the bark of the stock and the scion to heal neatly over the whole wound.

Though it is little attended to in common practice, the

amateur will be glad to know that the success of a graft is always greatly insured by choosing the parts so that a bud is left near the top of the stock, *k*, Fig. 4, and another near the bottom of the scion, *l*. These buds attract the rising sap to the portions where they are placed, form woody matter, and greatly facilitate the union of the parts near them; the upper part of the stock and the lower part of the scion being the portion soonest liable to perish from a want of nourishment.*

Cleft-grafting is a very easy though rather clumsy mode, and is in more common use than any other in the United States. It is chiefly practised on large stocks, or trees the branches of which have been headed back, and are too large for tongue-grafting. The head of the stock is first cut over horizontally with the saw and smoothed with a knife. A cleft about two inches deep is then made in the stock with a hammer and splitting-knife. The scion is now prepared by sloping its lower end in the form of a wedge about an inch and a half long, leaving it a little thicker on the outer edge. Opening the cleft with the splitting-knife, or a small chisel for that purpose, push the scion carefully down to its place, fitting its inner bark on one side to that of one side of the stock. When the stock is large, it is usual to insert two scions, Fig. 7. On withdrawing the chisel, the cleft closes firmly on the scions, when the graft is tied and clayed in the usual manner.

Apple-stocks, in many American nurseries, are grafted in great quantities in this mode—the stocks being previously taken out of the ground, headed down very near the root, cleft-grafted with a single scion, sloping off with an oblique cut the side of the stock opposite that where the graft is placed, and then planted at once in the rows, so as to allow only a single bud of the scion to appear above ground. It is

* In grafting large quantities of young trees when stocks are scarce, it is not an unusual practice in some nurseries to tongue or whip-graft upon small *pieces of roots* of the proper sort of tree, planting the same in the earth as soon as grafted. Indeed Dr. Van Mons considers this the most complete of all modes, with regard to the proper condition of the grafted sort: 1st, because the smallest quantity of the stock is used; and 2d, because the lower part of the scion being thus placed in the ground, after a time it throws out fibres from that portion, and so at last is actually growing on its own roots.

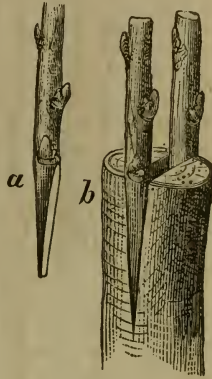


FIG. 7.

Cleft-Grafting.

(a). Scion ready for insertion. (b). Stock with two scions inserted.

not usual with many either to tie or clay the grafts in this case, as the wound is placed below the surface; but when this plan is adopted, the grafts must be set and the trees planted at once, drawing the well-pulverized soil with great care around the graft. Another way of grafting apple-stocks, common in Western nurseries, consists in tongue-grafting on seedling stocks of very small size, cut back almost to the root.

Large quantities of trees are also propagated by using pieces of roots each three to five inches long, thus forming from the root of one stock sufficient root for two or more grafts. This practice, although quite common, is of very doubtful value, and by some prominent horticulturists considered as tending to debilitate and reduce vitality—the seat of vital life in fact resting in the natural crown of the seedling, and that once destroyed cannot be renewed. It is therefore apparent that but one healthy permanent tree can ever be grown from a seedling stock. This is performed in winter, by the fireside, the grafts carefully tied, and the roots placed in the cellar, in sand, till spring, when they are planted, the top of the graft just above ground.

Grafting the Vine is attended with success in the cleft or whip manner, if treated as follows:—Cut your scions during the winter or early spring, keeping them partially buried in a cool damp cellar till wanted. As soon as the first leaves of the old vine or stock have grown to about two inches in diameter, and all danger of bleeding is past, cut it off smoothly below the surface of the ground, and split the stock and insert one or two scions in the usual manner, binding the cleft well together if it does not close firmly. Draw the soil carefully over the whole, leaving one bud of the scion at the surface. If the root of the stock is a strong native grape, the graft will frequently grow ten or fifteen feet during the first season, and yield a fair crop the second year.

Saddle-grafting, Fig. 8, consists in cutting the top of the stock in the form of a wedge, splitting the scion and thinning away each half to a tongue shape, placing it astride the stock, and fitting the two, at least on one side, as in tongue-grafting. This mode offers the largest surface for the junction of the scion and stock, and the union is very perfect. Mr. Knight, who practised it chiefly upon Cherry-trees, states that he has rarely ever seen a graft fail, even when the wood has been so succulent and immature as to preclude every hope of success by any other mode.

A variety of this mode, for stocks larger than the scions, is practised with much success in England after the usual season is past, and when the bark of the stock separates readily. “The scion, which must be smaller than the stock, is split up

between two or three inches from its lower end, so as to have one side stronger than the other. This strong side is then

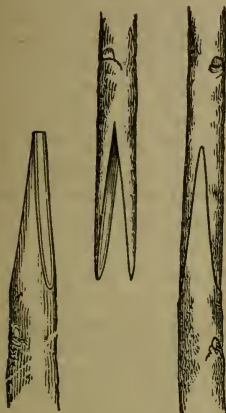


FIG. 8.
Saddle-Grafting.

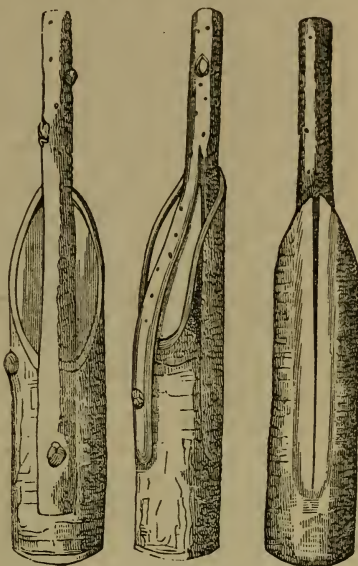


FIG. 9.
Saddle-Grafting Large Stocks.

properly prepared and introduced between the bark and the wood, while the thinner division is fitted to the opposite side of the stock." The graft, thus placed, receives a large supply of the sustaining fluid from the stock, and the union is rapid; while the wound on the stock is speedily covered by a new layer of bark from that part of the scion which stands astride it.

Side-grafting is a mode described by Elliott, and considered very successful for grafting the Magnolia, and other trees difficult of propagation; and also for the greater safety of grafts received or delayed late in spring. It is performed by cutting a notch or slit of about one inch long in the side of the stock, paring the outer portion, splitting the lower end of the graft and paring the inner portion, then inserting it, so as to form a union of the bark and wood, leaving meanwhile the top of the stock to carry on the circulation of the sap until the graft becomes united, when the stock is to be cut away.

Grafting-clay is prepared by mixing one-third cow-dung, free from straw, and two-thirds clay, or clayey loam, with a little hair, like that used in plaster, to prevent its cracking.

Beat and temper it for two or three days, until it is thoroughly incorporated. When used, it should be of such a consistency as to be easily put on and shaped with the hands.

Grafting-wax. The common grafting-wax of the French gardeners is of two kinds. The first is melted and laid on with a brush in a fluid state, and is made of half a pound of pitch, half a pound of beeswax, and a pound of cow-dung, boiled together. The second, which is spread while warm on strips of coarse cotton or strong paper, and wrapped directly about the graft, answering at once to tie and to protect it, is composed of equal parts of beeswax, turpentine, and resin. The grafting-wax most commonly used here is made of tallow, beeswax, and resin, in equal parts, or, as many prefer, with a little more tallow to render it pliable. It may be applied directly around the graft, or it may be spread with a brush, when warm, upon cloth or paper, and afterward the cloth or paper cut into suitable strips for wrapping, as indicated in the direction for grafting.

Grafting-wax is a much neater and more perfect protection than grafting-clay.

Budding.

Budding (inoculating, of the old authors) differs from common grafting not the least in its nature or effects. Every bud is a distinct individual, capable of becoming a tree under favorable circumstances. In grafting we use a branch composed of several buds, with a considerable quantity of bark and wood; while in budding we employ but a single bud, with a very small quantity of the adjoining bark and wood.

The advantages of budding fruit-trees, compared with grafting, are so considerable that in this country it is ten times as much practised. These are, first, the great rapidity with which it is performed; a skilful budder, with a clever boy following him to *tie* the buds, being able to work from a thousand to twelve hundred young nursery stocks in a day. 2d. The more convenient season at which it is performed in all countries where a short spring crowds garden labors within a small space. 3d. Being able to perform the operation without injuring the stock in case of failure, which is always more or less the case in stocks headed down for grafting. 4th. The opportunity which it affords, when performed in good season, of repeating the trial on the same stock. To these we may add that budding is universally preferred here for all stone-fruits, such as Peaches, Apricots, and the like, as these require extra skill in grafting, but are budded with great ease.

The proper season for budding fruit-trees in this country is from the first of July to the middle of September; the

different trees coming into season as follows:—Plums, Cherries, Apricots on Plums, Apricots, Pears, Apples, Quinces, Nectarines, and Peaches. Trees of considerable size will require budding earlier than young seedling stocks. But the



FIG. 10.

Budding-Knives.



FIG. 11.



FIG. 12.

A Stick of Buds.

operation is always, and only, performed *when the bark of the stock parts or separates freely from the wood*, and when the buds of the current year's growth are somewhat plump, and the young wood is growing firm. Young stocks in the nursery, if thrifty, are usually planted out in the rows in the spring, and budded the same summer or autumn.

Before commencing you should provide yourself with a budding-knife, Fig. 10 (about four and a half inches long), having a round blade at one end, and an ivory handle, terminating in a thin rounded edge called the *haft*, at the other.

Fig. 11 represents another style or form of budding-knife, by many considered preferable. The cutting portion extends about one-third around the end of the blade, and about two-thirds of its length, leaving the lower part dull. The rounded end of the blade to this knife obviates the necessity of reversing it for opening the back when setting a bud, and thus facilitates work.

In choosing your buds, select thrifty shoots that have

nearly done growing, and prepare what is called a *stick of buds*, Fig. 12, by cutting off a few of the imperfect buds at the lower, and such as may be yet too soft at the upper ends, leaving only smooth, well-developed single buds; double buds being fruit-buds.

Great care is essential in selecting buds, as often even on sticks cut from young trees, and especially from bearing trees, many of the single buds will be found developed into fruit-buds, and are therefore unfitted for use. The form of a wood-bud is always long rather than round, and, in the case of peaches, there are sometimes triple buds, the centre one of which is always a wood-bud.

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, and from a quarter to half an inch in width, moistened 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.

Shield or T-budding is the most approved mode in all countries. A new variety of this method, now generally practised in this country, we shall describe first, as being the simplest and the best mode for fruit-trees.

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.



FIG. 13.
American shield-budding.



FIG. 14.



FIG. 15.

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. From the stick of buds, your

knife being very sharp, cut a thin, smooth slice of wood and bark containing a bud, Fig. 13, *a*. With the rounded end 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, so that it may completely fit *b*. A bandage of the soft matting is now tied over the whole wound, Fig. 14, commencing at the bottom, and tying most firmly above, leaving the bud and the footstalk of the leaf only exposed to the light air.

Common shield-budding, Fig. 15, practised in all gardens in Europe, differs from the foregoing only in one respect—the removal of the slice of wood contained in the bud. This is taken out with the point of the knife, holding the bud or shield by the leaf stalk with one hand, inserting the knife under the wood at the lower extremity, and then raising and drawing out the wood by bending it upwards and downwards, with a slight jerk, until it is loosened from the bark; always taking care that a small portion of the wood remains behind to fill up the hollow at the base or heart of the bud. The bud thus prepared is inserted precisely as before described.

The American variety of shield-budding is found greatly preferable to the European mode, at least for this climate. Many sorts of fruit-trees, especially Plums and Cherries, nearly mature their growth, and require to be budded in the hottest part of our summer. In the old method, the bud having only a shield of bark with but a particle of wood in the heart of the bud, is much more liable to be destroyed by heat, or dryness, than when the slice of wood is left behind in the American way. Taking out this wood is always an operation requiring some dexterity and practice, as few buds grow when their eye or heart-wood is damaged. The American method therefore requires less skill, can be done earlier in the season with younger wood, is performed in much less time, and is uniformly more successful. It has been very fairly tested upon hundreds of thousands of fruit-trees in our gardens for the last twenty years, and although practised English budders coming here at first are greatly prejudiced against it, as being in direct opposition to one of the most essential features in the old mode, yet a fair trial has never failed to convince them of the superiority of the new.

After-treatment. In two weeks after the operation you will be able to see whether the bud has taken, by its plumpness and freshness. If it has failed, you may, if the bark still parts readily, make another trial; a clever budder will not

lose more than 6 or 8 per cent. If it has succeeded, after a fortnight more has elapsed the bandage must be loosened, or, if the stock has swelled much, it should be removed altogether, by cutting on the back side opposite the bud. When budding has been performed very late, we have occasionally found it an advantage to leave the bandage on during the winter.



FIG. 16.

Treatment of the growing bud.

As soon as the buds commence swelling in the ensuing spring, head down the stock, with a sloping back cut, within two or three inches of the bud. The bud will then start vigorously, and all "robbers," as the shoots of the stock near to and below the bud are termed, must be taken off from time to time. To secure the upright growth of the bud, and to prevent its being broken by the winds, it is tied, when a few inches long, to that portion of the stock left for the purpose, Fig. 16, *a*. During the month of August, if the shoot is strong, this support may be removed, and the superfluous portion of the stock smoothly cut away in the dotted line *b*, when it will be rapidly covered with young bark.

We have found a great advantage, when budding trees which do not take readily, in adopting Mr. Knight's excellent mode of tying with two distinct bandages, one covering that part below the bud, and the other the portion above it. In this case the lower bandage is removed as soon as the bud has taken, and the upper left for two or three weeks longer. This, by arresting the upward sap, completes the union of the upper portion of bud (which in plums frequently dies while the lower part is united) and secures success.

Reversed shield-budding, which is nothing more than making the cross cut at the bottom instead of the top of the upright incision in the bark, and inserting the bud from below, is a good deal practised in the south of Europe, but we have not found that it possesses any superior merit for fruit-trees.

An ingenious application of budding, worthy the attention of amateur cultivators, consists in using a blossom-bud instead of a wood-bud; when, if the operation is carefully done, blossoms and fruit will be produced at once. This is most successful with the Pear, though we have often succeeded also with the Peach. Blossom-buds are readily distinguished, as soon as well formed, by their roundness, and in some trees by their growing in pairs; while wood-buds grow singly, and are more or less pointed. We have seen a curious fruit-grower borrow in this way, in September, from a neighbor ten miles

distant, a single blossom-bud of a rare new pear, and produce from it a fair and beautiful fruit the next summer. The bud, in such cases, should be inserted on a favorable limb of a bearing tree.

Annular budding, Fig. 17, we have found a valuable mode for trees with hard wood and thick bark, or those which, like the walnut, have buds so large as to render it difficult to bud them in the common way. A ring of bark, when the sap is flowing freely, is taken from the stock, *a*, and a ring of corresponding size containing a bud, *b*, from the scion. If the latter should be too large a piece must be taken from it to make it fit; or should all the scions be too small, the ring upon the stock may extend only three-fourths the way round, to suit the ring of the bud.

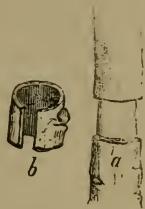


FIG. 17.
Annular Budding.

An application of this mode, of great value, occasionally occurs in this country. In snowy winters, fruit-trees in orchards are sometimes girdled at the ground by field-mice, and a growth of twenty years is thus destroyed in a single day, should the girdle extend quite round the tree. To save such a tree it is only necessary, as soon as the sap rises vigorously in the spring, to apply a new ring of bark, in the annular mode, taken from a branch of proper size; tying it firmly, and drawing up the earth so as to cover the wound completely. When the tree is too large to apply an entire ring, separate pieces, carefully fitted, will answer; it is well to reduce the top somewhat by pruning, that it may not make too large a demand on the root for a supply of food.

Another practice, and perhaps one more easily applicable, is the taking several large grafts or strong twigs of last year's growth, and after splitting them in halves, pare each end down to a thin edge, and insert them underneath the bark of the tree just above and below the wound. Tie around firmly with strong bass matting, and then draw up the earth to cover the whole and keep out the air.

Budding may be done in the spring as well as at the latter end of summer, and is frequently so performed upon roses and other ornamental shrubs by French gardeners, but is only in occasional use upon fruit-trees.

Influence of the stock and graft.

The well-known fact that we may have a hundred different varieties of pear on the same tree, each of which produces its fruit of the proper form, color, and quality; and that we

may have, at least for a time, several distinct though nearly related species upon one stock, as the Peach, Apricot, Nectarine, and Plum, prove very conclusively the power of every grafted or budded branch, however small, in preserving its identity. To explain this, it is only necessary to recall to mind that the ascending sap, which is furnished by the root or stock, is nearly a simple fluid; that the leaves digest and modify this sap, forming a proper juice, which re-descends in the inner bark; and that thus every bud and leaf upon a branch maintains its individuality by preparing its own proper nourishment, or organizing matter, out of that general aliment the sap. Indeed, according to De Candolle,* each separate cellule of the inner bark has this power of preparing its food according to its nature; in proof of which a striking experiment has been tried by grafting rings of bark, of different allied species, one above another, on the same tree, without allowing any buds to grow upon them. On cutting down and examining this tree, it was found that under each ring of bark was deposited the proper wood of its species, thus clearly proving the power of the bark in preserving its identity, even without leaves.

On the other hand, though the stock increases in size by the woody matter received in the descending sap from the graft, yet as this descends through the inner bark of the stock, it is elaborated by, and receives its character from the latter; so that, after a tree has been grafted fifty years, a shoot which springs out from its trunk below the place of union will always be found to bear the original wild fruit, and not to have been in the least affected by the graft.

But whilst grafting never effects any alteration in the identity of the variety or species of fruit, still it is not to be denied that the stock does exert certain influences over the habits of the graft. The most important of these are dwarfing, inducing fruitfulness, and adapting the graft to the soil or climate.

Thus every one knows that the slower habit of growth in the Quince stock is shared by the Pear grafted upon it, which becomes a dwarf; as does also the Apple when worked on the Paradise stock, and, in some degree, the Peach on the Plum. The want of entire similarity of structure between the stock and graft confines the growth of the latter, and changes it, in the case of the Pear, from a lofty tree to a shrub of eight or ten feet in height. The effect of this difference of structure is very apparent, when the Peach is grafted on the Plum, in the greater size of the trunk above,

* *Physiologie Végétale.*

as compared with that below the graft; a fact which seems to arise from the obstruction which the descending sap of the graft finds in its course through the bark of the stock.

To account for the earlier and greater fruitfulness caused by grafting on a stock of slower growth, Mr. Knight, in one of his able papers, offers the following excellent remarks:—

“The disposition in young trees to produce and nourish blossom buds and fruit is increased by this apparent obstruction of the descending sap; and the fruit, I think, ripens somewhat earlier than upon other young trees of the same age which grow upon stocks of their own species. But the growth and vigor of the tree, and its power to nourish a succession of heavy crops, are diminished, apparently, by the stagnation in the branches and stock of a portion of that sap which, in a tree growing on its own stem or upon a stock of its own species, would descend to nourish and promote the extension of its own roots. The practice, therefore, of grafting the Pear on the Quince, and the Peach on the Plum, when extensive growth and durability are wanted, is wrong; but it is eligible wherever it is wished to diminish the vigor and growth of the tree, and its durability is not so important.”

In adapting the graft to the soil the stock has a marked influence. Thus in dry chalky soils, where the Peach on its own roots will scarcely grow, it is found to thrive admirably budded on the Almond. We have already mentioned that in clay soils too heavy and moist for the Peach, it succeeds very well if worked on the Plum. M. Floss, a Prussian gardener, succeeded in growing fine pears on sandy soils, where it was nearly impossible to raise them before, by grafting them on the Mountain Ash, a nearly related tree, which thrives on the driest and lightest soil.

A variety of fruit which is found rather tender for a certain climate, or a particular neighborhood, is frequently acclimatized by grafting it on a native stock of very hardy habits. Thus near the sea-coast, where the finer plums thrive badly, we have seen them greatly improved by being worked on the beech-plum, a native stock adapted to the spot; and the foreign grape is more luxuriant when grafted on our native stocks.

A slight effect is sometimes produced by the stock on the quality of the fruit. A few sorts of pear are superior in flavor, but many are also inferior, when grafted on the Quince, while they are more gritty on the thorn. The Green Gage, a Plum of great delicacy of flavor, varies considerably upon different stocks; and Apples raised on the crab, and pears on the Mountain Ash, are said to keep longer than when grown on their own roots.

In addition to the foregoing, a diseased stock should always be avoided, as it will communicate disease slowly to the graft, unless the latter is a variety of sufficient vigor to renew the health of the stock, which is but seldom the case.

The cultivator will gather from these remarks that, in a favorable climate and soil, if we desire the greatest growth, duration, and development in any fruit (and this applies to orchards generally), we should choose a stock of a closely similar nature to the graft—an apple seedling for an apple; a pear seedling for a pear. If we desire dwarf trees that come into bearing very young, and take little space in a garden, we employ for a stock an allied species of slower growth. If our soil or climate is unfavorable, we use a stock which is adapted to the soil, or which will, by its hardier roots, endure the cold.

The influence of the graft on the stock seems scarcely to extend beyond the power of communicating disease. A graft taken from a tree enfeebled by disease will recover with difficulty, even if grafted on healthy stocks for a dozen times in repeated succession. And when the disease is an inherent or hereditary one, it will certainly communicate it to the stock. We have seen the *yellows*, from a diseased peach-tree, propagated through hundreds of individuals by budding, and the stock and graft both perish together from its effects. Hence the importance, to nurserymen especially, of securing healthy grafts, and working only upon healthy stocks.

Propagation by Cuttings.

Propagating by cuttings, as applied to fruit-trees, consists in causing a shoot of the previous season's wood to grow, by detaching it from the parent tree at a suitable season, and planting it in the ground under favorable circumstances.

In this case, instead of uniting itself by woody matter to another tree, as does the scion in grafting, the descending woody matter becomes roots at the lower end, and the cutting of which is then a new and entire plant. Every bud being a distinct individual, capable of forming a new plant, has indeed theoretically the power, if separated from the parent stem, of throwing out roots and maintaining a separate existence; and some plants, as the grape-vine, are frequently propagated by single buds planted in the soil. But in practice it is found necessary, with almost all trees and plants, to retain a considerable portion of the *stem* with the bud, to supply it with food until it has formed roots to draw nourishment from the soil.

All fruit-trees may be propagated by cuttings, with proper

care and attention, but only a few grow with sufficient facility in this way to render their propagation by cuttings a common mode. These are the Gooseberry, the Currant, the Vine, the Quince, the Fig, and the Mulberry.

Cuttings of the Currant, Gooseberry, and the hardy sorts of Vine will root readily, in a soil not too dry, in the open garden. Currants and Gooseberries are generally taken off in the fall or winter, prepared for planting, and two-thirds of their lower ends buried in the ground till the commencement of spring, when they are planted out, either where they are to remain or in nursery rows. They will succeed nearly as well if taken off in the spring, but, owing to the period at which they commence growing, this must be attended to *very early*, if deferred till that season.

A successful practice is to prepare the cuttings of Gooseberries and Currants early in the autumn, and to plant them at once in the position where they are to grow the succeeding summer. In planting, set the cuttings into the ground so deeply that but one bud will be left at or near the surface, and then, as soon as the frosts of winter come, cover the whole ground with a light mulch of coarse straw manure, or other litter three or four inches deep.

In order to raise plants of the Gooseberry and Currant, with straight clean stems, which shall not throw up suckers, it is only necessary, before planting the cutting, to cut out every eye or bud to be placed below the surface of the ground, Fig. 18. The cutting should be about a foot long, eight inches of which may be inserted in the ground. To insure greater success in raising the finer sorts of Gooseberry, or other shrubs, it is customary to plant the cuttings on the shaded side of a wall or fence, in deep rich loam, rather damp than dry. Cuttings of the vine are generally prepared when trimming the old plants in autumn or winter; they may then be buried with their lower ends in the ground, or kept in earth in the cellar till spring.

Grape cuttings are also made as soon as it will answer to prune the vines in the autumn; and, being planted at once in the ground, covered as above noted for Gooseberries and Currants, are found to grow successfully.

Scarce sorts of grapes, which it is desirable to multiply extensively, are frequently propagated by joints: that is, by buds having about two inches of wood attached to each—every bud in this way forming a plant.



FIG. 18.
Gooseberry
cutting pre-
pared and
planted.

When this mode is adopted, it is usual to plant the joints about half an inch deep, in light soil, in a common hot-bed prepared for the purpose, or each joint is planted in a pot by itself. In the first way a great number of plants may be grown in a small space.

Formerly more certain success in propagating the vine by joints was considered gained by halving the joint before planting, as shown in Fig. 19 ; but, recently, operators have practised the simple manner of



FIG. 19.

A vine joint prepared and planted.

tised the simple manner of preparing the cuttings with about two inches of wood below, and half an inch above the bud, and then planting in frames or propagating-houses, by simply placing the eye or cutting in a perpendicular position, the bed just level with, or nearly covered in a bed of clean, sharp, building or lake sand. A gentle bottom heat is to be maintained steadily, at the same time keeping the air in the house or frame quite cool until the lower end of the cutting or bud has commenced to form roots, when the air of the surface or volume of the house may be increased in warmth to stimulate growth of vine.

In the method of growing from single eyes, or two-eye cuttings, in out-door practice, it is considered best to prepare the cuttings during winter, and pack them in clean damp—not wet—sand, in a cool, dark cellar, where they will callus ; and then, just as soon in the spring as the ground can be worked, plant the cuttings out, selecting, as far as possible, a sharp sandy loam for the location, covering the bed half an inch deep with the soil, and then two to three inches deep with mulch of sawdust, tan bark, &c.

In preparing cuttings of what are termed hard-wood varieties, such as Delaware, Norton's Virginia, &c., it is customary with some propagators to scrape off the outer bark from the lower end of the cutting, and to soften it by soaking in water from ten to twenty hours before placing them in the bed or frame.

The large English black mulberry is propagated by cuttings, as follows: About the last of October take cuttings from the thrifty shoots of a bearing tree, cut out all the buds except two or three at the top, and pare off the bottom of the cutting just below a bud. Lay in the cuttings in a sheltered border, burying them so that only the two buds at the top are exposed, and covering them with some loose straw or litter. In the spring make a small hot-bed with very sandy soil, in which to plant the cuttings on taking them out of the

ground, or place each one in a small pot in any hot-bed ready at hand, and in a few weeks they will be found to have made roots freely.

As a general rule, cuttings succeed best when they are taken off just between the young and the previous year's wood; or, in the case of young side shoots, when they are cut off close to the branch preserving the *collar* of the shoot. The lower end should be cut smoothly across just below a bud, the soil should in all cases be pressed firmly about the lower end of the cutting, and it should always be planted before the buds commence swelling, that the wound may in some measure heal before growth and the absorption of fluid commences.

Propagation by Layers and Suckers.

A layer may be considered as a cutting not entirely separated from the plant.

Layering is a mode of propagation resorted to in increasing some fruit-tree stocks, as the Paradise stock, the Muscle Plum, and some kinds which do not grow so well from the seed. Certain varieties of native grape, as the Norton's Virginia, which do not root readily by cuttings, are also raised in this way, and it may be applied to any sort of fruit-tree which it is desirable to continue on its own root without grafting.

Fruit-trees are generally layered in the spring, and the layers may be taken off well-rooted plants in the autumn. But they may also be layered with success early in July.

In making layers the ground around the mother plant should be made light and mellow by digging. Being provided with some hooked pegs to fasten down the layers, bend down



FIG. 20.
Layering.

a branch, so that the end may recline upon the ground. Open a little trench three or four inches deep to receive the young wood to be layered; make a cut or tongue, Fig. 20, *a*, half way through the under or upper side of the shoot, pegging down the branch with the hooked peg, *b*, to keep it in its place; press the earth slightly round the tongue, and, in filling in the soil, raise nearly upright the end of the layer, *c*, which remains above the surface of the ground.

The descending sap, filled with organizable matter, is arrested by this tongue, accumulates there, and the emission of roots speedily takes place. Ringing, wounding, or twisting the limb answers the same purpose less perfectly, and indeed many trees root readily from the mere position of the branches as layers, and the moisture of the soil.

A tree or plant which is kept for raising layers is called a *stool*, and is headed down, both to facilitate the rooting of the layers and to afford an abundance of shoots near the earth. Shoots of some of the fruit-tree stocks in the English nurseries are pegged down to the surface before growth commences in the spring, covered about an inch deep with soil, and at the end of autumn afford hundreds of plants; almost every bud making a separate root.

Suckers are shoots sent up from the root, or from portions of the stem below the surface of the soil, which are easily separated from the parent plant.

Suckers of fruit-trees are frequently used as stocks for budding or grafting upon; but they are greatly inferior to seedlings for this purpose, as they are always more liable to produce suckers, and they have not the thrifty, vigorous habit, or the same power of forming as good roots as seedlings. Besides this, should the tree from which they are taken be diseased, they will be likely to carry the malady with them.

Propagating by suckers is an easy and desirable way when we wish to continue a seedling fruit of value on its own root, and some of our common fruits appear to be more healthy and permanent when growing in that way. It is also a mode for increasing the Raspberry; as is also that of runners, which is a kind of sucker above ground, for the Strawberry.

Propagation by Pieces of Roots.

Many varieties of trees, and nearly all varieties of Blackberries, Raspberries, Gooseberries, Currants, &c., can be readily propagated by small pieces of roots. Cut the root into pieces of about two inches in length, any time in autumn or winter, and pack them in moist sand, storing where they

will be free from frost. In spring prepare a frame with a gentle bottom heat and plant them, covering about an inch deep, in a sandy loam; as soon as they have well started they may be transplanted out into the open field. Some propagators keep them in the winter packages until the spring is well advanced and the ground becomes somewhat warmed, when they plant at once in the open ground, setting the upper end of the piece of root just level with the ground, and then covering the whole surface with about three inches deep of some light mulching material.

CHAPTER IV.

PRUNING.

1. *Pruning to promote Growth or modify the Form of Fruit-trees.*

IN this country almost all fruit-trees are grown as *standards*. In this way they develop their natural forms, attain the largest size, and produce the greatest quantity of fruit with the least possible care. Our bright and powerful sun, reaching every part of the tree, renders the minute systems of pruning and training, which occupy so large a portion of the English works on the subject, of little or no moment to the cultivator here. Pruning is therefore commonly resorted to only for the purpose of increasing the vigor of feeble trees, or to regulate and improve the form of healthy and luxuriant trees.

Pruning has the power of increasing the vigor of a tree in two ways. If we assume that a certain amount of nourishment is supplied by the roots to all the branches and buds of a tree, by cutting off one-half of the branches at the proper season we direct the whole supply of nourishment to the remaining portion, which will consequently grow with nearly double their former luxuriance. Again, when a tree becomes stunted or enfeebled in its growth, the thinness of its inner bark, with its consequent small sap-vessels (which it must be remembered are the principal channel for the passage of the ascending supply of food), renders the upward and downward circulation tardy, and the growth is small. By heading back or pruning judiciously, all the force of the nourishing fluid is thrown into a smaller number of buds, which make new and luxuriant shoots, larger sap-vessels, and which afford a ready passage to the fluids, and the tree with these renewed energies will continue in vigor for a long time.

This treatment is especially valuable in the case of small trees of feeble or stunted growth, which are frequently cut back to a single bud, and a new shoot or shoots full of vigor, gives a healthy habit to the tree. In the nurseries this practice of heading down unthrifty trees is frequently pursued, and small orchard trees which have become enfeebled may be treated in the same manner, cutting back the head as far as the place where it is wished that new shoots should spring out. Older trees should be headed back more sparingly, unless they are greatly enfeebled, and their roots should at the same time be assisted by manure.

A judicious pruning, to modify the form of our standard trees, is nearly all that is required in ordinary practice. *Every fruit-tree, grown in the open orchard or garden as a common standard, should be allowed to take its natural form, the whole efforts of the pruner going no further than to take out all weak and crowded branches*; those which are filling uselessly the interior of the tree, where their leaves cannot be duly exposed to the light and sun, or those which interfere with the growth of others. All pruning of large branches in healthy trees should be avoided, by examining them every season and taking out superfluous shoots while small. Mr. Coxe, the best American author on fruit-trees, remarks very truly: "When orchard trees are pruned, they are apt to throw out numerous (superfluous) suckers from the boughs in the following summer; these should be rubbed off when they first appear, or they may easily be broken off while young and brittle—cutting is apt to increase their number."

Where pruning is not required to renovate the vigor of an enfeebled tree, or to regulate its shape,—in other words, in the case of a healthy tree which we wish to retain in a state of the greatest luxuriance, health, and vigor,—it may be considered worse than useless. Bearing in mind that growth is always corresponding to the action of the leaves and branches, if these are in due proportion and in perfect health, the knife will always be found rather detrimental to luxuriance and constitutional vigor than beneficial.*

* Ignorant cultivators frequently weaken the energies of young trees, and cause them to grow up with lean and slender stems, by injudiciously trimming off the young side shoots and leaves in the growing season. By taking off these shoots the stem is deprived of all the leaves which would attract and elaborate the sap, thus preparing nourishment for the growth of the stem; and the trunk of the tree does not increase in size half so fast as when the side branches are allowed to remain for a time, pruning them away gradually. It is better, in the case of these young trees, to *stop* the side branches, when of moderate length, by pinching out the terminal bud.

The best season for pruning to promote growth, theoretically, is in autumn, soon after the fall of the leaf. Next to this, winter pruning, performed in mild weather, is best, and in orchards this is the season usually most convenient.* In all parts of the country where the winters are not very severe (and always in the Southern or Western States) the roots are collecting a certain stock of nourishment during the whole autumn and winter. When a tree is pruned in autumn or winter this whole supply goes to the remaining branches, while in the case of spring pruning it is partly lost. North of the 43d degree of latitude, however, the winters are so severe that winter pruning should be deferred till the last of February.

We should especially avoid pruning at that period in spring when the buds are swelling, and the sap is in full flow, as the loss of sap by bleeding is very injurious to most trees, and in some brings on a serious and incurable canker in the limbs.

In pruning large limbs, some composition should always be at hand to cover the wound. This will not only prevent its cracking by the cold in winter-pruning, but will keep out the air, and maintain the exposed wood in a sound state until it is covered with a new layer of bark. Many compositions have been in fashion abroad for this purpose, which under our summer sun and winter frosts are nearly worthless, as they generally crack and fall off in a single year. The following is a cheap and admirable application, which we recommend to all cultivators of fruit-trees.

Composition for wounds made in pruning. Take a quart of alcohol and dissolve in it as much gum-shellac as will make a liquid of the consistence of paint. Apply this to the wound with a common painter's brush; always paring the wound smoothly first with the knife. The liquid becomes perfectly hard, adheres closely, excludes the air perfectly, and is affected by no change of weather; while at the same time its thinness offers no resistance to the lip of new bark that gradually closes over the wound. If the composition is kept in a well-corked bottle, sufficiently wide-mouthed to admit the brush, it will always be ready for use and suited to the want of the moment.

To prevent mice or rabbits from girdling trees. Great injury is done to young orchards in some districts by the meadow mouse. This little animal always works *under cover*,

* Experience of many years convinces us that, whatever theory may suggest, the *best* time to prune in order to promote growth, and to have the wound healed perfectly, is *very early* in spring, or as soon as the severity of winter has passed.

and therefore does its mischief in winter when the snow lies deeply upon the ground. A common and effectual mode of deterring it is that of treading down the snow firmly about the stem directly after every fall of snow. But this is a very troublesome affair.

The following mixture will be found to be an effectual prevention. Take one spadeful of hot slaked lime, one do. of clean cow-dung, half do. of soot, one handful of flowers of sulphur: mix the whole together with the addition of sufficient water to bring it to the consistency of thick paint. At the approach of winter paint the trunks of the trees sufficiently high to be beyond the reach of these vermin. Experience has proved that it does no injury to the tree. A dry day should be chosen for its application.

English nurserymen are in the habit of protecting nurseries of *small trees* from the attacks of *rabbits*, simply by distributing through the squares of the nursery coarse matches made by dipping bunches of rags, or bits of tow, in melted sulphur, and fastening these in split stakes a couple of feet high. The latter are stuck into the ground, among the trees, at from 12 to 20 feet apart, and are said completely to answer the purpose.

Wrapping the body of the tree with coarse hardware paper, letting the lower end of the paper go below the soil at the crown of the tree, will effectually prevent the attacks of rabbits.

Wash for the trunks and branches of fruit-trees. The best wash for the stems and branches of fruit-trees is made by dissolving two pounds of *potash* in two gallons of water. This is applied with a brush at any season, but perhaps with most effect in the spring. One, or at most two applications will rid the stem of trees of the bark-louse, and render it smooth and glossy. It is far more efficacious than whitewash, as a preservative against the attacks of insects, while it promotes the growth of the tree, and adds to the natural lively color of the bark.

The *wash of soft soap* is also a very good one for many purposes. Though not equal for general purposes to the potash wash, it is better for old trunks with thick and rigid bark, as a portion of it remains upon the surface of the bark for some time, and with the action of every rain is dissolved, and thus penetrates into all the crevices where insects may be lodged, destroying them, and softening the bark itself.

2. *Pruning to induce Fruitfulness.*

There are advantages and disadvantages attending all seasons of pruning, but our own experience has led us to believe that,

practically, a fortnight before midsummer is by far the best season on the whole for pruning in the Northern and Middle States. Wounds made at this season heal over freely and rapidly; it is the most favorable time to judge of the shape and balance of the head, and to see at a glance which branches require removal; and all the stock of organizable matter in the tree is directed to the branches that remain.

When a young fruit-tree is too luxuriant, employing all its energies in making vigorous shoots, but forming few or no blossom buds, and producing no fruit, we have it in our power by different modes of pruning to lessen this over-luxuriance, and force it to expand its energies in fruit-bearing. A successful mode of doing this is by pruning the roots—a proceeding recently brought into very successful practice by European gardeners.

Root-pruning has the effect of at once cutting off a considerable supply of the nourishment formerly afforded by the roots of a tree. The leaves, losing part of their usual food, are neither able to grow as rapidly as before, nor to use all the nutritious matter already in the branches; the branches therefore become more stunted in their growth, the organizable matter accumulates, and fruit-buds are directly formed. The energies of the tree are no longer carried off in growth, and the returning sap is employed in producing fruit-buds for the next year.

Root-pruning should be performed in autumn or winter, and it usually consists in laying bare the roots and cutting off smoothly at a distance of a few feet from the trunk (in proportion to the size of the tree) the principal roots. Mr. Rivers, an English nurseryman of celebrity, who has practised this mode with great success, digs a trench early in November, eighteen inches deep, round and under his trees to be root-pruned, cutting off the roots with a sharp spade. By following this practice every year he not only throws his trees into early bearing, but forces Apples, Pears, and the like, grafted on their own roots, to become prolific dwarfs, growing only six feet apart, trained in a conical form, full of fruit branches, and producing abundantly. Those dwarf trees, thus annually root-pruned, he supplies abundantly with old composted manure at the ends of the roots, thus keeping up their health and vigor. The plan is an admirable one for small gardens, or for amateurs who wish to grow a great many sorts in a small surface. Mr. Rivers, in a pamphlet on this subject, enumerates the following among the advantages of *systematic root-pruning*:—

“1. The facility of thinning (owing to the small size of the trees), and, in some varieties, of setting the blos-

soms of shy-bearing sorts, and of thinning and gathering the fruit.

"2. It will make the gardener independent of the natural soil of his garden, as a few barrowfuls of rich mould will support a tree for a lengthened period, thus placing bad soils nearly on a level with those the most favorable.

"3. The capability of removing trees of fifteen or twenty years' growth with as much facility as furniture."

In conclusion, Mr. Rivers recommends *caution*; "enough of vigor must be left in the tree to support its crop of fruit, and one, two, or three seasons' cessation from root-pruning will often be found necessary."

Root-pruning in this country will, we think, be most valuable in its application to common standard trees, which are thrifty, but bear little or no fruit. They will generally be found to require but a single pruning to bring them into a permanently fruitful condition; and some sorts of Pears and Plums, which do not usually give a fair crop till they are twelve or fourteen years old, may be brought into fruit by this means as soon as they are of proper size. Several nearly full-grown peach, pear, and plum trees, on a very rich soil on the Hudson, which were over-luxuriant, but bore no fruit, were root-pruned by our advice, and yielded most excellent and abundant crops afterwards.

In the case of Apple orchards, where the permanent value depends on the size, *longevity*, and continued productiveness of the trees, it is better to wait patiently and not resort to pruning to bring them into bearing, as it cannot be denied that all excessive pruning shortens somewhat the life of a tree. Mr. Coxe, indeed, recommended that the first fruit should never be allowed to ripen on a young apple orchard, as it lessens very materially the vigor of the trees.

Shortening-in the shoots of Peaches, Nectarines, and Apricots, as we shall hereafter point out, has a strong tendency to increase the fruitfulness of these trees, since by reducing the young wood the sap accumulates in the remainder of the branch, and many bearing shoots are produced instead of one. And the English practice of *spurring-in*, which consists in annually shortening the lateral shoots of trained Pears, Apples, and the like, in order to make them throw out short fruit branches or spurs, is founded on the same principle.

Bending down the limbs is an easy and simple means of throwing such branches directly into fruit. By this means the circulation is retarded, rapid growth ceases, organizable matter accumulates, and fruit-buds, as before stated, surely follow. The limbs are bent while flexible, in June or July, and tied down below a horizontal line until they retain of

themselves their new position. When this can be easily applied, it is a never-failing mode of rendering such branches fruitful. It is stated in Loudon's "Gardeners' Magazine," that "a very large crop of Pears was obtained by the Rev. Mr. Fisher, in Buckinghamshire, from trees which had not borne at all, by twisting and breaking down the young shoots late in the autumn, when the wood had become tough; and the pendent branches afterwards continued perfectly healthy."

Disbarking and Ringing are two modes that have been recommended by some authors, but of which, except as curious experiments, we entirely disapprove. Disbarking, that is, removing the outer bark of the trunk in February, May, or March, is and may be practised with good results on trees in very sheltered positions, and under glass, but must always be a somewhat dangerous practice in open orchards, and in a variable climate like ours; while its good effects may in a great measure be attained by keeping the bark in a healthy state by a wash of soft soap. *Ringing*, which is nothing more than stopping the descending sap in a branch, and forcing it to organize blossom-buds, by taking off a ring of bark, say a fourth or half an inch, near midsummer, is a mode always more or less injurious to the health of the branch, and if carried to any extent finally destroys the tree. It is gradually falling into disuse since root-pruning and other and better modes are becoming known. A ligature or bandage, tightly applied to the limb, will have temporarily the same effect as ringing, without so much injury to the branch.

3. *Inducing Fruitfulness by other Means.*

The influence of certain soils on the productiveness of fruit-trees is a subject of every-day observation, but the particular ingredients of the soil which insure this abundant bearing are not so well known. Limestone soils are almost invariably productive of all sorts of fruit; and certain strong loams in this country seem to be equally well adapted to this end.

In a curious work called the "Rejuvenescence of Plants," &c., by Dr. Schultz, of Berlin, the author, who has devoted considerable time to the subject, states that common salt and chloride of lime contribute greatly to the flowering of most plants, to which, however, they can only be applied with safety in small quantities. "Salts of lime," he continues, "appear to produce so nearly the same effect as those of potash and soda, that it is only necessary to place lime within their reach, if there is no deficiency of manure in the shape of general food. Lime will in the main promote, in an as-

tonishing degree, the fruit and flowering of most plants, because calcareous salts promote evaporation and the concentration of sap."

Although we cannot coincide with many of Dr. Schultz's views as expressed in this work, yet the remarks just quoted agree so entirely with facts that have come under our own observation, that we gladly place them before the cultivator of fruit-trees. One of the most productive fruit-gardens in our knowledge is on a limestone soil, and another, more than usually prolific, in a neighborhood not very fruitful, is every year treated with a top-dressing of coarse salt, at the rate of two bushels to the acre. These facts are surely worth the attention of growers, and should be the subject of more extended and careful experiments.

Rendering trees more fruitful by *dwarfing*, and by adapting them to soils already unfruitful by growing them upon other and better stocks, we have already placed before the reader under the head of *Grafting*.

CHAPTER V.

TRAINING.

TRAINING fruit-trees is, thanks to our favorable climate, a proceeding entirely unnecessary in the greater part of the United States. Our fine dry summers, with the great abundance of strong light and sun, are sufficient to ripen fully the fruits of temperate climates, so that the whole art of training, at once the trial and triumph of skill with English fruit-gardeners, is quite dispensed with; and in the place of long lines of brick wall and espalier rails, surrounding and dividing the fruit-garden, all covered with carefully trained trees, we are proud to show the open orchard, and the borders in the fruit-garden filled with thrifty and productive standards. Nothing surprises a British gardener more, knowing the cold of our winter, than the first sight of peaches and other fine fruits arriving at full perfection in the Middle States with so little care; and he sees at once that three-fourths of the great expense of a fruit-garden here is rendered entirely needless.

Training fruit-trees, in this country, is therefore confined to the colder districts north of the 43° of latitude, and to the gardens of amateurs. There can, however, scarcely be a more beautiful display of the art of the horticulturist than a fine row of trained trees, their branches arranged with the utmost

symmetry and regularity, and covered, in the fruit season, with large and richly colored fruit.

North of the 43° latitude (or north of the Mohawk) the peach does not ripen well, and this, as well as some other rather tender trees, will, in such situations, generally yield abundant crops when trained on a common upright trellis, or espalier rail, seven or eight feet high.* Still farther north, as in Maine or Canada, a wall must be resorted to; but our own observation leads us to believe that, generally, the espalier rail will be found not only cheaper and more easily managed in training, but really preferable to a wall, as full exposure to light is sufficient without much additional heat. With regard to walls themselves, in the middle portions of the Union a southern aspect is almost always the worst, being too hot in midsummer; a wall running north and south, and affording east and west aspects, is much the best. The western aspect is indeed preferable for all tender fruits, as the blossoms are not there liable to injury from early frosts. A north wall is useful for producing a later crop.

The objects of training are, by a more complete exposure of the leaves and branches to the light and sun, to ripen fruits in a naturally unfavorable climate; to render them more fruitful—lessening vigor and excessive growth by the lateral or horizontal arrangement of the branches; and lastly, economy of space, as trees when trained on a flat surface occupy much less space in the fruit-garden than standards, and leave the borders more open for cropping with vegetables.

Training conical standards. A very easy and simple mode of training fruit-trees, which has lately come into great favor with amateurs, is the conical standard, or *Quenouille* (pronounced *Kenool*) of the French. It is applied chiefly to pears, which when treated in this way may be planted about eight feet apart, and thus a great variety of sorts may be grown in a small garden. A great number of the specimen trees in the London Horticultural Society's Garden are trained in this manner; and Loudon remarks, that in 1840 the Royal Kitchen Garden of Versailles contained two hundred trees trained in the conical manner, with the current year's shoots tied down *en quenouille*. "They had attained the height of from six to twelve feet before the branches

* Cedar or locust posts, set four or eight feet apart, with horizontal bars let in, and crossed by light perpendicular strips of pine from six to twelve inches apart, will form an excellent and durable trellis for espaliers. See Fig. 28. Indeed many gardeners here prefer having a light trellis a few inches from the wall upon which to train, instead of nailing directly on the wall.

were bent down; but the effect of this was to cover the shoots with blossom-buds, and to produce the most extraordinary crops.”

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, as represented by the dotted lines on *a*, Fig. 21. 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 as in *b*, 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, *c*, and



FIG. 21.

Quenouille or Conical Training, progressive stages.

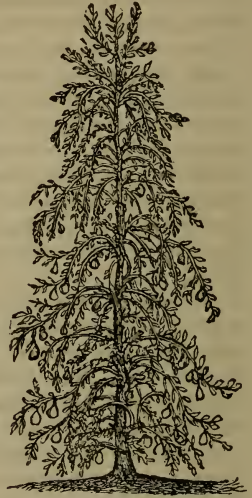


FIG. 22.

Conical or Quenouille Training, complete.

kept in a pendulous position for a year or two, by tying them to stakes driven in the ground, or to the main stem. This successive growth at the top, and arrangement of the limbs below, must be continued till the requisite height—say ten feet—is attained, when, all the branches assuming their final form, the tree will resemble Fig. 22. A moderate pruning to produce new wood, and the occasional tying in of a rambling shoot, will be all that is required. The French

quenouille training is performed with dwarf stocks, but the trees are more thrifty and durable when grafted on their own stocks, and kept within proper bounds by root-pruning after Mr. Rivers's method, explained in a previous page.

Pyramids and bushes are trees adapted for small gardens, and not standards such as are planted in orchards. Mr. Rivers, whose success in training and fruiting dwarf trees has hardly an equal, gives the following directions:—"If a young gardener intends to plant, and wishes to train up his trees so that they will become quite perfect in shape, he should select plants one year old from the bud or graft, with single upright stems; these will of course have good buds down to the junction of the graft with the stock. The first spring a tree of this description should be headed down, so as to leave the stem about eighteen inches long. If the soil be rich, from five to six and seven shoots will be produced; one of these must be made the leader, and if not inclined to be quite perpendicular, it must be fastened to a stake. As soon in summer as the leading shoot is ten inches long, its end must be pinched off; and if it pushes forth two or more shoots, pinch off all but one to three leaves, leaving the top-most for a leader. The side shoots will in most cases assume a regular shape; if not, they may be this first season tied to slight stakes, to make them grow in the proper direction. This is best done by bringing down and fastening the end of each shoot to a slight stake, so that an open pyramid may be formed; for if it is too close and cypress-like, enough air is not admitted to the fruit. They may remain unpruned till the end of August, when each shoot must be shortened to within eight buds of the stem. This will leave the tree so that no pruning in winter will be required. The second season the tree will make vigorous growth; the side shoots which were topped last August will each put forth three, four, or more shoots. In June, as soon as these have made four leaves, they must be pinched off to three leaves, and if these spurs put forth shoots, which they often do, every shoot must be pinched down to one leaf, *all but the leading shoot of each side branch*. This must be left on, to exhaust the tree of its superabundant sap, till the end of August. The perpendicular leader must be topped once or twice—in short, as soon as it has grown ten inches, pinch off its top, and if it break into two or three shoots, pinch them all but the leader, as directed for the first season; in a few years most symmetrical trees may be formed."

The best modes of training for this country, on walls or espaliers, are fan-cordon and horizontal training. The first is the simplest and easiest mode of training the Peach, the

Apricot, Nectarine, and Cherry; and the latter is best adapted to the Pear. In training to a wall, the branches are fastened in their places by shreds of leather and nails; and as espaliers, by tying them with slips of bass matting to the rails of the trellis.

Cordon-training has within the past few years become quite a feature among French gardeners, and is now being practised with success by many amateurs in this country. There are a number of varied modes of training *en cordon*, among which those termed *oblique cordon* and *espalier* or lateral cordon are most in use. Oblique cordon training serves to test in a small space a large number of varieties, and may in many cases be adopted with great satisfaction. Dubreil says: "In its practice choose healthy and vigorous young trees of one year's growth, carrying only one stem. Plant them sixteen inches apart, and incline them one over the other at an angle of sixty degrees. Cut off about one-third of the length at or just above a front fruit-bud. During the following summer favor as much as possible the development of the terminal shoot; all the others must be transformed into fruit branches by the same means as described for pyramidal trees. The second pruning has for its object to transform the lateral shoots into fruit-spurs; the new extension of the stem must be cut back one-third. If the terminal extension has grown but slightly, and shows signs of weakness, the cut must be made lower down on the two-years wood, in order to obtain a more vigorous terminal shoot. By the time of the third pruning, the young stem has generally attained two-thirds of its entire length; it must then be inclined to an angle of 45° ."

The same pruning of side branches and terminal shoot must be performed as last year, and continued from year to year until the desired height for covering the wall or trellis is attained; afterwards it must be yearly cut back about two feet, for the purpose of allowing a vigorous shoot to grow from the end, and thus keep up a healthy circulation.

Espalier or lateral cordon training is adapted to the borders of walks in gardens, and is suited more to the Apple worked on the Paradise stock than any other variety of tree. It is termed double or single arm cordon, as the trees have arms trained one or both ways. Fig. 23 shows at *a* a young maiden tree pruned for planting, while *b* shows the same with its limbs tied down to a wire, which is upheld by stakes about one foot above the ground, and secured firmly at each end of the line.

Fig. 24 shows the plants after being two or three years trained in single cordon—the terminal shoot of each tree

being united by inarching at the junction with the stem and branch.

The following account of fan-training and horizontal training is so concisely abridged from the practice of the best English gardens, in the "Suburban Horticulturist," that we cannot do better than to place it before the reader.



FIG. 23.

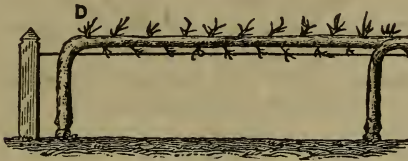


FIG. 24.

Fan-training in the common English manner. 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, as shown in Fig. 25. The following season the two uppermost shoots are



FIG. 25.

Fan-training, first stage.



FIG. 26.

Fan-training, second stage.

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, as shown in Fig. 26. 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 posi-

tion 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 to 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. The tree will then assume, at the end of the year, the appearance shown in Fig. 27. From this time it may be allowed to

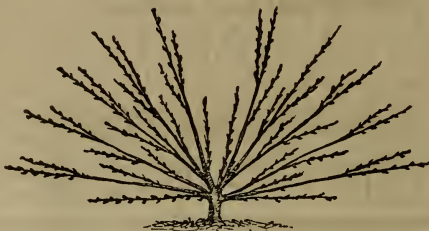


FIG. 27.

Fan-training, third stage.

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 except 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. The following year each shoot at the extremities of the leading branches should produce, besides the leading shoot, one on the upper and two on the under part, more or less, according to the vigor of the tree; whilst each of the secondary branches should produce, besides the leading shoot, one other placed near to the bottom; for the grand art of pruning, in all systems to which this class of trees is subjected, consists in preserving a sufficient quantity of young wood at the bottom of the tree; and on no account must the gardener cut away clean any shoots so placed, without well considering if they will be wanted, not only for the present but for the future good appearance of the tree. The quantity of young wood annually laid in must depend upon the vigor of the tree. It would be ridiculous to lay the same quantity into a weakly tree as into

a tree in full vigor. The gardener here must use his own judgment. But if any of the leading shoots manifest a disposition to outstrip the others, a portion of young shoots must be laid in, and a greater quantity of fruit suffered to ripen on the over-vigorous branch. At the same time a smaller quantity of fruit than usual must be left to ripen on

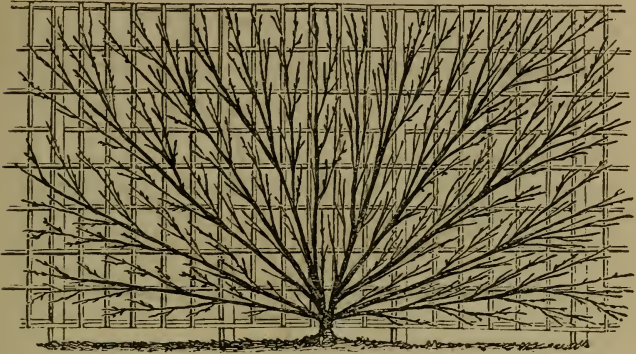


FIG. 28.
Fan-training, complete.

the weaker branch. This will tend to restore the equilibrium better than any other method. Fig. 28 presents us with the figure of a tree in a more advanced state, well balanced, and well calculated for an equal distribution of the sap all over its surface. [We have varied this figure by representing it trained on a trellis, instead of a wall.] Whenever any of the lower shoots have advanced so far as to incommode the others, they should be cut back to a yearling shoot; this will give them room, and keep the lower part of the tree in order. 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. Whatever system of training is pursued, the leading branches should be laid-in in the exact position they are to remain; for wherever a large branch is brought down to fill the lower part of the wall, the free ascent of the sap is obstructed by the extension of the upper, and contraction of the lower parts of the branch. It is thus robbed of part of its former vigor, while it seldom fails to throw out, immediately behind the parts most bent, one or more vigorous shoots."

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



FIG. 29.

Horizontal training, first stage.



FIG. 30.

Horizontal training, second stage.

side shoots are laid in horizontally, and the centre one upright, as in Fig. 29; 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, as shown in Fig. 30. 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 throw out two horizontal branches, in addition to those which were thrown out from those of the preceding year.



FIG. 31.

Horizontal training, third stage.

The tree will now be in its second summer, and will have four horizontal branches on each side of the upright stem, as in Fig. 31; 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. In the following autumn the tree will have the appearance of Fig. 32."—*Suburban Horticulturist*, pp. 363 : 372.



FIG. 32.

Horizontal training, fourth year

Training fruit-trees is nowhere in the United States practised to much extent, nor is it considered desirable in the general practice of fruit-growing. The additional labor is not met by a balance in superior quantity of product, and, while occasionally a few specimens may be procured in this manner of great beauty and excellence, the general crop is not satisfactory or profitable, either to the amateur or the market-grower.

CHAPTER VI.

TRANSPLANTING.

As nearly all fruit-trees are raised first in nurseries, and then removed to their final position in the orchard or fruit-garden ; as upon the manner of this removal depends not only their slow or rapid growth, their feebleness or vigor afterwards, and in many cases even their life, it is evident that it is in the highest degree important to understand and practise well this *transplanting*.

The season best adapted for transplanting fruit-trees is a matter open to much difference of opinion among horticulturists ; a difference founded mainly on experience, but with-

out taking into account variation of climate and soils, two very important circumstances in all operations of this kind.

All physiologists, however, agree that the best season for transplanting deciduous trees is in autumn, directly after the fall of the leaf. The tree is then in a completely dormant state. Transplanted at this early season, whatever wounds may have been made in the roots commence healing at once, as a deposit directly takes place of granulous matter from the wound, and when the spring arrives the tree is already somewhat established, and ready to commence its growth. Early autumn planting is for this reason greatly to be preferred in all mild climates and dry soils; and even for hardy trees, as the apple, in colder latitudes; as the fixed position in the ground, which trees planted then get by the autumnal and early spring rains, gives them an advantage at the next season of growth over newly-moved trees.

On the other hand, in northern portions of the Union, where the winters commence early, and are severe, spring planting is greatly preferred. There autumn and winter are not mild enough to allow this gradual process of healing and establishing the roots to go on; for when the ground is frozen to the depth of the roots of a tree, all that slow growth and connection of nutriment by the roots is necessarily at an end. And the more tender sorts of fruit-trees, the Peach and Apricot, which are less hardy when newly planted than when their roots are entire, and well fixed in the soil, are liable to injury in their branches by the cold. The proper time, in such a climate, is as early as the ground is in a fit condition in the spring.

Early in autumn, and in spring before the buds expand, may as a general rule be considered the best seasons for transplanting. It is true that there are instances of excellent success in planting at all seasons, except midsummer; and there are many who, from having been once or twice successful in transplanting when trees were nearly in leaf, avow that to be the best season; not taking into account that their success was probably entirely owing to a fortunately damp state of the atmosphere at the time, and abundant rains after the experiment was performed. In the Middle States we are frequently liable to a dry period in early summer, directly following the season of removal, and if transplanting is deferred to a late period in spring, many of the trees will perish from drought before their roots become established in the soil. Spring planting should therefore always be performed as soon as possible, that the roots may have the great benefit of the early and abundant rains of that season, and get well started before the heat of summer commences. For the neighborhood

of New York, therefore, the best periods are from the fall of the leaf to the middle of November, in autumn, and from the close of winter to the middle of April, in the spring; though commonly the seasons of removal are frequently extended a month beyond these limits.

Taking up the trees is an important part of the operation. A transplanter should never forget that it is by the delicate and tender points or extremities of the root that trees take up their food; and that the chance of complete success is lessened by every one of these points that is bruised or destroyed. If we could remove trees with every fibre entire, as we do a plant in a pot, they would scarcely show any sign of their change of position. In most cases, especially in that of trees taken from nurseries, this is, by the operation of removal, nearly impossible. But although we may not hope to get every root entire, we may, with proper care, preserve by far the larger portion of them, and more particularly the small and delicate fibres. After being taken up, they should be planted directly; or, if this cannot be done, they should be kept from drying by a covering of mats, and, when sent to a distance, by being packed in damp moss.*

Preparing the places. Here is the fatal stumbling-block of all novices and ignorant persons in transplanting. An English gardener, when he is about to plant fruit-trees, talks about *preparing his borders*; an American says he will *dig his holes*; and we cannot give a more forcible illustration of the ideas of two persons as to the wants of a fruit-tree, or a better notion of the comparative provision made to supply these wants, than by contrasting the two phrases themselves. The one looks upon a tree as a living being, whose life is to be rendered long, vigorous, and fruitful by a good supply of food, and a soil mellow and easily penetrated by the smallest fibre; the other considers it very much in the light of a truncheon or a post, which he thrusts into the smallest possible hole, and supplies with the least portion of manure, trusting to what he seems to believe the inextinguishable powers of nature to make roots and branches under any circumstances. It is true that the terms differ somewhat from the nature of the culture and the greater preparation necessary in planting fruit-trees in England, but this is not by any means sufficient to justify the different modes of performing the same operation there and here.

* We should notice an important exception to this in the case of trees packed for shipping across the Atlantic. In this case they should be packed only in *dry* moss; the moisture of the sea air being sufficient to keep the roots in good condition, while if packed in damp moss they will be injured by rotting or excessive growth.

In truth, in this country, where the sun and climate are so favorable, where pruning and training are comparatively so little necessary, the great requisite to success in the ordinary culture of fruit-trees is the *proper preparation of the soil* before a tree is planted. Whether a transplanted tree shall struggle several years to recover, or grow moderately after a short time, or at once start into a very luxuriant and vigorous growth, depends entirely upon the amount of care and labor the planter is willing to bestow on the soil for his trees. We have seen several instances where, side by side, one man planted his trees in large spaces of deeply moved and rich soil, and another in small holes in the common mode, which uniformly showed the trees of the first larger after five years than those of the last after twelve.

No fruit-tree should be planted in a hole of less size than three feet square, and eighteen inches to two feet deep. To this size and depth the soil should be removed and well pulverized, and it should, if necessary, be properly enriched by the application of well-rotted manure, which must be thoroughly mixed with the whole mass of prepared soil by repeated turnings with the spade. This preparation will answer, but the most skilful cultivators among us make their spaces four or five feet in diameter, or three times the size of the roots, and it is incredible how much the luxuriance and vigor of growth, even in a poor soil, is promoted by this. No after-mending of the soil, or top-dressings applied to the surface, can, in a climate of dry summers like ours, equal the effects of this early and deep loosening and enriching the soil. Its effects on the growth and health of the tree are permanent, and the little expense and care necessary in this preparation is a source of early and constant pleasure to the planter. This preparation may be made just before the tree is planted, but in heavy soils it is much better to do it several months previously; and no shallow ploughing of the soil can obviate the necessity and advantages of the practice where healthy, vigorous orchards or fruit-gardens are desired.

The whole art of transplanting, after this, consists in placing the roots as they were before, or in the most favorable position for growth. Begin by filling the hole with prepared soil, within as many inches of the top as will allow the tree to stand exactly as deep as it previously stood. With the spade, shape the soil for the roots in the form of a little hillock on which to place the roots—and not, as is commonly done, in the form of a hollow; the roots will then extend in their natural position, not being forced to turn up at the ends. Next examine the roots, and cut off all wounded parts, paring the wound smooth, cutting from the under side. Hold the tree

upright on its little mound in the hole of prepared soil; extend the roots, and cover them carefully with the remaining pulverized soil. As much of the success of transplanting depends on bringing the soil in contact with every fibre, so as to leave no hollows to cause the decay of the roots, not only must this be secured by patiently filling in all cavities among the roots, but, when the trees are not quite small, it is customary to pour in a pail of water when the roots are nearly all covered with soil. This carries the liquid mould to every hidden part. After the water has settled away, fill up the hole, and avoid the common practice of shaking it up and down by the stem. In windy situations it will be necessary to place a stake by the side of each tree, to hold it upright, until it shall have taken firm root in the soil, but it is not needful in ordinary cases.

Avoid deep planting. More than half the losses in orchard planting in America arises from this cause, and the equally common one of crowding the earth too tightly about the roots. No tree should be placed deeper than it formerly grew, as its roots are stifled from the want of air, or starved by the poverty of the soil at the depth where they are placed. It is much the better and more natural process in fact to plant the tree so that it shall, when the whole is complete, appear just as deep as before, but standing on a little mound two or three inches higher than the level of the ground about. This, when the mound settles, will leave it nearly on the level with the previous surface.

Mulching is an excellent practice with transplanted trees, and more especially for those which are removed late in the spring. Mulching is nothing more than covering the ground about the stems with coarse straw, or litter from the barn-yard, which by preventing evaporation keeps the soil from becoming dry, and maintains it in that moist and equable condition of temperature most favorable to the growth of young roots. Very many trees, in a dry season, fail at midsummer, after having made a fine start, from the parched and variable condition of the earth about the roots. Watering frequently fails to save such trees, but mulching when they are planted will entirely obviate the necessity of watering in dry seasons, and promote growth under any circumstances. Indeed watering upon the surface, as commonly performed, is a most injurious practice, as the roots, stimulated at one period of the day by water, are only rendered more susceptible to the action of the hot sun at another, and the surface of the ground becomes so hard by repeated watering that the beneficial access of the air is almost cut off. If trees are well watered in the holes, while transplanting is going on, they will rarely need it again, and

we may say *never*, if they are well mulched directly after planting.

The best manure to be used in preparing the soil for transplanting trees is a compost formed of two-thirds muck or black peat earth, reduced by fermenting it several months in a heap with one-third fresh barn-yard manure. Almost every farm will supply this, and it is more permanent in its effects, and less drying in its nature, than the common manure of the stable. An admirable manure, recently applied with great success, is charcoal—the small broken bits and refuse of the charcoal pits—mixed intimately with the soil. Air-slaked lime is an excellent manure for fruit-trees in soils that are not naturally calcareous. Two or three handfuls may be mixed with the soil when preparing each space for planting, and a top-dressing may be applied with advantage occasionally afterwards, to increase their productiveness. But wherever large orchards or fruit-gardens are to be planted, the muck compost heap should be made ready beforehand, as it is the cheapest, most valuable, and durable of all manures for fruit trees.

Pruning the heads of transplanted trees, at the season of removal, we think generally an injurious practice. It is certainly needless and hurtful in the case of small trees, or those of such a size as will allow the roots to be taken up nearly entire; for as the action of the branches and the roots is precisely reciprocal, and as new roots are rapidly formed just in proportion to the healthy action of the leaves, it follows that by needlessly cutting off the branches we lessen the vital action of the whole tree. At the same time, where trees are transplanted of so large a size that some of the roots are lost in removing them, it is necessary to cut back or shorten a few of the branches,—as many as will restore the balance of the system,—otherwise the perspiration of the leaves may be so great as to exhaust the supply of sap faster than the roots can collect it. A little judgment only is necessary to see at a glance how much of the top must be pruned away, before planting the tree, to equalize the loss between the branches and the roots.

When it is necessary to transplant fruit-trees of large size, the best practice is to prepare them previously by digging a trench round the whole mass of roots, undermining them, and cutting off all roots projecting beyond this line. The trench should be dug at such a distance from the tree as will include all the large and sufficient ball of roots, and it should be done early in the spring when it is desirable to remove the tree the next year. After all the roots that extend to this circular trench are cut off, the earth is replaced, and by the season following an abundance of small fibres is sent out by the am-

putated roots, which, when the whole is removed, will insure the success and speedy growth of the tree. This is more completely the case when the tree is prepared two years before transplanting. A variation of this mode, which has been found quite as successful and less laborious, consists in leaving the trench open and covering it with boards only, or boards with a top layer of turf. The tree then is somewhat checked in its growth, it throws out an abundance of small fibres into the ball of earth containing the roots, and is the next season transplanted with great ease and safety.

The proper size for transplanting varies somewhat with the sort of tree and the kind of culture intended. It is, however, a maxim equally well settled, both among theorists and the best practical men, that health, immediate vigor, and duration are all greatly promoted by transplanting fruit-trees of small size—from three to six or seven feet. We are fully aware with what impatience the beginner, or a person who knows little of the culture of trees, looks upon trees of this size—one who is eager to plant an orchard and stock a garden with large trees, thinking to *gather a crop the next year*. The latter may indeed be done; but the transplanting so affects the tree that its first scanty crop is followed by a long season of rest and feeble growth, while the plantation of young trees is making wood rapidly, and soon comes into a healthy and long-continued state of productiveness—often long indeed before the large trees have fairly arrived at that condition. The small tree, transplanted with its system of roots and branches entire, suffers little or no check; the older and larger tree, losing part of its roots, requires several years to resume its former vigor. The constitution of the small tree is healthy and unimpaired; that of the large is frequently much enfeebled. A stout and vigorous habit—what the nurserymen call a *good stocky plant*—is the true criterion of merit in selecting fruit-trees for transplanting.

Trees intended for orchards, being often more exposed than those in gardens, should be somewhat larger—not less than six, or more than eight feet is the best size. For gardens, all experienced cultivators agree that a smaller size is preferable; we prefer plants two years old from the graft. Most gardeners abroad, when they select trees with more than usual care, take what are called maiden plants,—those one year old from the graft,—and there can be no doubt that, taking into account health, duration, and the ease with which such a tree can be made to grow into any form, this is truly the preferable size for removal into a fruit-garden. But we are an impatient people, and it is not till after another century of trial and experience in the culture of fruit-trees, that cultivators

generally in this country will become aware of the truth of this fact.

The facility with which the different fruit-trees may be transplanted differs considerably. Plums are generally removed with most success, and after them nearly in the order as follows: Quinces, Apples, Pears, Peaches, Nectarines, Apricots, and Cherries; the latter succeeding with some difficulty when of large size.

Laying in by the heels is a practice adopted as a temporary kind of planting when a larger quantity of trees is at hand than can be set out immediately. A trench is opened, and the roots are laid in and covered with soil, the tops being previously placed in a sloping position, inclining to within a few feet of the surface. In this way they are kept fresh and in good order until it is convenient to plant them finally. In northern districts, where the autumn is often too severe for planting, and the spring is frequently too late to receive trees in time from nurseries farther south, it is a common and successful mode to procure trees in autumn, and lay them in by the heels until spring, covering over the tops of the more tender sorts, if necessary, with coarse litter.*

In planting an orchard, always avoid placing the trees in the same spot, or near, where an old tree stood before. Experience has taught us that the growth of a young tree, in such a position, is weak and feeble; the nourishment suitable to that kind of tree having already been exhausted by a previous growth, and the soil being half filled with old and decayed roots which are detrimental to the health of the young tree.

* We have often known trees entirely destroyed by want of a little extra care in heading them in. Select first a dry knoll, or position where no water can stand, and, if possible, sheltered from the southern sun. After first digging a trench one foot or more deep, lay the trees down at an angle of about 45° , their tops to the south; then make the soil mellow and fine, and thoroughly intermingle it with the roots, filling all interstices, and covering them at least eighteen inches deep.

Trees are sometimes received in a frozen condition. They should then be placed at once, without unpacking, in a dark cellar, and left until gradually thawed out; or they may be at once—if the earth will allow—buried, tops and roots entire, beneath the ground, and there left for a few days, or until a moist cloudy day occurs for opening and exposing them to the light and air. This latter course is also a good one for trees that are received in a dry or shrivelled state.

CHAPTER VII.

THE POSITION OF FRUIT-TREES—SOIL AND ASPECT.

IN our favorable climate many fruit-trees will thrive and produce some fruit in almost any soil, except dry sand or wet swamps. But there is much to be gained in all climates by a judicious selection of soil, when this is in our power, or by that improvement which may generally be effected in inferior soils, where we are necessarily limited to such. As we shall, in treating the culture of each genus of fruit, state more in detail the soils especially adapted to its growth, our remarks here will be confined to the subject of soils generally for the orchard and fruit-garden.

The soils usually selected for making plantations of fruit-trees may be divided into light sandy loams, gravelly loams, strong loams, and clayey loams; the first having a large proportion of sand, and the last a large proportion of clay.

The soil most inviting to the eye is a *light sandy loam*, and as it is also a very common soil, more than half the fruit-gardens in the country are composed of this mould. The easy manner in which it is worked, owing to its loose and very friable nature, and the rapidity with which, from its warmth, crops of all kinds come into bearing, cause it to be looked upon with almost universal favor. Notwithstanding this, a pretty careful observation for several years has convinced us that a light sandy soil is, on the whole, the worst soil for fruit-trees. Under the bright skies of July and August, a fruit-tree requires a soil which will retain and afford a moderate and continued supply of moisture, and here the sandy soil fails. In consequence of this the vigor of the tree is checked, and it becomes feeble in its growth, and is comparatively short-lived or unproductive. As a tree in a feeble state is always most liable to the attacks of insects, those on a sandy soil are the first to fall a prey to numerous maladies.* The open loose texture of a sandy soil, joined to its warmth, affords an easy passage and an excellent habitation for all insects that pass part of their lives in the ground, preparatory to rising out of it to attack the fruit, foliage, or branches of the tree.

Such are some of the disadvantages of a light sandy soil; and in thoroughly examining many of the fruit-gardens of the Middle States the last few seasons, we could not fail to be struck with the fact that, in nine cases out of ten, where a

* This remark applies to the middle and southern portions of this country. North of the 43° a light sandy soil is perhaps preferable, as warmer and earlier.

variety of fruit was unusually liable to disease, to blight, or to the attacks of certain fruit-destroying insects, as the curculio, the trees themselves were on sandy soils; while on the other hand, and frequently in the same neighborhood, the same sorts were growing luxuriantly and bearing abundant crops where the soil was a rather strong loam.* For a few years the growth and productiveness of the trees upon sandy soil is all that can be desired; but the trees are shorter lived, and sooner fall into decay than where the soil is stronger. If there is any exception to this rule, it is only in the case of the Peach; and, judging from the superior flavor of this fruit on stronger soils, we are inclined to doubt the value of the exception even here.

Gravelly loams are frequently much better adapted for orchards than sandy, especially where the loam is of a strong quality, and the gravel is not in excess; and the hardier fruits usually do well on this kind of soil.

Strong loams, by which we mean a loam with only just a sufficient portion of sand to make it easily worked, are, on the whole, by far the best for fruit-gardens in this country. A strong loam is usually a deep soil, and affords, during the whole heat of summer, a proper supply of moisture and nourishment to the roots of trees. Fruit-trees do not come into a bearing state so soon in a strong as in a sandy loam, because the growth of wood is more vigorous, and fruit-buds are not so soon formed; but they bear larger crops, are much less liable to many diseases, and their longevity is much greater. The largest and most productive orchards of the Apple and Pear in this country are upon soils of this kind.

Clayey loams are, when well drained, and when the clay is not in excess, good fruit soils—they are usually strong and deep soils, though rather heavy and difficult to work. Trees that will flourish on these soils, such as the Apple, Pear, Cherry, Plum, and Apricot, usually are very free from disease or insects, and bear large crops. In a moist climate, like that of England, fruit-trees on a clayey loam would die of canker, brought on by the excessive quantity of water contained in the soil, but such is not the case under the high and warm temperature of our summers. The finest, largest, and most productive Plums and Pears within our knowledge, grow

* As an instance in point, the owner of one of the most highly cultivated gardens in the vicinity of Boston was showing us, in despair, some trees of the Seckel Pear, upon which he could no longer get good crops or fair fruit, and lamenting the *degeneracy* of the sort. The next day we saw in a neighboring garden beautiful crops of this Pear growing with the least possible care. The garden in the first case was a light sandy loam, in the second, a strong loam.

in sites on the North River, where the soil is a stiff clayey loam, almost approaching a clay. Those fruits that on light sandy soils are almost worthless, from their liability to disease and the attacks of insects, are here surprisingly luxuriant and fruitful.

It is, however, well to remark, that some varieties of fruit, perhaps from the circumstances of their origin, succeed better on sandy soils than any other; thus the Newtown Pippin will only arrive at perfection in a strong loam, while the Summer Queen is finer when grown on a sandy soil. But there are exceptions to all rules, and what we have already stated, as to the relative quality of soils, will apply pretty generally to the whole of this country, and it may be added that calcareous soils, of whatever texture, are better than soils of the same quality were no limestone is present.

Trenching is the most complete method of improving a soil too sandy, when the subsoil below is of a loamy or clayey nature. Deep subsoil ploughing, by bringing up a sufficient quantity of the stratum below, will answer the same purpose. When the subsoil of a sandy soil is sand or gravel, the surface can only be improved by top-dressings or the application of manures. Top-dressing with clay is the most simple means of changing the nature of such a soil, and it is surprising how moderate a quantity of clay will give a closer texture to light sandy soils. In manuring such soils, we may greatly improve their nature as well as condition by using composts of peat or bog earth, swamp muck, or river mud, instead of common barn-yard or stable manure. The former are not only more permanent and better as manures for fruit-trees, but they gradually consolidate and improve the whole texture of the soil.

Indeed, no fruit-garden, where the soil is not naturally deep and rich, is in *perfect* condition for planting trees, unless the soil has been well trenched two spades in depth. This creates a matrix for the roots so deep and permanent that they retain their vigor and luxuriance through the droughts of summer, and continue for a long time in a state of health and productiveness.

It is difficult to give any precise rules as to *aspect*. We have seen fine fruit gardens here in all aspects. Perhaps the very best aspect on the whole is a gentle slope to the south-west, because in such positions the trees when in blossom are somewhat protected from the bad effects of a morning sun after spring frosts. But, to remedy this more perfectly, it is sometimes the practice to plant on the north sides of hills, and this is an effectual way where early frosts are fatal, and where the season is long and warm enough to ripen the fruit

in any exposure. A fine south slope is, south of New York, frequently found too warm for many fruit trees in soils that are light and dry.

Deep valleys with small streams of water are the worst situations for fruit-trees, as the cold air settles down in these valleys in a calm frosty night, and buds and blossoms are very frequently destroyed. We know a rich and fertile valley of this kind in Connecticut where the Cherry will scarcely grow, and a crop of the Apple or the Pear is not obtained once in ten years; while the adjacent hill-tops and high country, a couple or three miles distant, yield abundant crops annually. On the other hand, the borders of large rivers, as the Hudson, or of some of our large inland lakes, are the most favorable situations for fruit-trees, as the climate is rendered milder by larger bodies of water. In the garden where we write, a fourth of a mile from the Hudson, we have frequently seen ice formed during the night of the thickness of a dollar, when the blossoms of the Apricot were fully expanded, without doing the least harm to that tender fruit. This is owing to the slight fog rising from the river in the morning, which, softening the rays of the sun, and dissolving gradually the frosts, prevents the injurious effects of sudden thawing. At the same time, a couple of miles from the shores, this fruit will often be quite destroyed. In short, the season on the lower half of the Hudson may, from the ameliorating influence of the river, be said to be a month longer—a fortnight earlier in spring and later in autumn—than in the same latitude a few miles distant; and crops of the more tender fruits are therefore much more certain on the banks of large rivers or lakes than in inland districts of the same climate.

As our native forests become cleared away the climate is changed and becomes more harsh; hence it is found desirable to construct some kind of protection from the point of most destructive harsh winds and storms. Belts of trees, either evergreen or deciduous, or both mingled, and surrounding or placed so as to screen from the northeast, north, and northwest, are considered highly advantageous; and when we consider that foliage is an absorbent and ameliorating agent in tempering climate, we feel that it is the duty as well as interest of every fruit-grower to plant as many such belts as his property and pecuniary means admit.

CHAPTER VIII.

GENERAL REMARKS ON INSECTS.

THE insects injurious to fruit-trees are numerous, and to combat them successfully requires a minute acquaintance with their character and habits. While considering the culture of each class of fruit in the succeeding pages, we shall point out the habits and suggest means of destroying the most important of these insects; but in the mean time we wish to call attention to some general practical hints on this subject.

In the first place, we cannot too strongly impress upon the attention of the fruit-grower the importance of watching carefully and making an early attack upon every species of insect. It is only necessary to look for a moment at the astonishing rapidity with which many kinds of insects increase, if allowed to get well established in a garden, to become fully aware of this. The common caterpillars are the young of moths or butterflies, and that careful observer of the habits of insects, Dr. Harris, says as each female lays from two to five hundred eggs, a thousand moths or butterflies will, on the average, produce three hundred thousand caterpillars; if one half this number, when arrived at maturity, are females, they will give forty-five millions of caterpillars in the second, and six thousand seven hundred and fifty millions in the third generation.* To take another example: the *aphides*, or plant-lice, which are frequently seen in great numbers on the tender shoots of fruit-trees, have an almost incredibly prolific power of increase—the investigations of Réaumur having shown that one individual in five generations may become the progenitor of nearly six thousand millions of descendants. With such surprising powers of propagation, were it not for the havoc caused among insects by various species preying upon each other, by birds and other animals, and especially by unfavorable seasons, vegetation would soon be entirely destroyed by them. As it is, the orchards and gardens of careless and slovenly cultivators are often overrun by them, and many of the finest crops suffer great injury or total loss from the want of a little timely care.

In all well-managed plantations of fruit, at the first appearance of any injurious insect, it will be immediately seized upon and destroyed. A few moments in the first stage of

* For much valuable information on the habits of insects injurious to vegetation, see the "Treatise on the Insects of Massachusetts," by Dr. T. W. Harris, Cambridge.

insect life—at the first birth of the new colony—will do more to rid us for the season of that species than whole days of toil after the matter has been so long neglected that the enemy has become well established. We know how reluctant all but the experienced grower are, to set about eradicating what at first seems a thing of such trifling consequence. But such persons should consider that whether it is done at first, or a fortnight after, is frequently the difference between ten and ten thousand. A very little time regularly devoted to the extirpation of noxious insects will keep a large place quite free from them. We know a very large garden filled with trees, and always remarkably free from insect ravages, which, while those even in its vicinity suffer greatly, is thus preserved by half an hour's examination of the whole premises two days in the week during the growing season. This is made early in the morning, the best time for the purpose, as the insects are quiet while the dew is yet upon the leaves, and whole races yet only partially developed may be swept off in a single moment. In default of other more rapid expedients, the old mode of *hand-picking*, and crushing or burning, is the safest and surest that can be adopted. For practical purposes, the numerous insects infesting fruit-trees may be divided into four classes: 1st, those which for a time harbor in the ground and may be attacked in the soil; 2d, winged and other species, which may be attacked among the branches; 3d, aphides or plant-lice, which infest the young shoots; 4th, moths, and all night-flying insects.

Insects, the larvæ or grubs of which harbor in the ground during a certain season, as the curculio or plum-weevil, are all more or less affected by the application of common salt as a top-dressing. On a larger scale, in farm crops, the ravages of the cut-worm are frequently prevented by sowing three bushels of salt to the acre, and we have seen it applied to all kinds of fruit-grounds with equal success. Salt seems to be strongly disagreeable to nearly all this class of insects, and the grubs perish where even a small quantity has for two or three seasons been applied to the soil. In a neighborhood where the peach-worm usually destroys half the peach-trees, and where whole crops of the plum are equally a victim to the plum-weevil, we have seen the former preserved in the healthiest condition by an annual application of a small handful of coarse salt about the collar of the tree at the surface of the ground; and the latter made to hold abundant crops by a top-dressing applied every spring of packing salt, at the rate of a quart to the surface occupied by the roots of every full-grown tree.

Salt, being a powerful agent, must be applied for this

purpose with caution and judgment. In small quantities it promotes the verdure and luxuriance of fruit-trees, while if applied very frequently, or too plentifully, it will certainly cause the death of any tree. Two or three years' top-dressing in moderate quantity will usually be found sufficient to drive away these insects, and then the application need only be repeated once in two or three seasons. Any coarse refuse salt will answer the purpose; and packing salt is preferable to that of finer quality, as it dissolves slowly by the action of the atmosphere.*

In the winged state most small insects may either be driven away by powerful odors, or killed by strong decoctions of tobacco, or a wash of diluted whale-oil or other strong soap. Attention has but recently been called to the repugnance of all insects to strong odors, and there is but little doubt that before a long time it will lead to the discovery of the means of preventing the attacks of most insects, by means of strong smelling liquids or odorous substances. The moths that attack furs, as every one knows, are driven away by peppercorns or tobacco, and should future experiments prove that at certain seasons, when our trees are most likely to be attacked by insects, we may expel them by hanging bottles or rags filled with strong smelling liquids in our trees, it will certainly be a very simple and easy way of ridding ourselves of them. The brown scale, a troublesome enemy of the orange-tree, it is stated in the *Gardener's Chronicle*, has been destroyed by hanging plants of the common chamomile among its branches. The odor of the coal-tar of gas-works is exceedingly offensive to some insects injurious to fruits, and it has been found to drive away the wire-worm and other grubs that attack the roots of plants. The vapor of oil of turpentine is fatal to wasps, and that of tobacco-smoke to the green fly. Little as yet is certainly known respecting the exact power of the various smells in deterring insects from attacking trees. What we do know, however, gives us reason to believe that much may be hoped from experiments made with a variety of powerful-smelling substances.

Tobacco-water and diluted whale-oil soap are the two most efficient remedies for all the small insects which feed upon the young shoots and leaves of plants. Tobacco-water is made by boiling tobacco leaves, or the refuse stems and stalks of the tobacco-shops. A large pot is crowded full of them, and then filled up with water, which is boiled till a strong decoction is made. This is applied to the young shoots and leaves with a

* After repeated tests, it is doubtful whether the use of salt is as destructive to insect life as here stated. The use of salt as manure is undoubtedly a good stimulant to vegetable life and vigor.

syringe, or, when the trees are growing in nursery-rows, with a common white-wash brush, dipping the latter in the liquid and shaking it sharply over the extremities or the infested part of each tree. This or the whale-oil soap-suds, or a mixture of both, will kill every species of plant-lice and nearly all other small insects to which young trees are subject.

The wash of whale-oil soap is made by mixing two pounds of this soap, which is one of the cheapest and strongest kinds, with fifteen gallons of water. This mixture is applied to the leaves and stems of plants with a syringe, or in any other convenient mode, and there are few of the smaller insects that are not destroyed or driven away by it. The merit of this mixture belongs to Mr. David Haggerston, of Boston, who first applied it with great success to the rose-slug, and received the premium of the Massachusetts Horticultural Society for its discovery. When this soap cannot be obtained, a good substitute may be made by turning into soap the lees of common oil-casks, by the application of potash and water in the usual way.

Moths and other insects which fly at night are destroyed in large numbers by the following mode, first discovered by Victor Adouin, of France. A flat saucer or vessel is set on the ground, in which is placed a light, partially covered with a common bell-glass besmeared with oil. All the small moths are directly attracted by the light, fly towards it, and in their attempts to get at the light, are either caught by the glutinous sides of the bell-glass, or fall into the basin of oil beneath, and in either case soon perish. M. Adouin applied this to the destruction of the *pyralis*, a moth that is very troublesome in the French vineyards; with two hundred of these lights in a vineyard of four acres, and in a single night, 30,000 moths were killed and found dead on or about the vessels. By continuing his process through the season, it was estimated that he had destroyed female moths sufficient to have produced a progeny of over a million of caterpillars. In our orchards myriads of insects may be destroyed by lighting small bonfires of shavings or any refuse brush; and in districts where the apples are much worm-eaten, if repeated two or three nights at the proper season, this is a very efficient and cheap mode of getting rid of the moth which causes so much mischief. Dr. Harris, knowing how important it is to destroy the caterpillar in the moth state, has recommended flambeaux, made of tow wound round a stake and dipped in tar, to be stuck in the fruit-garden at night and lighted. Thousands of moths will find a speedy death, even in the short time which these flambeaux are burning. The melon-bug may be extirpated by myriads in the same way.

A simple and most effectual mode of ridding the fruit-garden of insects of every description, which we recommend as a general extirpator suited to all situations, is the following:—Take a number of common bottles, the wider mouthed the better, and fill them about half full of a mixture of water, molasses, and vinegar. Suspend these among the branches of trees and in various parts of the garden. In a fortnight they will be found full of dead insects of every description not too large to enter bottles—wasps, flies, beetles, slugs, grubs, and a great variety of others. The bottles must now be emptied and the liquid renewed. A zealous amateur of our acquaintance caught last season in this way *more than three bushels* of insects of various kinds; and, what is more satisfactory, preserved his garden almost entirely against their attacks in any shape.

The assistance of birds in destroying insects should be duly estimated by the fruit-grower. The quantity of eggs and insects in various states devoured annually by birds, when they are encouraged in gardens, is truly surprising. It is true that one or two species of these, as the ringtail, annoy us by preying upon the earlier cherries, but even taking this into account, we are inclined to believe that we can much better spare a reasonable share of a few fruits than dispense with the good services of birds in ridding us of an excess of insects.

The most serviceable birds are the common sparrows, the wren, the red-breast, and in short most of the birds of this class. All these birds should be encouraged to build nests and inhabit the fruit-garden, and this may most effectually be done by not allowing a gun to be fired within its boundaries. The introduction of hedges or live fences greatly promotes the domestication of birds, as they afford an admirable shelter for their nests. Our own gardens are usually much more free from insects than those a mile or two distant, and we attribute this in part to our practice of encouraging birds, and to the thorn and arbor vitæ hedges growing here, and which are greatly resorted to by those of the feathered tribe which are the greatest enemies of the insect race.

Among animals, the *toad* and the *bat* are great insect destroyers. The common bat lives almost entirely upon them, and in its evening sallies devours a great number of moths, beetles, weevils, etc.; and the toad quietly makes away with numberless smaller insects.

CHAPTER IX.

THE APPLE.

Pyrus Malus, L. *Rosaceæ*, of botanists.
Pommier, of the French; *Apfelbaum*, German; *Apfel*, Dutch; *Melo*
pomo, Italian; and *Manzana*, Spanish.

THE Apple is the world-renowned fruit of temperate climates. From the most remote periods it has been the subject of praise among writers and poets, and the old mythologies all endow its fruit with wonderful virtues. The allegorical tree of knowledge bore apples, and the celebrated golden fruit of the orchards of Hesperus, guarded by the sleepless dragon which it was one of the triumphs of Hercules to slay, were also apples, according to the old legends. Among the heathen gods of the north, there were apples fabled to possess the power of conferring immortality, which were carefully watched over by the goddess Iduna, and kept for the especial dessert of the gods who felt themselves growing old! As the mistletoe grew chiefly on the apple and the oak, the former tree was looked upon with great respect and reverence by the ancient Druids of Britain; and even to this day, in some parts of England, the antique custom of saluting the apple-trees in the orchards, in the hope of obtaining a good crop the next year, still lingers among the farmers of portions of Devonshire and Herefordshire. This old ceremony consists of saluting the tree with a portion of the contents of a wassail-bowl of cider, with a toast in it, by pouring a little of the cider about the roots, and even hanging a bit of the toast on the branches of the most barren, the farmer and his men dancing in a circle round the tree, and singing rude songs like the following:—

“ Here’s to thee, old apple-tree,
 Whence thou mayst bud, and whence thou mayst blow;
 And whence thou mayst bear apples enow,
 Hats full! caps full—
 Bushels and sacks full!
 Huzza!”

The species of crab from which all our sorts of Apples have originated, is wild in most parts of Europe. There are, indeed, two or three kinds of wild crab belonging to this country; as the *Pyrus coronaria*, or sweet-scented crab, with fruit about an inch in diameter, grows in many parts of the United States; and the wild crab of Oregon, *P. rivularis*, bearing a reddish-yellow fruit, about the size of a cherry, which the Chenook Indians use as an article of food; yet

none of our cultivated varieties of Apple have been raised from these native crabs, but from seeds of the species brought here, by the colonists, from Europe.

The Apple-tree is, however, most perfectly naturalized in America, and, in the northern and middle portions of the United States, succeeds as well, or, as we believe, better than in any part of the world. The most celebrated apples of Germany and the north of Europe are not superior to many of the varieties originated here; and the American or Newtown Pippin is now pretty generally admitted to be the finest apple in the world. No better proof of the perfect adaptation of our soil and climate to this tree can be desired, than the seemingly spontaneous production of such varieties as this, the Baldwin, the Spitzenberg, or the Swaar—all fruits of delicious flavor, and great beauty of appearance.

The Apple is usually a very hardy and rather slow-growing fruit-tree, with a low-spreading, rather irregular head, and bears an abundance of white blossoms, tinged with red. In a wild state it is very long-lived, but the finest garden sorts usually live about fifty or eighty years; though, by proper care, they may be kept healthy and productive much longer. Although the apple generally forms a tree of medium growth, there are many specimens in this country of enormous size. Among others, we recollect two in the grounds of Mr. Hall, of Raynham, Rhode Island, which, ten years ago, were 130 years old; the trunk of one of these trees then measured, at one foot from the ground, thirteen feet two inches, and the other twelve feet two inches. The trees bore that season about thirty or forty bushels; but, in the year 1870, they together bore one hundred and one bushels of apples. In Duxbury, Plymouth County, Mass., is a tree which in its girth measures twelve feet five inches, and which has yielded in a single season 121½ bushels.

In Lehigh County, Pa., there is an apple-tree which measures 17½ feet in circumference, one foot above the ground. The tree is fifty-four feet high, and the branches extend thirty-six feet each way from the trunk.

USES OF THE APPLE.

No fruit is more universally liked or generally used than the apple. It is exceedingly wholesome, and, medicinally, is considered cooling and laxative, and useful in all inflammatory diseases. The finest sorts are much esteemed for the dessert, and the little care required in its culture renders it the most abundant of all fruits in temperate climates. As the earliest sorts ripen about the last of June, and the latest

can be preserved until that season, it may be considered as a fruit in perfection the whole year. Besides its merits for the dessert, the value of the apple is still greater for the kitchen; and in sauces, pies, tarts, preserves, and jellies, and roasted and boiled, this fruit is the constant and invaluable resource of the kitchen.

In seasons of scarcity, the small and usually considered refuse apples may be stewed, and then rubbed through a cullender, separating the seeds and skins from the pulp, forming a delicious sauce.

Apple-butter, made by stewing pared and sliced sweet apples in new cider until the whole is soft and pulpy, is a common and excellent article of food in many farmers' families, and is frequently made by the barrel. In France, nearly the same preparation is formed by simmering apples in new wine until the whole becomes a sort of marmalade, which is called *Raisin *. The juice of the apple unfermented is, in some parts of the country, boiled down till it becomes molasses. When fermented it forms *cider*; and if this is carefully made from the best cider apples it is nearly equal to wine; in fact, many hundreds of barrels of the cider of New Jersey have been manufactured, in a single year, into an imitation champagne, which is scarcely distinguished by many from that made from the grape.

Apples are also made into jelly, by grinding and pressing in the ordinary way for cider, then passed, in a thin and nearly continuous current, over an intensely heated clarifying or evaporating pan, such as is ordinarily used in the manufacture of molasses from the sorgho sugar-cane. About eight gallons of the apple-juice, or cider, will make one gallon of a very delicious jelly.

Dried apples are also a considerable article of commerce. Farmers usually pare and quarter them by hand, and dry them in the sun; but those who pursue it as a matter of trade pare them by machinery, and dry them slowly in ovens. They are then packed in bags or barrels, and used either at home, in sea stores, or are exported.

In perfumery, the pulp of this fruit, mixed intimately with lard, forms pomatum. The wood is employed for lasts, and for other purposes, by turners; and, being fine-grained and compact, is sometimes stained black and used for ebony by cabinet-makers.

The quality of an apple is always judged of by the use to which it is to be applied. A table or dessert apple of the finest quality should be of medium size, regular form, and fine color; and the flesh should be fine-grained, crisp, or tender, and of a sprightly or rich flavor and aroma. Very large-

sized or coarse apples are only admired by persons who have little knowledge of the true criterion of excellence. Apples for kitchen use should have the property of cooking evenly into a tender, pulpy consistence, and are generally acid in flavor; and, although there are many good cooking apples unfit for the table, many sorts, as the Fall Pippin and the Greening, are excellent for both purposes. To this we may add, that for the common apple-sauce made by farmers, a high-flavored sweet apple, which boils somewhat firm, is preferred, as this is generally made with cider. The very common use made of this cheap preserve at the North and West, and the recent practice of fattening hogs, horses, and other animals upon sweet apples, accounts for the much greater number of varieties of sweet apples held in esteem here than in any other country. In fact, so excellent has the saccharine matter of the apple been found for this purpose, that whole orchards of sweet apples are frequently planted here for the purpose of fattening swine and cattle, which are allowed to run at large in them.

Cider apples are varieties frequently useless for any other purpose. The best for this purpose are rather tough, piquant, and astringent; their juice has a high specific quality, and they are usually great bearers, as the Harrison, the Red Streak, and the Virginia Crab.

PROPAGATION.

The Apple for propagation is usually raised from seeds obtained from the pomace of the cider-mills, and a preference is always given to that from thrifty young orchards. These are sown in autumn, in broad drills, in good mellow soil, and they remain in the seed-beds—attention being paid to keeping the soil loose and free from weeds from one to three years, according to the richness of the soil. When the seedlings are a little more than a fourth of an inch in diameter, they should be taken up in the spring or autumn, their tap-roots shortened, and then planted in nursery rows, one foot apart, and three to four feet between the rows. If the plants are thrifty and the soil good, they may be budded the following autumn, within one or two inches of the ground, and this is the most speedy mode of obtaining strong, straight, thrifty plants. Grafting is generally performed when the stocks are about half an inch thick; and for several modes of performing it on the Apple, see the remarks on *grafting* in a previous page. When young trees are feeble in the nursery, it is usual to head them back two-thirds the length of the graft, when they are three or four feet high, to make them throw up a strong, vigorous shoot.

Apple-stocks for dwarfs are raised by layers, as pointed out in the article on Layers.

Apple-trees for transplanting to orchards should be at least two years budded, and six or seven feet high, and they should have a proper balance of head or side branches.

SOIL AND SITUATION.

The Apple will grow on a great variety of soils, but it seldom thrives on very dry sands, or soils saturated with moisture. Its favorite soil, in all countries, is a strong loam of a calcareous or limestone nature. A deep, strong, gravelly, marly, or clayey loam, or a strong sandy loam on a gravelly subsoil, produces the greatest crops and the highest-flavored fruit, as well as the utmost longevity of the trees. Such a soil is moist rather than dry—the most favorable condition for this fruit. Too damp soils may often be rendered fit for the Apple by thorough draining, and too dry ones by deep subsoil ploughing, or trenching, where the subsoil is of a heavier texture. And many apple orchards in New England are very flourishing and productive on soils so stony and rock-covered (though naturally fertile) as to be unfit for any other crop.*

As regards site, apple orchards flourish best in southern and middle portions of the country on north slopes, and often even on the steep north sides of hills, where the climate is hot and dry. Farther north a southern or southeastern aspect is preferable, to ripen the crop and the wood more perfectly.

We may here remark that almost every district of the country has one or more varieties which, having had its origin there, seems also peculiarly adapted to the soil and climate of that locality. Thus the Newtown Pippin and the Spitzenberg are the great apples of New York; the Baldwin and the Roxbury Russet, of Massachusetts; the Bellflower and the Rambo, of Pennsylvania and New Jersey; and the

* Blowing sands, says Mr. Coxe, when bottomed on a dry substratum, and aided by marl or meadow mud, will be found capable of producing very fine Apple-trees. Good cultivation and a system of high manuring will always remunerate the proprietor of an orchard, except it be planted on a quicksand or a cold clay; in such soils, no management can prevent an early decay. One of the most thrifty orchards I possess was planted on a blowing sand, on which I carted three thousand loads of mud on ten acres, at an expense of about twenty-five dollars per acre, exclusive of much other manure; on this land I have raised much wheat and clover. Of five rows of the Winesap Apple planted upon it eight years ago, on the summit of a sandy knoll, not one has died out of near an hundred trees—all abundant bearers of large and fair apples.—*View of Fruit Trees*, p. 31.

Peck's Pleasant and the Seek-no-further, of Connecticut; and though these apples are cultivated with greater or less success in other parts of the country, yet nowhere is their flavor and productiveness so perfect as in the best soils of their native districts—excepting in such other districts where a *soil containing the same elements* and a *corresponding climate* are also to be found.

PREPARING, PLANTING, AND CULTIVATION OF ORCHARDS.

With the exception of a few early and very choice sorts in the fruit-garden, the orchard is the place for this tree, and indeed, when we consider the great value and usefulness of apples to the farmer, it is easy to see that no farm is complete without a large and well-selected apple orchard.

The distance at which the trees should be planted in an orchard, depends upon the mode in which they are to be treated. When it is desired finally to cover and devote the whole ground to the trees, thirty feet apart is the proper interval; but where the farmer wishes to keep the land between the trees in grain and grass, fifty feet is not too great a distance in strong soils. Forty feet apart, however, is the usual distance at which the trees are planted in orchards.

Before transplanting, the ground should be well prepared for the trees by ploughing deeply and subsoiling the whole field one year or more previous to planting. Poor soils require manure; and turning under green crops, such as clover, peas, etc., serves to lighten and make porous, open, and enrich the soil. Where the subsoil is a heavy clay, it is best to thoroughly underdrain the whole by means of tile drains, at distances of two or three rods, and at the same time the surface drains should always be kept open, to prevent any water standing about the roots of the trees.

Vigorous, healthy young trees should be selected from the nurseries. As there is a great difference in the natural growth, shape, and size of the various sorts of apple-trees, those of the same kind should be planted in the rows together or near each other; this will not only facilitate culture and gathering the fruit, but will add to the neatness and orderly appearance of the orchard.

It is an indispensable requisite in all young orchards to keep the ground mellow and loose by cultivation; at least for the first few years, until the trees are well established. Indeed, of two adjoining orchards, one planted and kept in grass, and the other ploughed for the first five years, there will be an incredible difference in favor of the latter. Not only will these trees show rich, dark, luxuriant foliage, and

clean smooth stems, while those neglected will have a starved and sickly look, but the size of the trees in the cultivated orchard will be treble that of the others at the end of this time, and a tree in one will be ready to bear an abundant crop before the other has commenced yielding a peck of good fruit. Fallow crops are the best for orchards—potatoes, beets, carrots, bush beans, and the like; while grains, such as rye, wheat, oats, etc., are very injurious; but whatever crops may be grown, it should constantly be borne in mind that the roots of the tree require the sole occupancy of the ground, so far as they extend, and therefore that an area of more than the diameter of the head of the tree should be kept clean of crops, weeds, and grass.

When the least symptom of failure or decay in a bearing orchard is perceived, the ground should have a good top-dressing of manure, and of marl, or mild lime, in alternate years. It is folly to suppose that so strong-growing a tree as the apple, when planted thickly in an orchard, will not, after a few heavy crops of fruit, exhaust the soil of much of its proper food. If we desire our trees to continue in a healthy bearing state, we should therefore manure them as regularly as any other crop, and they will amply repay the expense. There is scarcely a farm where the *waste* of barn-yard manure, the urine, etc., if properly economized by mixing this animal excrement with the muck-heap, would not be amply sufficient to keep the orchards in the highest condition. And how many moss-covered barren orchards, formerly very productive, do we not every day see, which only require a plentiful new supply of food in a substantial top-dressing, thorough scraping of the stems, and washing with diluted soft soap, to bring them again into the finest state of vigor and productiveness.

The bearing year of the Apple, in common culture, only takes place every alternate year, owing to the excessive crops which it usually produces, by which they exhaust most of the organizable matter laid up by the tree, which then requires another season to recover and collect a sufficient supply again to form fruit-buds. When half the fruit is thinned out in a young state, leaving only a moderate crop, the apple, like other fruit-trees, will bear every year, as it will also if the soil is kept in high condition. The bearing year of an apple-tree, or a whole orchard, may be changed by picking off the fruit when the trees first show good crops, allowing it to remain only in the alternate seasons which we wish to make the bearing year.

PRUNING.

The Apple in orchards requires very little pruning if the

trees, while the orchard is young, are carefully inspected every year early in March, and all crossing branches taken out while they are small. When the heads are once properly adjusted and well balanced, the less the pruning-saw and knife are used the better, and the cutting out of dead limbs, and removal of such as may interfere with others, or too greatly crowd up the head of the tree, is all that an orchard will usually require. But wherever a limb is pruned away the surface of the wound should be neatly smoothed, and if it exceeds an inch in diameter, it should be covered with the liquid shellac previously noticed.

INSECTS.

There are several insects that in some parts of the country are very destructive or injurious to this tree; a knowledge of the habits of which is therefore very important to the orchardist. These are chiefly the borer, the caterpillar, and the canker-worm.

The Apple-borer is, as we usually see it in the trunks of the Apple, Quince, and thorn trees, a fleshy white grub, which enters the tree at the collar, just at the surface of the ground, where the bark is tender, and either girdles the tree or perforates it through every part of the stem, finally causing its death. This grub is the larva of a brown and white striped beetle, half an inch long (*Saperda bivittata*), and it remains in this grub state two or three years, coming out of the tree in a butterfly form early in June—flying in the night only, from tree to tree, after its food, and finally depositing its eggs, during this and the next month, in the collar of the tree.

The most effectual mode of destroying the borer is by picking it out with the point of a knife, or, when it cannot thus be reached, killing it by thrusting a flexible wire as far as possible into its hole. Dr. Harris recommends placing a bit of camphor in the mouth of the aperture and plugging the hole with soft wood. But it is always better to prevent the deposit of the egg, by placing about the trunk, early in the spring, a small mound of ashes or lime; or by drawing away the soil an inch or two deep at the base of the tree and wrapping with coarse hardware paper, tying it, and then replacing the earth; and where orchards have already become greatly infested with this insect, the beetles may be destroyed by thousands in June, by building small bonfires of shavings in various parts of the orchard. The attacks of the borer on nursery trees may in a great measure be prevented by washing the stems in May, quite down into the ground, with a solution of two pounds of potash in eight quarts of water.

The Caterpillar is a great pestilence in the Apple orchard. The species which is most troublesome to our fruit-trees (*Clisiocampa americana*) is bred by a sort of lackey moth, different from that most troublesome in Europe, but its habits as a caterpillar are quite as annoying to the orchardist. The moth of our common caterpillar is a reddish brown insect, whose expanded wings measure about an inch and a half. These moths appear in great abundance in midsummer, flying only at night, and often buzzing about the candles of our houses. In laying their eggs they choose principally the Apple or Cherry, and they deposit thousands of small eggs about the forks and extremities of the young branches. The next season, about the middle of May, these eggs begin to hatch, and the young caterpillars in myriads come forth, weaving their nests or tents in the fork of the branches. If they are allowed by the careless cultivator to go on and multiply, as they soon do incredibly fast, they will in a few seasons, sometimes in a single year, increase to such an extent as almost to cover the branches. In this caterpillar state they live six or seven weeks, feeding most ferociously upon the leaves, and often stripping whole trees of their foliage. Their effect upon the tree at this period of the season, when the leaves are most important to the health of the tree and the growth of the fruit, is most deplorable. The crop is stunted, the health of the tree enfeebled, and, if they are allowed to remain unmolested for several seasons, they will often destroy its life, or render it exceedingly decrepid and feeble.

To destroy the caterpillar various modes are adopted. One of the most effectual is to touch the nest with a sponge, attached to the end of a pole, and dipped in strong spirits of ammonia or naphtha from coal-oil refinings; the sponge should be turned slowly round in the nests, and every insect coming in contact will be instantly killed. This should be done early in the season. Or they may be brought down and destroyed with a round brush fixed to the end of a pole, and worked about in the nests. On small trees they may be stripped off with the hand, and crushed under the foot; and by this plain and simple mode, begun in time, with the aid of a ladder, they may in a large orchard be most effectually kept under by a few moments' daily labor of a single man. As they do not leave their nests until nine in the morning, the extirpator of caterpillars should always be abroad and busy before that time, and while they are all lying quietly in the nests. And let him never forget that he may do more in an hour, when he commences early in the season, than he will in a whole day at a later period, when they are thoroughly scattered •

among the trees. If they are allowed to remain unmolested, they spin their cocoons about the middle of June, and in a fortnight's time comes forth from them a fresh brood of moths, which, if they are not put an end to by bonfires, will again lay the eggs of an infinite number of caterpillars for the next spring.

The Canker-worm (*Anisopteryx pometaria* of Harris) is in some parts of the country one of the worst enemies of the Apple, destroying also its foliage with great rapidity. It is not yet common here, but in some parts of New England it has become a serious enemy. The male is a moth, with pale ash-colored wings, with a black dot, a little more than an inch across. The female is wingless, oval, dark ash-colored above, and gray beneath.

The canker-worm usually rises out of the ground very early in the spring, chiefly in March, as soon as the ground is free from frost; though a few also find their way up in the autumn. The females, having no wings, climb slowly up the trunks of the trees, while the winged males hover about to pair with them. Very soon after this, if we examine the trees we shall see the eggs, of which every female lays some sixty or a hundred, glued over, closely arranged in rows, and placed in the forks of branches, and among the young twigs. About the twentieth of May these eggs are hatched, and the canker-worms, dusky brown, or ash-colored, with a yellow stripe, make their appearance, and commence preying upon the foliage. When they are abundant they make rapid progress, and in places where the colony is firmly established, they will sometimes strip an orchard in a few days, making it look as if a fire had passed over it. After feeding about four weeks, they descend into the ground three or four inches, where they remain in a chrysalis form, to emerge again the next season. As the female is not provided with wings, they do not spread very rapidly from one place to another.

The attacks upon the canker-worm should be chiefly made upon the female in her way from the ground up the trunk of the tree.

The common mode of protecting Apple-trees is to surround the trunk with a belt or bandage of canvas, four or five inches wide, which is then thickly smeared with tar. In order to prevent the tar from soon becoming dry and hard, a little coarse train-oil must be well mixed with it; and it should be watched and renewed as often as it appears necessary. This tarred belt catches and detains all the females on their upward journey, and prevents them from ascending the tree to lay their eggs. And if kept in order it will very effectually deter and destroy them. When the canker-worm is abundant it is

necessary to apply the tarred bandage in October, and let it remain till the last of May, but usually it will be sufficient to use it in the spring. It is probable that a mixture of coal-tar and common tar would be the best application, as it is more offensive, and will not so easily dry and become useless by exposure to the air and sun. Some persons apply the tar directly to the stems of the tree, but this has a very injurious effect upon the trunk. Old India rubber, melted in an iron vessel over a very hot fire, forms a very adhesive fluid, which is not affected by exposure to the weather, and is considered, by those who have made use of it, the best substance for smearing the bandages, as being a more effectual barrier, and seldom or never requiring renewal.

Mr. Jonathan Dennis, Jun., of Portsmouth, Rhode Island, has invented and patented a circular leaden trough, which surrounds the trunk of the tree, and is filled with oil, and stops effectually the ascent of the canker-worm. There appear, however, to be two objections to this trough, as it is frequently used; one, the escape of the oil, if not carefully used, which injures the tree; and the other, the injurious effect of nailing the troughs to the bark or trunk. They should be supported by wedges of wood driven in between the trough and the trunk, and the spaces completely filled up with liquid clay, put on with a brush. The insects must be taken out and the oil renewed from time to time. For districts where the canker-worm greatly abounds, this leaden trough is probably the most permanent and effectual remedy yet employed.

Circular strips of zinc or tin, about four inches wide, passing around the trunk of the tree, the lower end standing out in a flaring manner, resembling a bowl bottom upwards, proves an effectual preventive remedy, as the insects cannot pass the lower rim.

Experiments made by the Hon. John Lowell and Professor Peck, of Massachusetts, lead to a belief that if the ground under the trees which suffer from this insect is dug and well pulverized to the depth of five inches, in October, and a good top-dressing of lime applied as far as the branches extend, the canker-worm will there be almost entirely destroyed. The elm, and linden-trees in many places, suffer equally with the Apple from the attacks of the canker-worm.

The bark-louse, a dull white, oval, scale-like insect, about a tenth of an inch long (a species of *coccus*), which sometimes appears in great numbers on the stems of young Apple and Pear trees, and stunts their growth, may be destroyed by a wash of soft soap or the potash solution. The best time to apply these is in the month of June, when the insects are young, or when the tree is devoid of foliage.

The woolly Aphis (aphis lanigera), or American blight,* is a dreadful enemy of the Apple. It makes its appearance in the form of a minute white down in the crotches and crevices of the branches, which is composed of a great number of very minute woolly lice, that if allowed will increase with fearful rapidity, and produce a sickly and diseased state of the whole tree. Fortunately, this insect is easily destroyed. "This is effected by washing the parts with diluted sulphuric acid, which is formed by mixing three-fourths of an ounce by measure of the sulphuric acid of the shops with seven and a half ounces of water. It should be rubbed into the parts affected by means of a piece of rag tied to a stick, the operator taking care not to let it touch his clothes. After the bark of a tree has been washed with this mixture, the first shower will redissolve it, and convey it into the most minute crevice, so as effectually to destroy all insects that may have escaped." —*Loudon's Magazine*, ix., p. 336. It is the more common practice to destroy it by the use of whale-oil, soap, or lime wash.

The Apple-worm or Codling moth (*Carpocapsa pomonella* of European writers) is the insect introduced with the Apple-tree from Europe which appears in the early worm-eaten Apples and Pears in the form of a reddish white grub, and causes the fruit to fall prematurely from the trees. The perfect insect is a small moth, the fore-wings gray, with a large round brown spot on the hinder margin. These moths appear in the greatest numbers in the warm evenings of the first of June, and lay their eggs in the eye or blossom-end of the young fruit, especially of the early kinds of Apples and Pears. In a short time these eggs hatch, and the grub burrows its way till it reaches the core; the fruit then ripens prematurely, and drops to the ground. Here the worm leaves the fruit, and creeps into the crevices of the bark and hollow of the tree, and spins its cocoon, which usually remains there till the ensuing spring, when the young moth again emerges from it. The readiest way of destroying them, when it can be done conveniently, is to allow swine and poultry to run at large in the orchards when the premature fruit is falling; or otherwise the fruit may be picked up daily and placed where the worms will be killed. It is said that if an old cloth is placed in the crotch of the tree about the time the fruit begins to drop, the Apple-worm will make it a retiring-place, and thou-

* It is not a little singular that this insect, which is not indigenous to this country, and is never seen here except when introduced with imported trees, should be called in England the *American* blight. It is the most inveterate enemy of the Apple in the north of France and Germany.

sands may be caught and killed from time to time. As the cocoons are deposited chiefly under the old loose bark, the thorough cultivator will take care, by keeping the trunks of his trees smooth, to afford them little harbor; and by scraping and washing the trunks early in the spring, to destroy such as may have already taken up their quarters there.

When the fruit of orchards is much liable to the attacks of this insect, we cannot too much insist on the efficacy of small bonfires lighted in the evening, by which myriads of this and all other moths may be destroyed before they have time to deposit their eggs and cause worm-eaten fruit.

A simple preventive remedy, or method of trapping the insect when in the grub form, has been introduced by Dr. J. P. Trimble, of New Jersey, and consists in twisting a band or rope of hay, long enough to pass three or four times around the body of the tree, and putting it thereon, "securing its ends so as to prevent its becoming loose; as soon as the fruit shows signs of the worms being at work, or from the middle to the last of June. They should be examined every two weeks, as long as the warm weather lasts, the earlier broods of worms becoming moths and producing a second crop. If the orchard is pastured, the bands must of course be put out of the reach of animals. Sometimes it may be necessary to place them around the limbs; in that case the scales of rough bark on the body of the tree below them should be scraped off."

The Blight, which occasionally kills suddenly the ends of the limbs of the apple and the quince, is caused by an insect (*Bostrichus bicaudatus*) which affects the small twigs, by penetrating the wood at the axil of a leaf, and causing it to wither. It is designated the *Twig blight*. Little or no injury results, but it is always well to cut away the injured twig just below the wound.

The Apple-bark Beetle (*Tomicus mali*), described by Fitch, is a small, smooth, black or chestnut-red beetle; the larvæ feed under the bark and then enter the wood, sometimes killing the young tree.

GATHERING AND KEEPING THE FRUIT.

In order to secure soundness and preservation, it is indispensably necessary that the fruit should be gathered by hand. For winter fruit the gathering is delayed as long as possible, avoiding severe frosts; and the most successful practice with our extensive orchardists is to place the good fruit directly, in a careful manner, in new, tight flour-barrels as soon as gathered from the tree. These barrels should be gently

shaken while filling, and the head closely pressed in; they are then placed in a cool, shady exposure, under a shed open to the air, or on the north side of a building, protected by covering of boards over the top, where they remain for a fortnight, or until the cold becomes too severe, when they are carefully transferred to a cool, dry cellar, in which air can be admitted occasionally in brisk weather.

Another method, by some regarded as superior, and tending to keep the fruit longer and better, is to gather carefully, in a dry day, as late as possible in the fall, and place the fruit on a floor, or in open bins, from one foot to sixteen inches in depth. After about a week examine, and if the dampness, commonly called sweat, has passed off, prepare a good clean barrel, and as each fruit is placed in the barrel, see that it is made perfectly dry by wiping it with a soft cloth. As soon as the barrel is filled, head it up securely and place it in a cool, dry cellar.

A cellar for this purpose should be dug in dry, gravelly, or sandy soil, with, if possible, a slope to the north; or, at any rate, with openings on the north side for the admission of air very rarely in weather not excessively cold. Here the barrels should be placed in tiers *on their sides*, and the cellar should be kept as dark as possible. In such a cellar, one of the largest apple-growers in Dutchess County is able to keep the Greening Apple, which, in the fruit-room, usually decays in January, until the 1st of April, in the freshest and finest condition. Some persons place a layer of clean rye-straw between every layer of apples, when packing them in the barrels.

Apples are frequently kept by farmers in pits or ridges in the ground, covered with straw and a layer of earth, in the same manner as potatoes; but it is an inferior method, and the fruit very speedily decays when opened to the air. The English apple-growers lay their fruit in heaps, in cool, dry cellars, and cover them with straw.

Various plans and methods have been designed for the keeping of fruit, few, if any of which are found practically adapted to the general wants of a family. Among those most prominent is the Roberts Fruit House, which is constructed by forming a room inside of an ice-house, having the ice around the sides and overhead; and with an arrangement for drainage below, by means of a pipe beneath the floor, and a condensing-tube inside the chamber or fruit-room.

The Nyce Fruit House is constructed with upright walls, sheeted on the inside and outside with sheet-iron, nailed to upright studding, and having the inside space closely packed with sawdust or chaff. Above the fruit-room is a floor of

galvanized iron, on which ice, five to six feet in depth, is packed, and from it a tube or pipe is led off, for the purpose of conveying the water as the ice melts. Below the floor of the fruit-room, which is also of galvanized iron, shavings three feet thick are first laid, and then coated with tar and pitch, to prevent any rise of moisture from below. The temperature is kept at all seasons at just above the freezing-point, and the moisture from the fruit engendered in the room is absorbed by the use of "bittern" from salt-works. This absorption of moisture by means of *chloride of calcium*, or the waste *bittern* of salt-works, is the principal feature of novelty in this house. But while upon a large scale these fruit-houses are found of value, their adoption involves too much of expense in their first construction, and too great care, to meet the wants of the general fruit-grower. When a fruit-house or room is to be constructed, aside from the cellar, under the barn or dwelling, select a location where complete drainage can be had. Excavate so as that the lower fruit-room will be about two-thirds of its height under ground; lay the outside wall, and then, leaving a space of four inches, lay another inside cement wall. Construct windows so as to give free circulation, and yet keep the room dark by having blinds on the outer side, and sash opening on the inner wall. For winter, double sash will be required. For the upper room, the same principle of forming a double wall, leaving a space of at least four inches, is to be continued, and the arrangement of shelves or drawers through the centre, keeping a passage open all around, may be made to meet the wants for which the room is to be used.

When apples are exported, each fruit in the barrel should be wrapped in clean soft paper, and the barrels should be placed in a dry, airy place between decks.

CIDER.

To make the finest cider, Apples should be chosen which are especially suited to this purpose. The fruit should be gathered about the first of November, and coarse cloths or straw should be laid under the tree, to secure them against bruising when they are shaken from the tree. If the weather is fine the fruit is allowed to lie in heaps in the open air, or in airy sheds or lofts for some time, till it is thoroughly ripened. All immature and rotten fruit should then be rejected, and the remainder ground in the mill as nearly as possible to a uniform mass. This pulp should now remain in the vat from 24 to 48 hours, or even longer if the weather is cool, in order to heighten the color and increase the saccharine principle.

It is then put into the press (without wetting the straw), from whence the liquor is strained, through hair-cloth or sieves, into perfectly clean, sweet, sound casks. The casks, with the bung out, are then placed in a cool cellar, or in a sheltered place in the open air. Here the fermentation commences, and as the pomace and froth work out of the bung-hole, the casks must be filled up every day with some of the same pressing, kept in a cask for this purpose. In two or three weeks this rising will cease, when the first fermentation is over, and the bung should be put in loosely—then in a day or two driven in tight—leaving a small venthole near it, which may also be stopped in a few days after. If the casks are in a cool airy cellar the fermentation will cease in a day or two, and this state may be known by the liquor becoming clear and bright, by the cessation of the discharge of fixed air, and by the thick crust which has collected on the surface. The clear cider should now be drawn off and placed in a clean cask. If the cider, which must be carefully watched in this state, to prevent the fermentation going too far, remains quiet, it may be allowed to stand till spring, and the addition at first of about a gill of finely powdered charcoal to a barrel will secure this end; but if a scum collects on the surface, and the fermentation seems inclined to proceed further, it must be immediately racked again. The vent-spile may now be driven tight, but examined occasionally. In the beginning of March a fine racking should take place, when, should the cider not be perfectly fine, about three-fourths of an ounce of isinglass should be dissolved in the cider and poured in each barrel, which will render it perfectly clear. It may be bottled now, or any period before the blossoming of the Apple or afterwards, late in May. When bottling, fill the bottles within an inch of the bottom of the cork, and allow the bottles to stand an hour before the corks are driven. They should then be sealed and kept in a cool cellar, with clean dry sand up to their necks, or laid on their sides in boxes or bins, with the same between each layer.

VARIETIES.

The varieties of the Apple at the present time are very numerous. The garden of the Horticultural Society of London, which contains the most complete collection of fruit in the world, enumerates now, 1845, about 900 varieties, and nearly 1500 have been tested there. Of these the larger proportion are of course inferior; but it is only by comparison in such an experimental garden that the value of the different varieties for a certain climate can be fully ascertained.

The European Apples generally are, in this climate, inferior to our first-rate native sorts, though many of them are of high merit also with us. There is much confusion in regard to names of Apples, and the variation of fruits from soil, location, or other causes, makes it difficult to identify the kinds, and until they are brought together and fruited on the same ground the certainty of their nomenclature will not be established. New varieties of Apples are constantly springing up in this country from the seed, in favorable soils; and these, when of superior quality, may, as a general rule, be considered much more valuable for orchard culture than foreign sorts, on account of their greater productiveness and longevity. Indeed every State has some fine Apples peculiar to it, and it is therefore impossible in the present state of pomology in this country to give a complete list of the finest Apples of the United States. To do this will require time, and an extended and careful examination of their relative merits collected in one garden. The following descriptions comprise all the finest American and foreign varieties yet known in our gardens.

CLASSIFICATION.

The distinctive characters of fruits have, during the past quarter of a century, become so much intermingled and hybridized that, after carefully studying them, and comparing them with the order of classification adopted by authors, we have come to the conclusion that no definite order can safely be made to embrace them. Forms, colors, growths, and periods of ripening are so much interwoven and distributed as to defy all arbitrary rules of classification, and hence we have without hesitation abandoned it entirely, substituting in our work the simple order of the alphabet as confined to names, believing such course will prove the most available and useful.

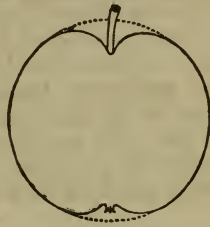
TERMS USED IN DESCRIBING APPLES.

In identifying fruits, not only certain forms and features of the fruit itself are desirable, to have a definite description under plain and intelligible terms, but often the form of the growth of the tree, as well as the color of its young wood, are essential to a clear knowledge for decision. The form and general appearance of a fruit may be changed by soil or climate, but the general habit of growth and color of the young wood is always the same, and in the ensuing pages this latter point has been kept in view and recorded, so far as knowledge could be obtained, respecting valuable varieties.

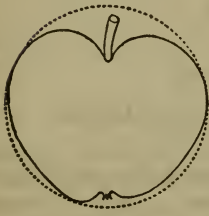
The terms used we have sought to make simple and uniform, and within the comprehension of all, rather than scientific. In describing trees, the character designed to be represented is that of the orchard, or trees in a healthy bearing condition, and the growth is said to be *strong* and *vigorous*, as the Rhode Island Greening, or Baldwin; *vigorous* and *slender*, as the Jonathan or Winesap; *stout* and *short-jointed*, as Jersey Sweet or Primate; *medium* and *vigorous*, as Fameuse, or Maiden's Blush. And for the general form of the tree, the word *upright spreading* is used to designate such as Baldwin; *spreading*, as the Rhode Island Greening; *round-headed*, as in the Early Harvest; *upright*, as with Benoni. In describing fruits, the word *base* means that part of the fruit in which the stem is planted; and *apex*, the blossom end, or crown, as it is sometimes termed. Forms are so much interwoven, as it were, one with another, that we have selected but four as the primary bases on which all others are built, and are subsidiary.



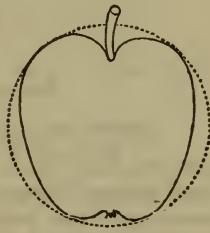
Oblate.



Roundish.



Conical.



Oblong.

These primary forms are *roundish*, *oblate*, *conical*, and *oblong*. The terms *round*, *roundish*, or *globular*, are sometimes used in connection, rather as qualifying expressions than as distinctive; for while the word *roundish*, which indicates the height and diameter as nearly equal, applies to many fruits, there is no perfectly round or globular apple known.

Oblate indicates the height as much less than diameter. *Conical*, is when the fruit is roundish, having the apex and end contracted. *Oblong*, is when the fruit is longer than broad, and having the apex and base of nearly the same breadth. Connected and subsidiary terms, such as *roundish*, *conical*, or *conic*, are when the Apple unites the two primary forms of roundish and conical; or *elongated conical*, or *conic*, when the length is considerably beyond the breadth. *Truncate conic*, is when the fruit is flattened at the apex. *Ribbed*, or *obscurely ribbed*, when the surface has rising lines and channels from apex to base. *Oblique*, is when the fruit presents the appearance as of being one-sided, or when the axis is inclined to one side. *Oblate, not symmetric*, or *sides unequal*, when one side is less than the other. *Corrugated*, having depressed lines, furrows, or wrinkles. *Acute*, when narrowing to a sharp point. *Obtuse*, round or blunt. *Abrupt*, when the depression breaks off suddenly.

In designating the quality of fruits, the terms of the American Pomological Society have been adopted; but it must be remembered that these terms apply strictly and only to the actual quality of the fruit as a dessert sort.

Some varieties classed as best, and which are strictly of the highest quality as fruit, are, nevertheless, unprofitable as varieties to grow, except by the amateur, while many to which the term *very good*, or *very good to best*, is applied, are known to be highly valuable and profitable for market, as well as excellent for the dessert.

APPLES.

AMERICAN BEAUTY.

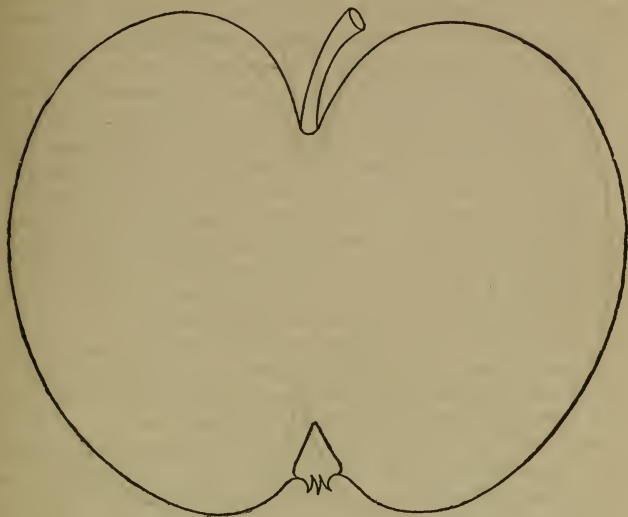
Sterling Beauty.

Beauty of America.

Origin, Sterling, Mass. Tree hardy, vigorous, productive, an annual bearer. Wood dull reddish brown, slightly downy.

Fruit large, form roundish oblate, slightly inclining to conic, obscurely ribbed. Color a yellow ground mostly covered with red, which is quite dark in the sun, sometimes obscurely splashed and striped, and thickly sprinkled with small light and brown dots. Stalk rather short, somewhat slender. Cavity medium, with russet, the rays of which sometimes extend out over a portion of the fruit. Calyx small, closed, or half open. Segments medium, slightly recurved. Basin medium, uneven. Flesh yellowish, rather compact, tender, juicy,

rich mild, subacid, aromatic. Core small. Very good.
December to April.



American Beauty.

AMERICAN GOLDEN PIPPIN.

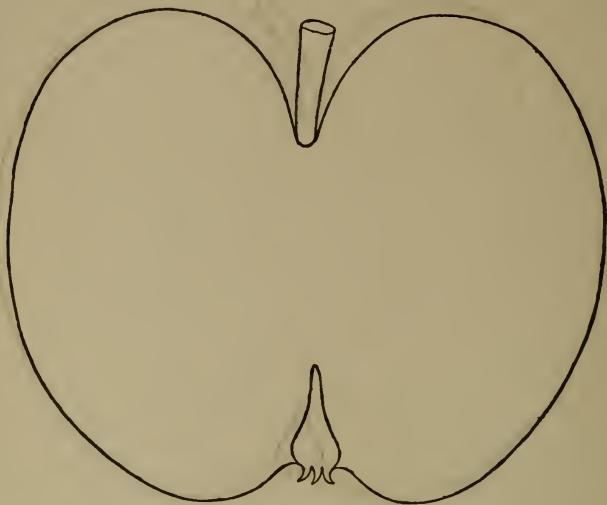
Golden Pippin.
Ribbed Pippin.
Golding.

New York Greening.
Newtown Greening.
Golden Apple.

This old Apple is one of our finest American fruits, and seems not to be generally known. It has been cultivated more than fifty years, and is considered one of the most profitable for orchard culture and marketing; it is also a superior Apple for family use. Growth strong, similar to R. I. Greening, but less drooping, making a round, spreading head; does not bear young, but very productive when a little advanced, and a popular fruit where known. Wood dark reddish, downy, with prominent flattened buds.

Fruit medium to large; form roundish oblate, inclining to conic, obscurely ribbed; color yellow, sometimes a brownish blush in sun, thinly sprinkled with gray dots, often slightly netted with thin russet. Stalk short, moderately stout. Cavity large, deep. Calyx closed. Segments pointed, slightly recurved. Basin broad, open, slightly corrugated. Flesh

yellowish, breaking juicy, rather coarse, rich, aromatic, sub-acid. Core rather large. Very good. November to February.



American Golden Pippin.

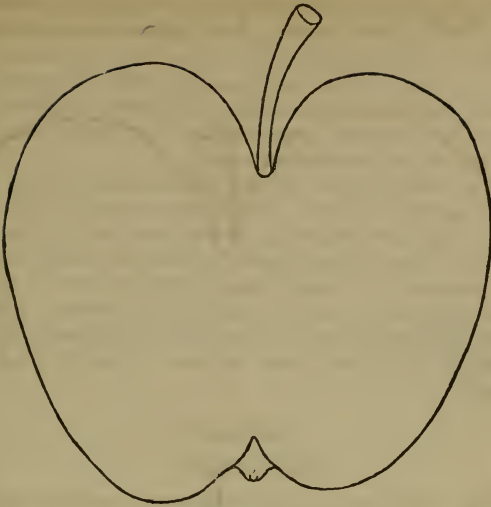
AMERICAN GOLDEN RUSSET.

Golden Russet,
Sheep Nose.

Bullock's Pippin.
Little Pearmain.

The American Golden Russet is one of the most delicious and tender Apples, its flesh resembling more in texture that of a buttery Pear than that of an ordinary Apple. It is widely cultivated at the West and in New England as the Golden Russet, and though neither handsome nor large, is still a universal favorite, from its great productiveness and admirable flavor. The uncouth name of Coxe, *Sheep-nose*, is nearly obsolete, except in New Jersey, and we therefore adopt the present one, to which it is well entitled. The tree is thrifty, with upright shoots, dull reddish grayish brown.

Fruit below medium size, roundish-ovate, dull yellow, sprinkled with a very thin russet. Stalk rather long and slender. Calyx closed, and set in a rather narrow basin. Flesh yellowish, very tender, juicy, with a mild, rich, spicy flavor. Best. October to January.

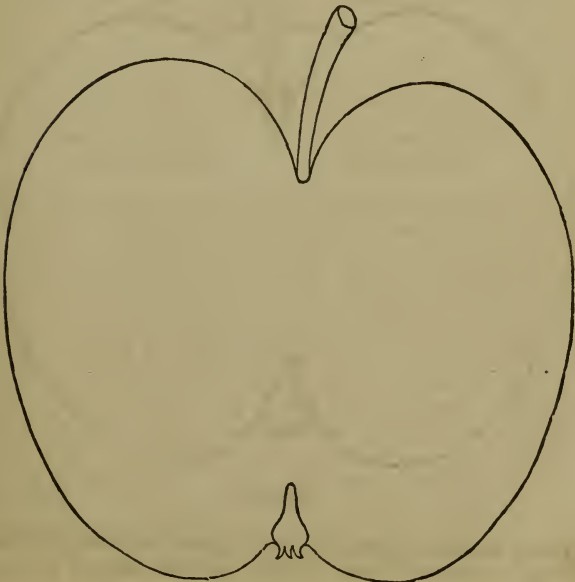


American Golden Russet.

AMERICAN SUMMER PEARMAIN.

Early Summer Pearmain.

Summer Pearmain.



American Summer Pearmain.

A rich, highly-flavored fruit, much esteemed where it is known. It appears to be quite different from the Summer Pearmain (of the English), and is probably a seedling raised from it. It ripens gradually from the tenth of August to the last of September. Tree moderately vigorous, or slow growth, with slender branches, round-headed, and bears abundantly. Young shoots dull reddish-brown.

Fruit of medium size, oblong, widest at the crown, and tapering slightly to the eye. Skin red, spotted with yellow in the shade, but streaked with livelier red and yellow on the sunny side. Stalk three-fourths of an inch long, and pretty deeply inserted. Eye deeply sunk. Calyx closed. Segments short, erect. Basin abrupt, slightly corrugated. Flesh yellow, remarkably tender, with a rich and pleasant flavor, and often bursts in falling from the tree. Quality best. Core medium.

ASHMORE.

Red Ashmore.

Origin unknown. Tree vigorous, upright, spreading. Young shoots dull reddish brown.



Ashmore.

Fruit medium, form roundish oblate, inclining to conical, generally regular; color whitish yellow, washed or shaded

with rich bright red, obscurely splashed, moderately sprinkled with light and gray dots. Skin glossy, smooth. Stalk medium; cavity broad, deep, slightly russeted. Calyx small, finely closed. Segments erect. Basin deep, open, slightly uneven. Flesh white, tender, juicy, mild, subacid. Core small. Very good. October, November.

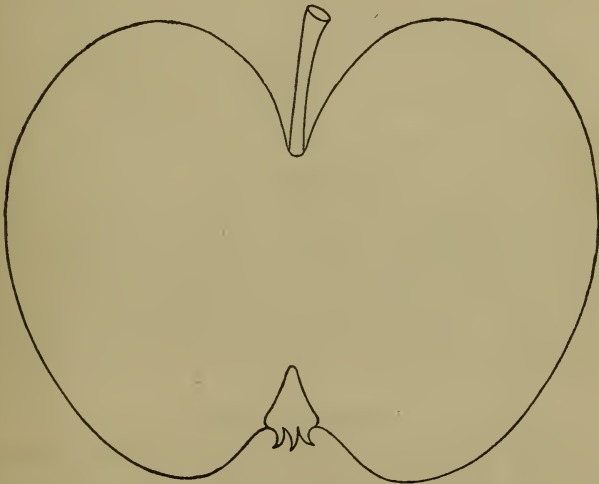
Striped Ashmore is claimed by some as a distinct variety, differing only in its coloring.

AUTUMNAL SWAAR.

Fall Swaar of West.

Origin unknown. Tree hardy, vigorous, spreading, productive alternate years, and much valued in many localities West.

Fruit large, roundish oblate, conic, orange-yellow, netted with russet and sprinkled with large star-shaped dots. Stalk rather short. Cavity broad, deep, slightly russeted. Calyx



Autumnal Swaar.

large, open. Basin deep, abrupt, and corrugated. Flesh yellow, juicy, tender, with a pleasant, rich, slightly aromatic subacid flavor. Core small. Very good. September, October.

AUTUMN SWEET BOUGH.

Late Bough.

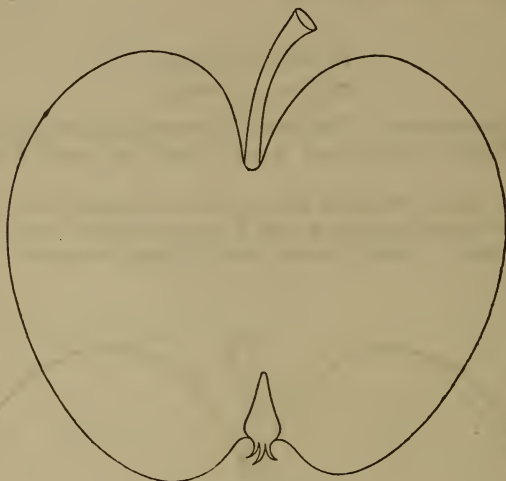
Sweet Bellflower.

Fall Bough.

Philadelphia Sweet.

White Sugar?

Origin unknown. Tree vigorous, upright, round-headed, very productive. One of the very best dessert sweet Apples of its season.



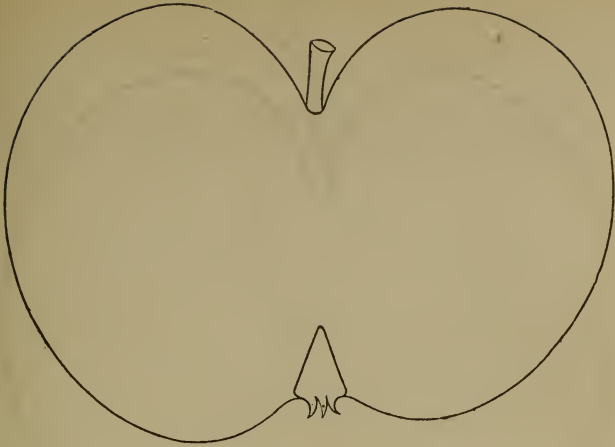
Autumn Sweet Bough.

Fruit medium or below, roundish conical, angular, smooth, pale yellow, sprinkled with a few brown dots. Stalk of medium length, rather slender, inserted in a deep narrow cavity. Calyx closed. Segments long. Basin deep, corrugated. Flesh white, very tender with a rich honeyed, sweet, refreshing flavor. Very good. Last of August to first of October.

BACHELOR'S BLUSH.

Origin unknown. Tree moderately vigorous, somewhat spreading. An annual moderate bearer.

Fruit medium, form oblate depressed, often obscurely ribbed, color yellowish with blush in sun, sprinkled with a few light and gray dots. Stalk very short. Cavity large, deep. Calyx half open. Segments short, erect. Basin medium, uneven. Flesh white, half fine, rather compact, crisp, moderately juicy, rather rich, subacid. Core small. Very good. August and September.



Bachelor's Blush.

BAILEY'S SWEET.

Edgerly's Sweet.

Howard's Sweet.

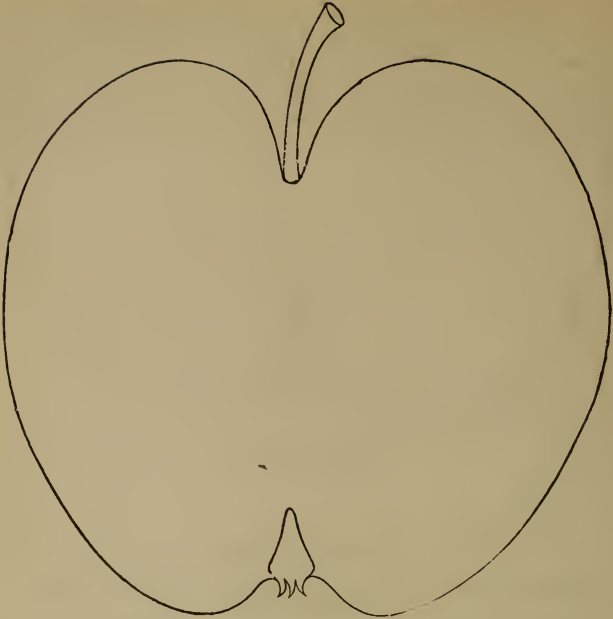
Paterson's Sweet.

Chillicothe Sweet.

An old variety of unknown origin, introduced by J. Edgerly, of Perry, N. Y., about the year 1840, but M. P. Spafford says it was grown in the nurseries around Rochester as early as 1818 as Chillicothe Sweet. Tree, hardy, vigorous, spreading, with long slender branches, inclining to droop when in bearing, as much of the fruit is borne on the ends of the twigs;—a very productive bearer in alternate years and a light crop the intervening ones.

This variety is regarded as profitable for all purposes, although perhaps a little too tender for shipping long distances.

Fruit large, variable in size, form roundish conical, often approaching oblong, obscurely ribbed, color yellowish, mostly shaded and obscurely striped with red, deep-red in the sun, and thickly sprinkled with minute light dots. Stalk short and rather small, inserted in a narrow cavity. Calyx small, closed, set in a narrow irregular basin. Flesh white, fine, tender, not very juicy, almost melting, with a honeyed sweet flavor. Core rather large. Very good. November to March.



Bailey's Sweet.

BALDWIN.

Woodpecker.
Felch ?

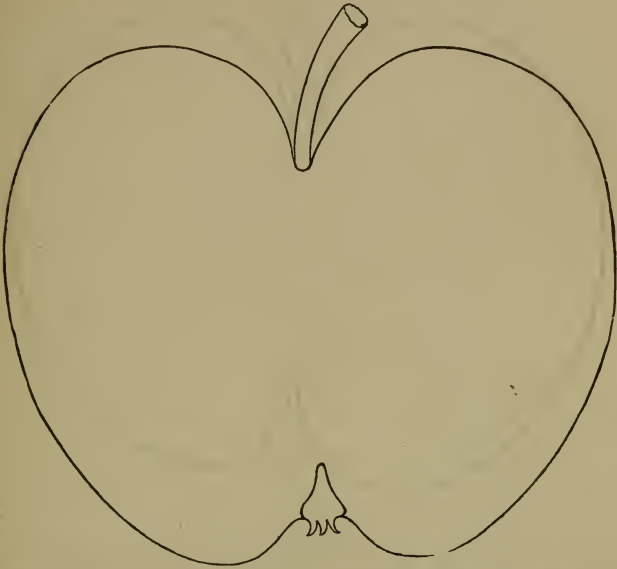
Pecker.
Red Baldwin.

Steele's Red Winter.
Butters.

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 same family as our Esopus Spitzenberg, and deserves its extensive popularity. Tree vigorous, somewhat spreading, an early bearer and very productive. Young shoots dull reddish brown.

Fruit large, roundish, and narrowing a little to the eye. Color yellow in the shade, but nearly covered and striped with crimson, red, and orange in the sun, dotted with a few russet

dots, and with radiating streaks of russet about the stalk. Calyx closed, and 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. Very good. The tree is a vigorous upright grower, and bears



Baldwin.

most abundantly. Ripe from November to March, but with us is in perfection in January.*

BALTIMORE.

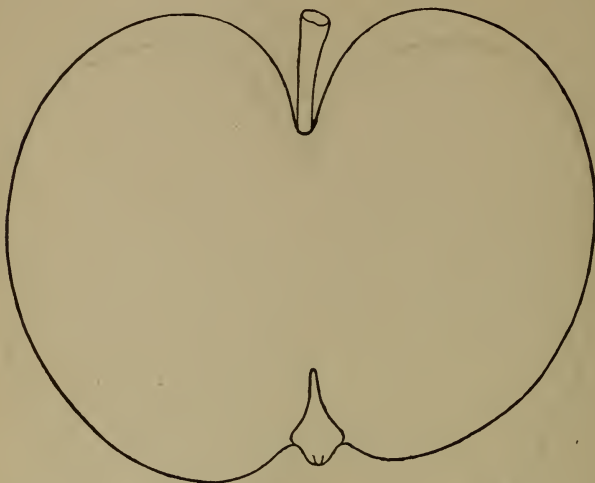
Cable's Gilliflower. Baltimore Pippin. Royal Pippin.

Origin unknown. Tree healthy, hardy, moderately vigorous, making a round head that when loaded with fruit appears

* The Baldwin, like nearly all other varieties of winter fruits, originated in the Northern and Eastern States; when grown in Southern latitudes they become autumn or early winter sorts, and lose more or less of their sprightliness and good qualities as table fruits. On the other hand, the summer-ripening varieties, originating North, are greatly improved when grown at the South.

almost drooping. Young shoots slender, dull reddish brown. A profitable variety for market or table use.

Fruit medium. Form roundish oblate, slightly conical, regular. Color pale yellow, shaded with light red, striped and splashed with dark red, almost purplish, having a grayish appearance of bloom, large light dots, with a dark centre. Stalk short. Cavity medium size, rather thinly russeted.



Baltimore.

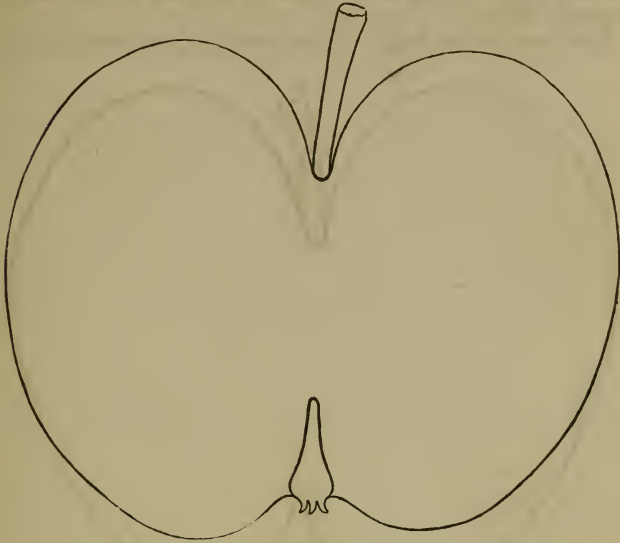
Calyx small, closed. Segments drawn to a point. Basin shallow, nearly smooth. Flesh whitish, tender, juicy, mild, subacid. Core medium. Very good. December to April.

BELMONT.

Gate.	White Apple.
Mamma Beam.	Waxen of some.
Golden Pippin of some.	Kelley White.
Golden Gate.	

Origin, near Strasburgh, Lancaster Co., Pa., in the garden of Mrs. Beam, at her gate, hence the names "Gate Apple," and "Mamma Beam." It was taken to Ohio by Jacob Neisley, Sen., and became very popular in Belmont Co., and we retain this name as being the most universal one. Tree vigorous, spreading, healthy, and very productive. Wood smooth, light reddish brown.

Fruit medium to large, globular, a little flattened and narrower towards the eye, sometimes oblong. Color light, waxen-yellow, often with a bright vermilion cheek. Stalk short. Cavity generally large. Calyx usually closed. Basin rather



Belmont.

deep, corrugated. Flesh yellowish, crisp, tender, juicy, sometimes almost melting, of a mild agreeable flavor. Very good. November to February.

BEN DAVIS.

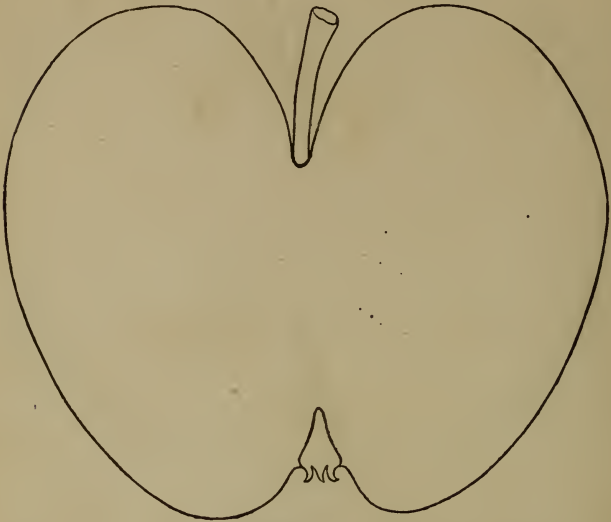
New York Pippin.	Carolina Red Streak.
Victoria Pippin.	Funkerhouser.
Victoria Red.	Robinson's Streak.
Red Pippin.	Robinson's Red Streak.
Kentucky Pippin.	Hutchinson Pippin.
Baltimore Red.	Virginia Pippin.
do. Pippin.	Kentucky Red Streak.
do. Red Streak.	Texan Red.

Joe Allen.

The origin of this apple is unknown; supposed to have originated in Virginia or Kentucky, about the year 1800. J. S. Downer of Kentucky writes that old trees are there found from which suckers are taken in way of propagating. The

tree is very hardy, a free grower, with very dark reddish brown, slightly grayish young wood, forming an erect round head, bearing early and abundantly. In quality it is not first-rate, but from its early productiveness, habit of blooming late in Spring after late frosts, good size, fair even fruit, keeping and carrying well, it is very popular in the South-west and West.

Fruit medium to large. Form roundish, truncated conical,



Ben Davis.

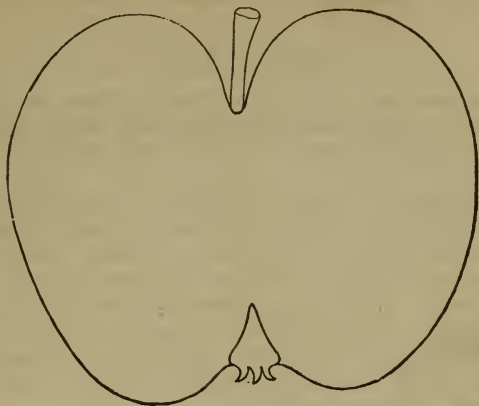
often sides unequal. Color yellowish, almost entirely over-spread, splashed, and striped with two shades of red, and dotted sparsely with areole dots. Stalk medium, rather slender. Cavity narrow, deep, russeted. Calyx partially open. Basin rather large, deep, slightly corrugated. Flesh white, a little coarse, tender, moderately juicy, pleasant, subacid. Core medium to large. Good. December to March.

BENONI.

This excellent early apple originated on the farm of Mason Richards, of Dedham, Mass. The tree is of vigorous, upright habit; hardy and very productive alternate years; young wood light reddish brown. It is a valuable variety for market or table use.

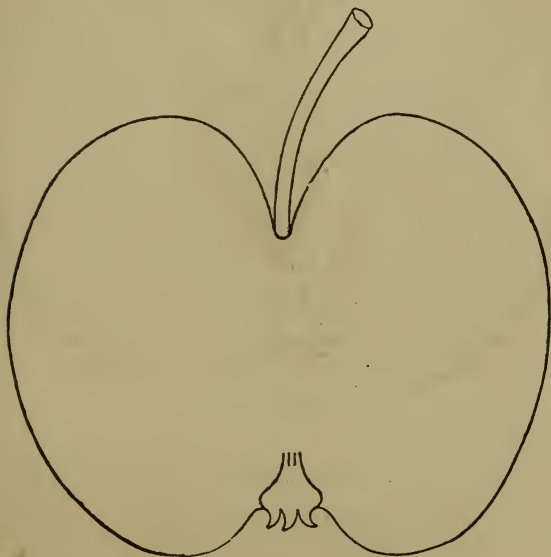
Fruit rather below medium size. Form roundish oblate

conical. Color pale yellow, shaded, striped, and marbled with dark crimson, and thinly sprinkled with light dots.



Benoni.

Stalk short, slender. Cavity deep, slightly russeted. Calyx closed. Segments persistent, sometimes a little recurved.



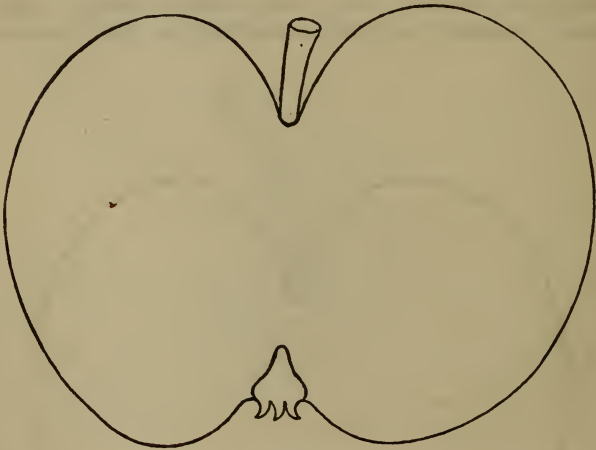
Bentley's Sweet.

Basin abrupt, quite deep, somewhat uneven. Flesh yellow, juicy, tender, rich, pleasant, subacid, slightly aromatic. Core small. Very good or best. August.

BENTLEY'S SWEET.

Origin unknown. Supposed Virginia; some say Belmont Co., Ohio. Tree moderately vigorous, hardy, good regular bearer and keeper, valuable in the Southwest in rich soils.

Fruit medium, roundish, flattened at ends, sometimes slightly oblique, and sometimes sides unequal, pale yellowish green, shaded with pale red and moderately sprinkled with light and brown dots. Stalk long, slender, curved. Cavity smooth, deep. Calyx large, closed, or partially open. Segments medium length, erect, sometimes a little recurved. Basin large, deep, corrugated. Flesh fine, whitish yellow, compact, sweet, somewhat honeyed flavor. Core small. Very good. January to May.



Bethlemite.

BETHLEMITE.

The origin of this fine apple is unknown. It was first brought to notice from the town of Bethlehem, in Ohio, and is undoubtedly a seedling of the Newtown Spitzenberg, which it

much resembles. Tree an upright, strong, stocky, short-jointed grower, with young shoots, dull reddish brown, quite downy. A productive bearer, the fruit keeping and carrying well; very valuable for all purposes.

Fruit, medium, oblate, inclining to conical, regular. Color pale yellow, striped, shaded and splashed with shades of light and dark red nearly over the whole surface, thin grayish tinge, and pretty thickly sprinkled with light and brown dots. Stalk rather short, slender. Cavity large, considerably russeted. Calyx open or partially closed. Segments large and generally erect. Basin large, and slightly corrugated. Flesh white, compact, crisp, juicy, rich, mild subacid, slightly aromatic. Core small. Very good. December to March.



Blenheim Pippin.

BLENHEIM PIPPIN.

Blenheim Orange.
Blooming Orange.
Blenheim.

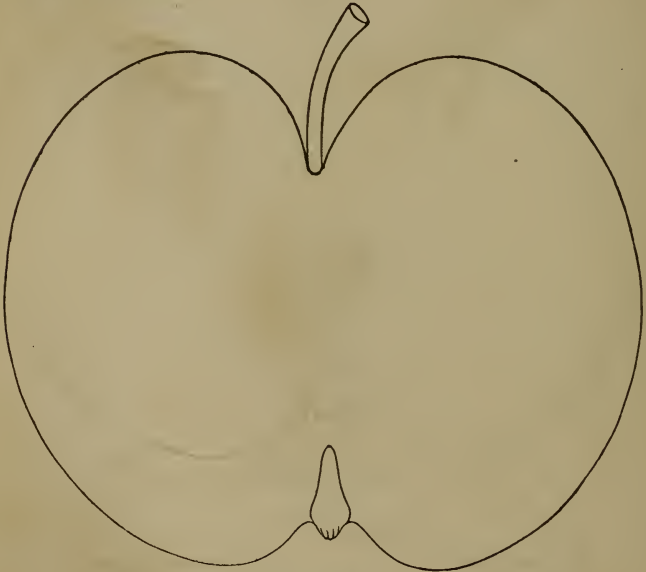
Woodstock Pippin.
Northwick Pippin.
Kempster's Pippin.

Dutch Mignonne, erroneously.

An old variety which originated in Oxfordshire, in England. Tree very strong and vigorous, spreading somewhat,

drooping when in full bearing, and makes a large handsome tree in the orchard. It is late coming into bearing, but when fully established is a good regular bearer, and, in some localities, very productive. This Apple is a favorite in England, and succeeds well in most localities here in the Middle and Northern States, especially the latter. Young wood stout, reddish brown.

Fruit large, often very large, roundish oblate, regularly formed. Skin dull orange, half covered or more with rich dull red, often mixed with russet, dotted and mottled with large yellow russet specks, some of which are areole. Stalk rather short, slender, curved, inserted in a large deep cavity, russeted, the russet sometimes extending in rays out on the fruit. Calyx large, open, segments large, of medium length, divided, partly curved. Basin broad, large, rather deep, slightly corrugated. Flesh white, a little coarse, at first firm, but becoming crisp, tender, juicy, with a rich brisk subacid flavor, slightly aromatic. Core small. Very good. November to February.



Blue Mountain.

BLUE MOUNTAIN.

Front Apple or Forelle.

Blauberger.

Introduced by Wm. G. Wasing, of Tyrone, Pa., from the

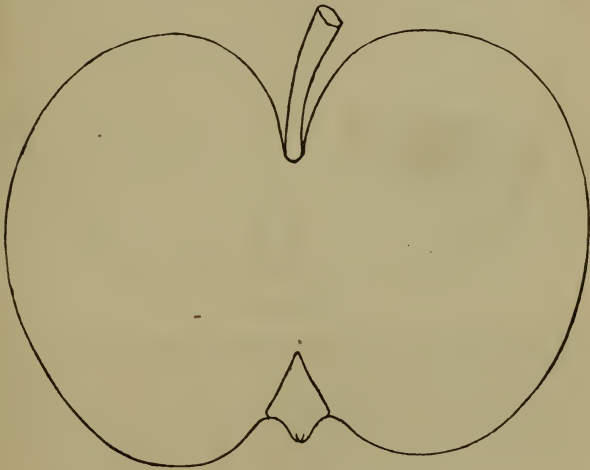
Blue Mountain. Tree hardy, a moderate or rather slow grower, forming a small round head, productive. An excellent Apple, retaining its juice and fine brisk flavor till spring. Young shoots dark brown, slender.

Fruit medium to large, roundish oblate, slightly irregular. Skin whitish, shaded and mottled with light red, numerous fine stripes and broken splashes of light bright red, and sprinkled with a few gray dots. Stalk rather short and small, inserted in a medium cavity. Calyx small, closed. Segments short, basin medium corrugated. Flesh white, fine, tender, juicy, with a sprightly, delicate vinous flavor. Very good. Core medium. November to March.

BONUM.

Magnum Bonum.

Raised by Squire Kinney, Davidson Co., N. C. Tree upright, spreading, hardy and vigorous, an early and abundant bearer. Young shoots smooth reddish gray.



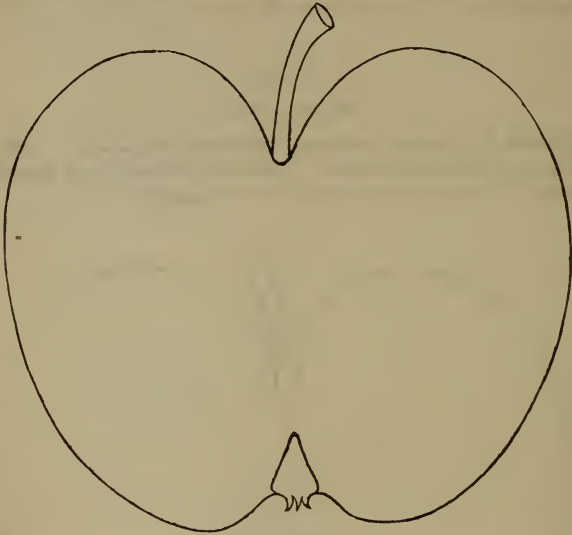
Bonum.

Fruit medium, oblate, yellow, mostly shaded with deep crimson, and indistinct stripes and splashes of dark red, rather thinly sprinkled with pretty large light dots, a portion of them having a dark centre. Stalk rather long and slender. Cavity medium to large, often with a little green russet. Calyx closed. Segments rather long and sometimes recurved.

Basin shallow, slightly corrugated. Flesh white, often stained next the skin, firm, tender, juicy, rich, mild, subacid. Core small. Very good. November to December. In the South, September to December.

BRITTLE SWEET.

Origin unknown. Tree moderately vigorous, very productive. This valuable apple is little known; in beauty and quality it may be classed as among the best, and deserves more attention.



Brittle Sweet.

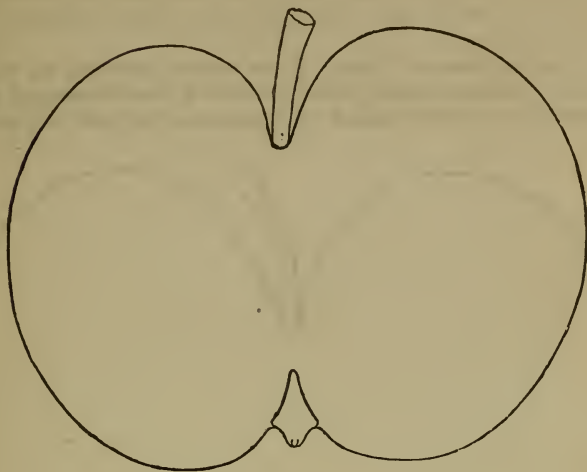
Fruit medium, roundish, oblate, approaching conical. Color pale yellow, shaded, splashed and marbled over nearly the entire surface, with shades of light and dark crimson red, many small gray and white dots. Stalk rather short, slender. Cavity regular, broad, moderately deep. Calyx closed. Segments small, short, erect. Basin small corrugated. Flesh yellowish, crisp, tender, juicy with a peculiar honeyed sweet, and slightly aromatic. Core rather large. Very good. October and November.

BROADWELL.

Broadwell Sweet.

Originated with Jacob Broadwell, near Cincinnati, O. An

extremely valuable sweet apple, either for the table or cooking. Tree vigorous, quite hardy, very spreading, irregular, productive. Young shoots dull reddish brown, downy.



Broadwell.

Fruit medium, oblate, somewhat conic. Color clear bright yellow, brownish blush in the sun exposure, with carmine spots. Dots few, greenish, suffused beneath. Stalk rather short. Cavity broad, russeted. Calyx closed, with short segments. Basin abrupt, regular. Flesh whitish, fine, tender, juicy, rich, sweet. Core small. Very good. November to February.

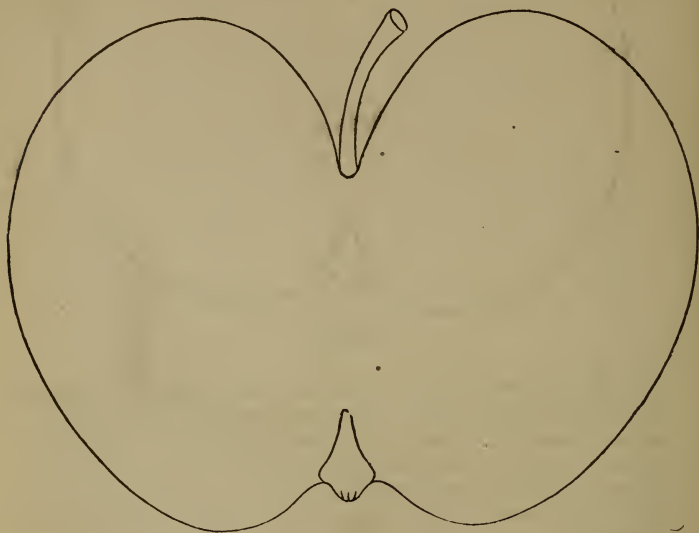
BUCKINGHAM.

Queen.	Blackburn.
Fall Queen.	Henshaw.
Winter Queen.	Sol. Carter.
Kentucky Queen.	Winter Queen.
Lexington Queen.	Ne Plus Ultra.
Frankfort Queen.	King.
Ladies' Favorite of Tenn.	Byer's Red.
Equinetely.	Red Gloria Mundi of some.
Byer's.	Red Horse of some.
Ox-Eye of some in Ky.	Garvis Seedling.
Bachelor.	Late Queen.
Merit.	Large Royal Pearmain of some.

The origin of this Apple appears all unknown. It has been long grown in Virginia, Kentucky, and other South-

western States, and is there a profitable and popular variety, valuable either for market or table use. It matures often in November, but will keep into February. Tree hardy, healthy, vigorous, and productive, forming a round-headed spreading tree of medium size. Young shoots rather slender, dull reddish brown.

Fruit medium to large. Form oblate, inclining to conic. Color greenish yellow, mostly covered, shaded, striped, and splashed with two shades of crimson or purplish red, many



Buckingham.

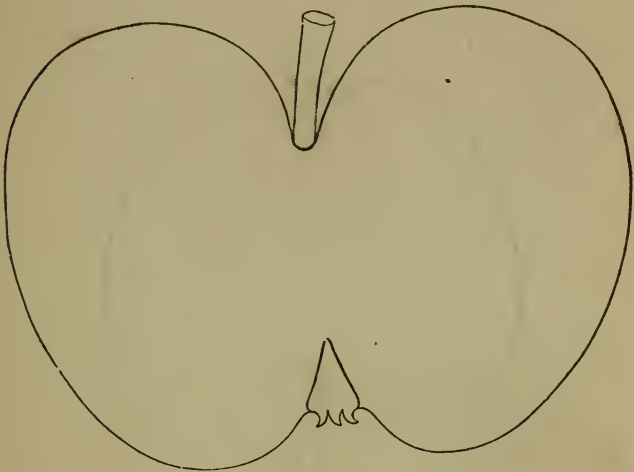
light brown dots. Stalk short. Cavity broad, deep, slightly russeted. Calyx closed, or half open. Segments to a point. Basin rather large, deep, slightly corrugated. Flesh yellowish, rather coarse, breaking, tender, juicy, mild, sprightly, subacid. Core small. Very good to best. November to February.

CANADA REINETTE.

Canadian Reinette.	De Bretagne.
Grosse Reinette d'Angleterre.	Portugal.
Pomme du Caen.	Januarea.
Reinette du Canada Blanche.	Wahr Reinette.
Reinette Grosse du Canada.	Praire Rambour Reinette.
Reinette du Canada à Cortes.	

It is easy to see that the Canada Reinette is a popular and

highly esteemed variety in Europe, by the great number of synonyms under which it is known. It is doubtful, notwithstanding its name, whether it is truly of Canadian origin, as Merlet, a French writer, describes the same fruit in the 17th century, and some authors think it was first brought to this continent from Normandy, and carried back under its new name. At any rate, it is a very large and handsome fruit, a good bearer, and of excellent quality in all respects. Wherever grown in this country it sustains its foreign reputation,



Canada Reinette.

the tree being of vigorous habit, spreading, open, and productive. Young shoots clear reddish-brown, slightly downy.

Fruit of the largest size, oblate conical, flattened; rather irregular, with projecting ribs; broad at the base, narrowing towards the eye, four inches in diameter, and three deep. Skin greenish-yellow, slightly washed with brown on the sunny side, sprinkled with dots and russet patches. Stalk short, inserted in a wide hollow. Calyx short and large, set in a rather deep, irregular basin. Flesh nearly white, rather firm, juicy, with a rich, lively, subacid flavor. Very good to best. Ripe in December, and, if picked early in autumn, it will keep till April.

The Canada Reinette Grise is very much like the above, and may prove identical.

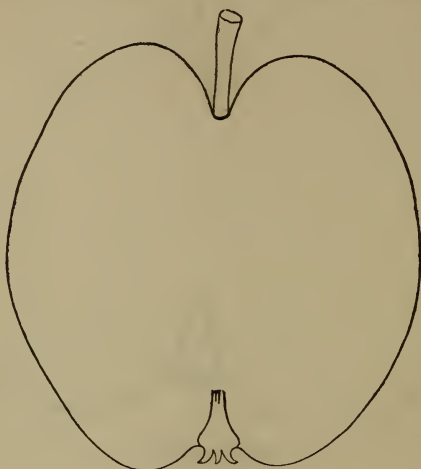
CAROLINA RED JUNE.

Knight's Red June.
Red June.

Blush June.
Georgia June.

Wilson's June.

Origin somewhat uncertain, supposed to be Carolina. Tree moderately vigorous, upright, an early and abundant bearer, much esteemed at the South and Southwest as their best early Apple, ripe a few days after Early Harvest, not equal to it in flavor, but more profitable as an orchard fruit; but of late years disposed to spot and scab unless highly cultivated or grown on new soils.



Carolina Red June.

Fruit medium or below, oval, irregular, inclining to conic. Skin smooth, nearly the whole surface shaded with deep red, and almost of a purplish hue on the sunny side, and covered with a light bloom. Stalk variable in length, inserted in a small narrow cavity. Calyx closed. Segments long, reflexed. Basin narrow, plaited. Flesh very white, tender, juicy, with a brisk subacid flavor. Core rather large. Very good.*

* *Carolina Striped June*—(Carolina June). This is generally confounded with the above, and is scarcely distinguishable except that, as it ripens, it becomes striped. One is doubtless a seedling from the other.

CHENANGO STRAWBERRY.

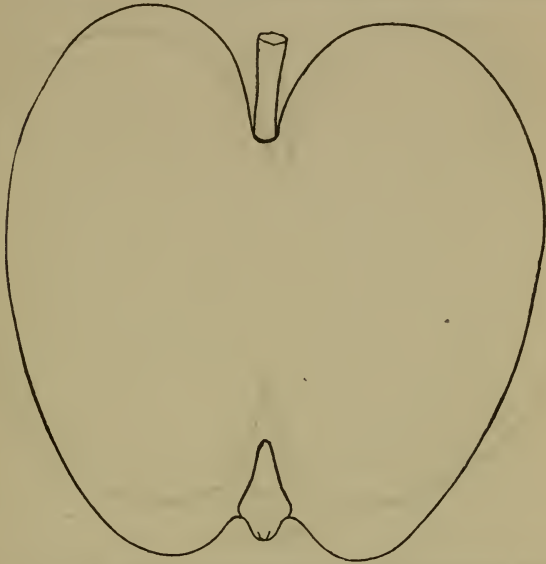
Frank.
Buckley.

Sherwood's Favorite.
Strawberry.
Lady Finger of some.

Jackson Apple.
Smyrna.

Originated in the town of Lebanon, Madison Co., N. Y. It is an apple pleasant to the taste, and much esteemed as a table fruit wherever grown. Tree is vigorous, spreading, and very productive. Young wood light reddish brown, downy.

Fruit medium, oblong conic or oblong truncated conic, in-



Chenango Strawberry.

distinctly ribbed. Color whitish, shaded, splashed and mottled with light and dark crimson over most of the surface, light dots. Stalk rather short, small. Cavity acute, somewhat uneven. Calyx closed, or partially open. Segments erect. Basin rather large, abrupt, slightly corrugated. Flesh white, tender, juicy, peculiar mild, subacid. Core rather large. Very good. September and October.

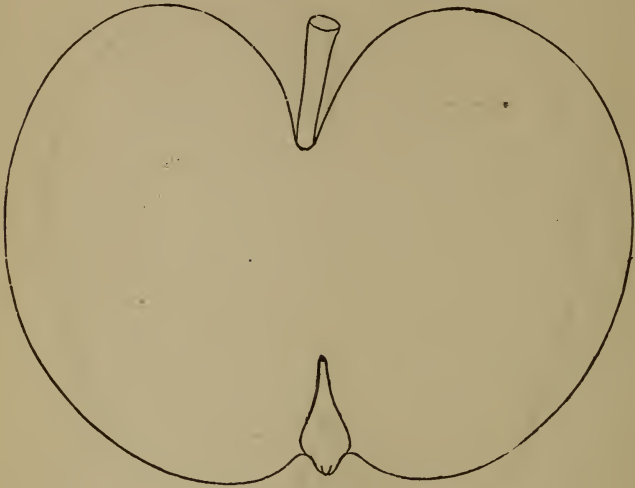
COGSWELL.

Cogswell Pearmain.

This excellent Apple originated in the town of Griswold,

near Norwich, Ct., on a farm which came into the possession of William Cogswell about the year 1798. The original tree was then about forty or fifty years old. The fruit was first exhibited in 1816 or '18, before the Massachusetts Horticultural Society.

It is an extremely valuable variety wherever grown, either for table or market purposes, a good keeper, and bears carriage to market long distances without apparent injury. Tree a vigorous, upright, spreading grower, an abundant bearer of very regular, even-sized fruit. Young shoots dark reddish brown, somewhat downy.



Cogswell.

Fruit size above medium. Form roundish oblate, regular. Color rich yellow, nearly covered with red, marked and streaked with bright red, pretty thickly sprinkled with areole dots. Stalk short, rather slender. Cavity large, thinly russeted. Calyx small, nearly closed. Basin small, shallow. Flesh yellowish, fine-grained, tender, juicy, scarcely subacid, rich aromatic. Core small. Very good to best. December to March.

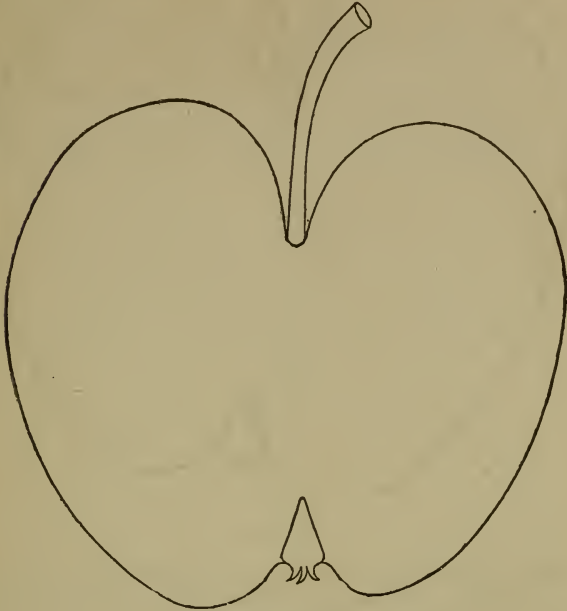
CORNELL'S FANCY.

Cornell's Favorite.

Originated on the farm of Gillam Cornell, Southampton Township, Bucks Co., Pa. Tree vigorous and healthy, an

upright, rather spreading grower—productive and a regular bearer.

Fruit medium, roundish conical, slightly angular. Skin smooth whitish, shaded, splashed, striped and marbled with



Cornell's Fancy.

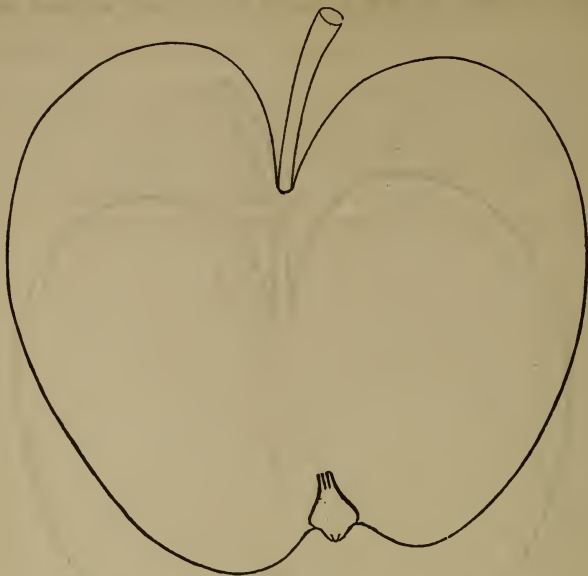
light and dark bright red, and thinly sprinkled with large light dots, a few being areole. Stalk rather long, slender, inserted in a large deep cavity. Calyx closed; segments rather long, recurved at the ends; basin rather abrupt, deep, slightly furrowed. Flesh white, tender, juicy, with a lively, pleasant subacid flavor. Very good. Core rather large.—September.

DEMOCRAT.

Varick.

An Apple considerably grown in Tompkins Co., N. Y., the origin of which cannot be correctly traced. The trees are great bearers, fruit keeping well, and always meeting a ready

sale in market. Tree an upright, good grower, annually productive. Young shoots reddish brown.



Democrat.

Fruit—size medium, or above; form roundish conical, obscurely ribbed. Color pale whitish yellow, shaded, partially striped, and splashed nearly over the whole surface with light and dark crimson, and pretty thickly sprinkled with small light dots. Stalk medium, slender. Cavity large, deep, acute. Calyx small, closed. Segments small and short to a point. Basin medium, rather deep, corrugated. Flesh white, sometimes a little stained next the skin, very tender, juicy, mild, pleasant subacid. Very good. Core large. December to March.

DOMINE.

English Rambo of some.
Hogan.
English Red Streak.

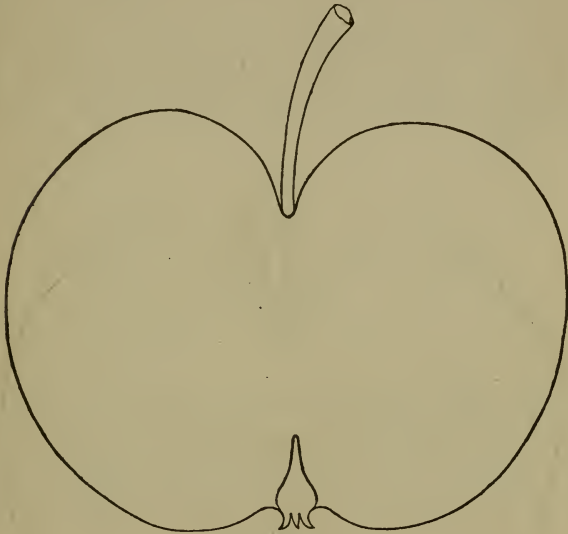
Wells.
Striped R. I. Greening.
English Beauty of Pa.

Cheat.
Cling Tight.

This Apple, extensively planted in the orchards on the Hudson and west, so much resembles the Rambo externally, that the two are often confounded together, and the outline

of the latter fruit (see Rambo) may be taken as nearly a facsimile of this. The Domine is, however, of a livelier color, and the flavor and season of the two fruits are very distinct,—the Rambo being rather a high-flavored early winter or autumn apple, while the Domine is a sprightly, juicy, long-keeping winter fruit.

Fruit of medium size, flat. Skin lively greenish yellow in the shade, with stripes and splashes of bright red in the sun, and pretty large light russet and brown specks. Stalk long and slender, planted in a wide cavity and inclining to one side. Calyx small, in a broad basin, moderately sunk. Flesh white, exceedingly tender and juicy, with a sprightly pleasant,



Domine.

though not high flavor. Young wood of a smooth, lively light brown, and the trees are very hardy, and the most rapid growers and prodigious early bearers that we know—the branches being literally weighed down by the rope-like clusters of fruit.

The Domine does not appear to be described by any foreign author. Coxe says that he received it from England, but the apple he describes and figures does not appear to be ours, and we have never met with it in any collection here. It is highly probable that this is a native fruit. It is excellent from December till April.

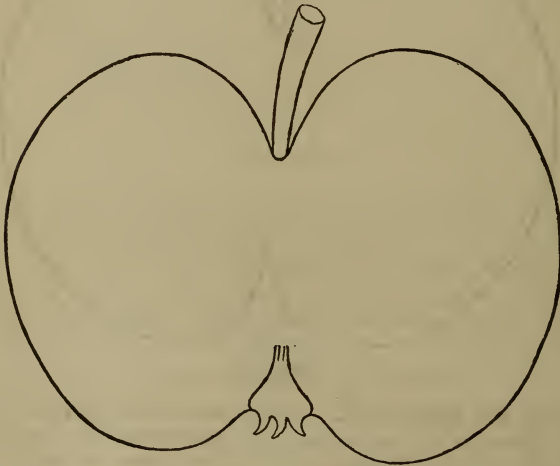
DUCHESS OF OLDENBURGH.

Smith's Beauty of Newark.

New Brunswick.

This handsome Russian Apple proves one of the most hardy and profitable varieties in cultivation, and especially in our northwestern sections. The tree is vigorous, forming a roundish, upright, spreading head, requiring little or no pruning, comes early into bearing, and producing abundantly a fruit of fair, even, and regular size, that, although not of the first quality, always commands a ready sale, as it is valuable for market and cooking, and passably good for dessert. Young shoots smooth, reddish.

Fruit medium size, regularly formed, oblate. Skin smooth, finely washed and streaked with red on a golden or yellow ground. Stalk short, medium size, inserted in a large deep cavity. Calyx pretty large and nearly closed, set in a wide, even hollow. There is a faint blue bloom on this fruit. The flesh whitish, crisp, juicy, sprightly subacid. Ripens early in September.



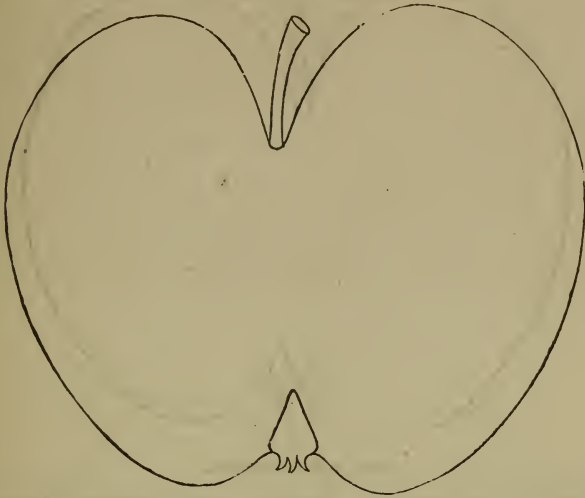
Duchess of Oldenburgh.

DUZENBURY.

This valuable new Apple originated on the farm of Charles Duzenbury, Phillipstown, Putnam Co., N. Y. The tree is a vigorous grower, forming a handsome spreading head, producing abundantly a medium-sized, regular, uniform fruit,

which keeps and retains its flavor until May. Young wood dark brownish red.

Fruit medium; form roundish conical, truncated; color greenish yellow, shaded and rather obscurely splashed with dull red over nearly two-thirds its surface, and sprinkled with



Duzenbury.

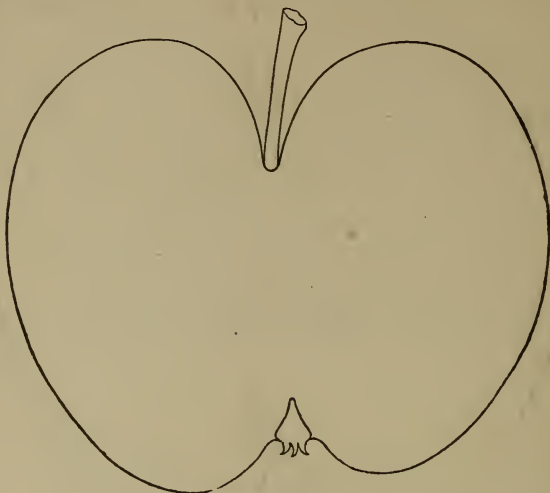
a few gray and light dots. Stalk rather short. Cavity rather large and deep. Calyx closed. Segments medium, erect to a point. Basin rather abrupt, slightly corrugated. Flesh whitish yellow, crisp, tender, moderately juicy, very mild, and pleasant subacid, almost sweet. Core small. Very good. February to May.

DYER, OR POMME ROYALE.

Golden Spice.	Pinneo's Favorite.
White Spice.	Woodstock.
Smithfield Spice.	Tompkins.
Mygatt's Bergamot.	Coe's Spice.
Beard Burden.	Bullripe.

A popular dessert Apple, very sprightly, tender, and excellent. Tree a moderate grower, forming a round head; an early and good bearer; requires high cultivation to produce good fruit. Young wood grayish brown. It is supposed to be of French origin, and to have been brought to Rhode Island more than a hundred years ago. It was renamed

Dyer by the Massachusetts Horticultural Society, who supposed it to be a seedling of Mr. Dyer, of Rhode Island, but the old and familiar name of *Pomme Royale* should be preferred.



Dyer, or *Pomme Royale*.

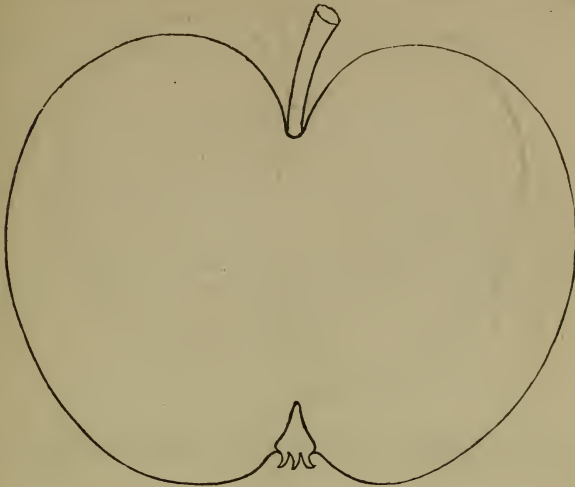
Fruit of medium size, roundish, pretty regularly formed. Skin smooth, pale greenish yellow, with a faint blush and a few dark specks on one side. Stalks about half an inch long, set in a smooth, round cavity. Calyx closed. Basin plaited, moderately deep. Core round, hollow. Flesh white, very tender and juicy; flavor very mild and agreeable, aromatic, slightly subacid. Very good to best. September and October.

EARLY HARVEST.

Prince's Harvest, or Early French Reinette, of Coxe.	
July Pippin.	Pomme D'Été.
Yellow Harvest.	Tart Bough.
Large White Juneating.	Early French Reinette.
July Early Pippin.	Sinclair's Yellow.
Prince's Early Lemon.	

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. Tree moderately vigorous, spreading. Young shoots reddish brown.

Fruit medium size. Form roundish, often roundish oblate, medium size. 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 moder-



Early Harvest.

ate depth. Calyx set in a shallow basin. Flesh very white, tender, and juicy, crisp, with a rich, sprightly subacid flavor. Very good to best. Core small.

EARLY JOE.

Origin, orchard of Heman Chapin, Ontario Co., N. Y. Tree of slow growth, productive, requires high culture for fair fruit.

Fruit below medium, oblate, very slightly conic, smooth, yellowish, shaded and striped with red, and thickly sprinkled with greenish spots. Stalk of medium length, inserted in a large cavity surrounded by russet. Calyx closed. Basin moderate. Flesh whitish, tender, juicy, with a very agreeable vinous flavor. Best. Ripe middle of August to middle of September.

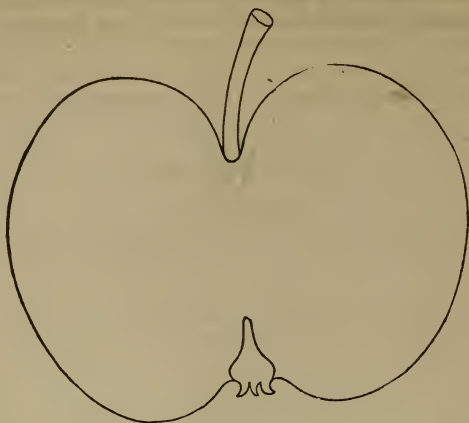
There is a Luce's Early Joe which is distinct from this, being larger, and not as good quality.

EARLY STRAWBERRY.

American Red Juneating. Red Juneating.

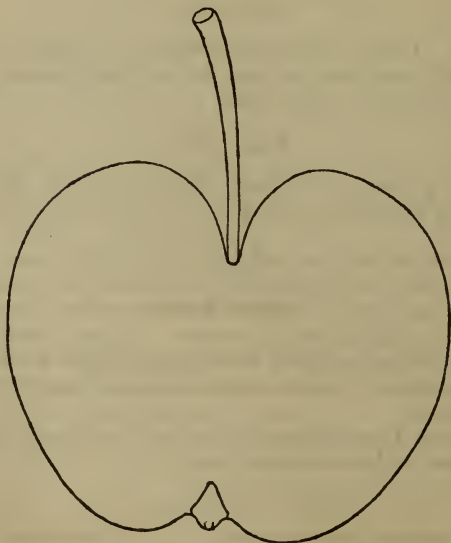
A beautiful variety, which is said to have originated in

the neighborhood of New York, and appears in the markets there from July till September. It is quite distinct from the



Early Joe.

Early Red Margaret, which has no fragrance, and a short stem.



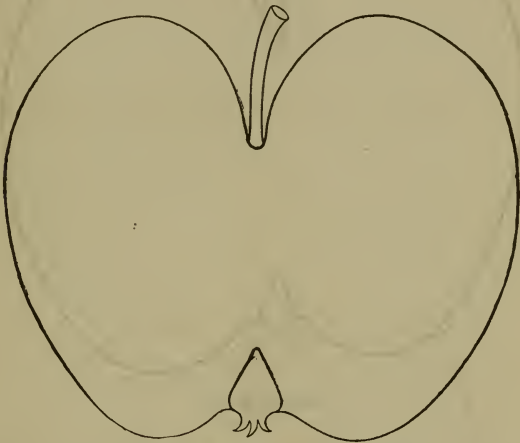
Early Strawberry.

Fruit roundish, narrowing towards the eye. Skin smooth and fair, finely striped and stained with bright and dark red, on a yellowish 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, subacid, and very sprightly and brisk in flavor, with an agreeable aroma. Very good.

EGYPTIAN RUSSET.

Bagby Russet.

From Southern Illinois, origin unknown. This Apple is much esteemed where known for its rich, high flavor, and as a good keeper. Some think it the best of all the russets. The tree forms an upright, symmetrical, round head, with grayish reddish brown, somewhat downy young shoots. Productive.



Egyptian Russet.

Fruit medium. Form roundish, approaching conical, slightly ribbed. Color golden yellow, netted and patched with russet over half or two-thirds of its surface, often with a cheek of crimson or fawn in the sun, and moderately sprinkled with brown dots. Stalk short and small.* Cavity medium or narrow. Calyx open or partially closed. Segments short. Basin medium. Flesh yellowish, tender, juicy, rich, slightly aromatic, pleasant subacid. Very good. December to March.

ENGLISH RUSSET.

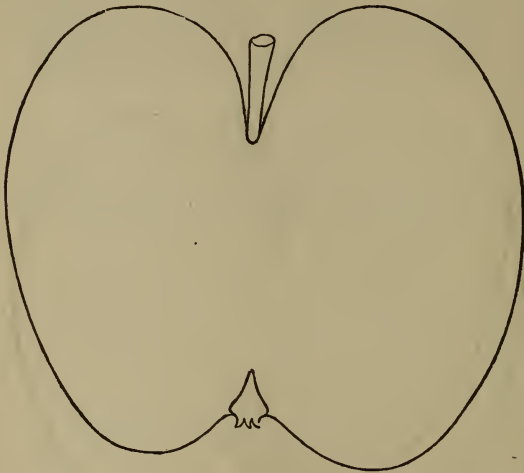
Poughkeepsie Russet.

Po'keepsie Russet.

The English Russet is a valuable, long-keeping variety, extensively cultivated, and well known by this name, but which we have not been able to identify with any English sort. It is not fit for use until February, and may be kept till July, which, together with its great productiveness and good flavor, renders it a very valuable market fruit.

The trees grow very straight, and form upright heads, and the wood is smooth and of a reddish brown.

Fruit of medium size, roundish, slightly conical, and very



English Russet.

regularly formed. Skin pale greenish yellow, about two-thirds covered with russet, which is thickest near the stalk. Calyx small, closed, and set in an even, round basin, of moderate depth. Stalk rather small, projecting even with the base, and pretty deeply inserted in a narrow, smooth cavity. Flesh yellowish white, firm, crisp, with a pleasant, mild, slightly sub-acid flavor. Good. January to May.

The *English Russet* described by Warder is entirely distinct, being, as he describes, large, globular, flattened, somewhat one-sided. Surface uneven, green. In season from December to January.

ENGLISH SWEET.

Ramsdell's Sweet.

Ramsdell's Red Pumpkin Sweet.

Ramsdell's Sweeting.

Randall's Red Winter.

Red Pumpkin Sweet

Hurlbut Sweet?

Avery Sweet.

This old variety is esteemed where grown for the large crops which it bears, and as a showy sweet apple for market, and profitable for stock feeding, as well as superior for cooking. The tree is very vigorous, grows remarkably straight and upright, comes early into bearing, and yields every year enormously. Young shoots clear reddish brown, slightly grayish.



English Sweet.

Fruit of medium size, roundish, regularly shaped, and tapering slightly towards the eye, dark red, dotted with fawn-colored specks, and covered with a blue bloom. Flesh yellowish, very tender and mellow, unusually sweet and rich. Good to very good. In weight the apple is light. October to February.

ÆSOPUS SPITZENBURGH.

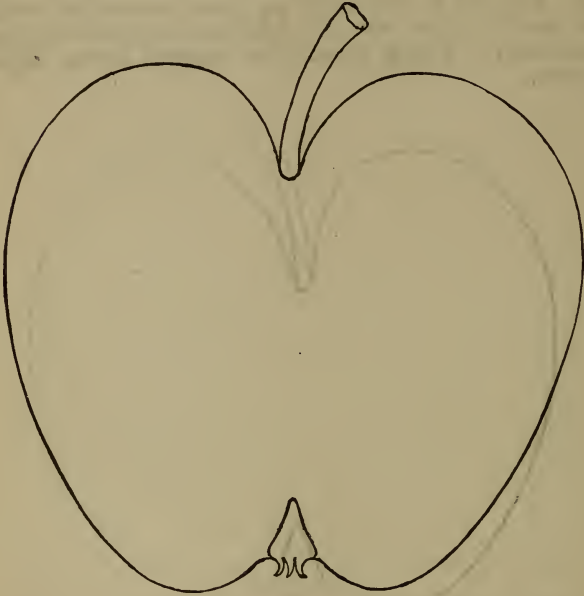
Æsopus Spitzenberg.

Æsopus Spitzenberg.

True Spitzenburgh.

The Esopus Switzenburgh is a handsome, truly delicious Apple, and is generally considered by all good judges equal to

the Newtown Pippin, and unsurpassed as a dessert fruit by any other variety. It originated at Esopus, a famous apple district, originally settled by the Low Dutch, on the Hudson. But throughout the whole of New York it is considered the first of apples. The tree has rather tender shoots, and when in bearing has long and hanging limbs.



Esopus Spitzenburgh.

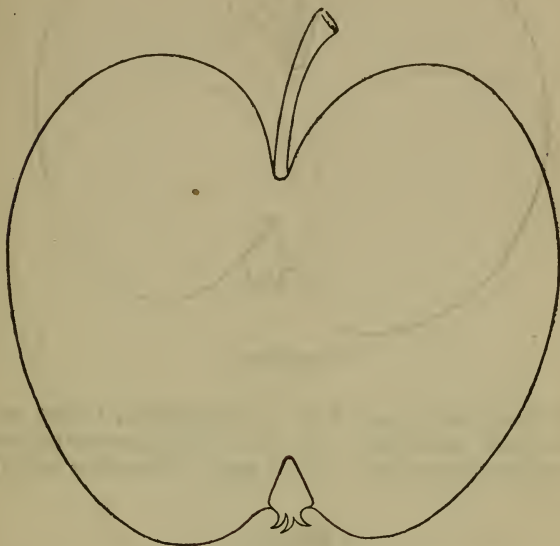
Fruit large, oblong, tapering roundly to the eye. Skin smooth, nearly covered with rich, lively red, dotted with distinct yellowish russet dots. On the shaded side is a yellowish ground with streaks and broken stripes of red. Stalk rather long—three-fourths of an inch—and slender, projecting beyond the base, and inserted in a wide cavity. Calyx small, and closed, set in a shallow basin, which is slightly furrowed. Flesh yellow, rather firm, crisp, juicy, with a delicious rich, brisk flavor. Best. Seeds in a hollow core. December to February.

EUSTIS.

Ben Apple.

Origin, on the farm of Francis Smith, South Reading, Mass. Tree a moderate grower, round-headed and very productive.

Fruit rather large, roundish oblate, slightly conic, yellow,



Eustis.

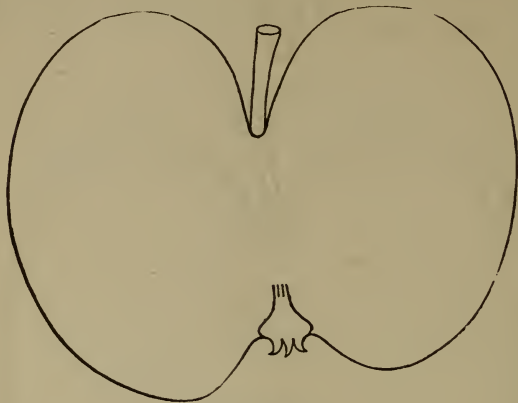
striped and shaded with fine red, and sprinkled with greenish dots. Stalk medium, inserted in a deep cavity, surrounded by russet. Calyx partially open. Basin narrow, rather deep. Flesh whitish, fine, crisp, mild, rich subacid. Very good. November to January.

EVENING PARTY.

Origin, Berks Co., Pa. Tree vigorous, roundish, upright spreading, with slender branches, an early and abundant bearer alternate years. Young shoots dark grayish-brown, many small dots. The foliage hangs well to the tree, and the fruit should be allowed to remain on the tree till well matured and colored.

Fruit small or medium, oblate, sides often unequal, yellow,

chiefly shaded, splashed, and striped with red, becoming dark-red in the sun, pretty thickly studded with light dots, especially near the calyx. Stalk short, inserted in a round, deep, acute cavity, sometimes russeted. Calyx closed. Basin



Evening Party.

rather large and even. Flesh juicy, whitish, tender, crisp, with a brisk saccharine, somewhat vinous, aromatic flavor, an excellent dessert fruit. Very good. December and January.

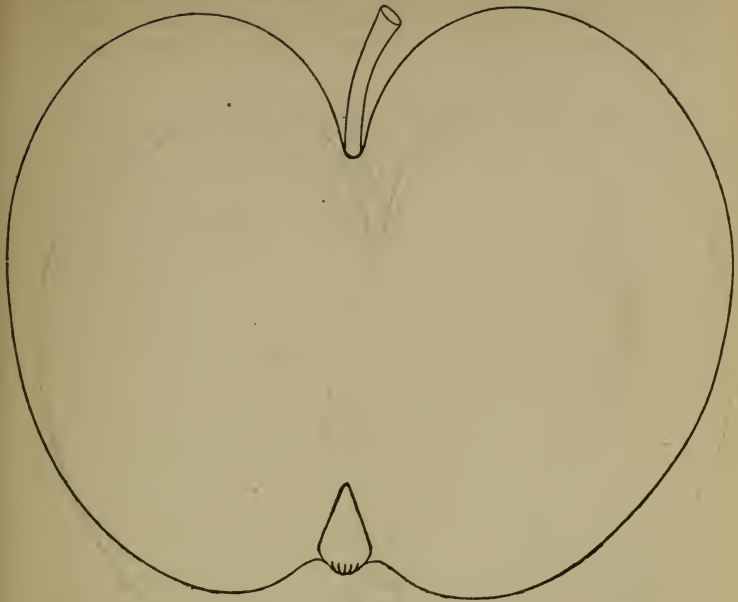
EWALT.

Bullock's Pippin of some.

Ladies' Blush of some.

Origin, Bedford Co., Pa. Tree vigorous, very upright, spreading a little when in full bearing; requires little or no pruning; an early, regular, and abundant bearer; valuable and popular in its locality on account of its size, beauty, early and regular bearing, especially for market and culinary uses. Young wood dark-brown.

Fruit large to very large, roundish oblate, inclining to conic, sometimes obscurely ribbed; skin smooth and fair, light yellow, shaded with bright rich red in the sun, and a few small brown dots. Stalk short and small, inserted in a large deep cavity, somewhat irregular. Calyx small, closed. Segments short to a point. Basin medium, slightly corrugated, sometimes slight prominences. Flesh white, tender, juicy, at first acid, but becoming a pleasant, brisk subacid when fully ripe. Core medium. November—March.



Ewalt.

FALLAWATER.

Falwalder.	Winter Blush.
Fornwalder.	Green Mountain Pippin.
Tulpehocken.	Molly Whopper.
Pfarrer Walter.	Falder.
Baltimore, erroneously.	Follen Walder.
Pim's Beauty of the West.	Fallen Wood.
Pound.	Polly Walter.
Mountain Pippin.	Farawalder.
Fall de Walldes.	Pharawalder.
Brubacker.	Polly Wholloper.
Fallowalder.	

A favorite Apple of Pennsylvania, of which State it is a native. Tree hardy, a strong grower, with stout, dark-brown shoots, spreading; requires little or no pruning; an annual bearer and productive.

Fruit very large, globular, oblate, inclining to conic. Skin yellowish green, shaded with dull red, and sprinkled with large light and gray dots. Stalk very short, inserted in a

deep cavity. Calyx small and closed, set in a slightly plaited basin. Flesh greenish white, rather coarse, juicy, crisp,



Fallawater.

rather tender, pleasant, subacid flavor. Good. November—February.

FALL ORANGE.

Orange	Hogpen.	Speckled.
Holden Pippin.	Red Cheek.	Westbrook.
Holden.	White Graft of Wis.	New York Bellflower.
Jones' Pippin.	Long Island.	White Newell.

Origin, Holden, Mass. Tree hardy, a very strong, erect grower, forming a round head; very productive alternate years.

Fruit medium or above, roundish, slightly conic, sometimes oblong conic; skin greenish white, sometimes changing to yellowish white in exposed specimens and when fully ripe, often a shade of pale light red in the sun, and moderately

sprinkled with rather conspicuous brown or russet star-shaped dots. Stalk short and small, inserted in a narrow deep cavity, sometimes slightly russeted. Calyx closed or nearly so.



Fall Orange.

Basin medium, slightly corrugated. Flesh white, fine, tender, juicy, brisk subacid. Good to very good, core small. October, November.

FALL PIPPIN.

York Pippin.

Pound Pippin.

American Fall.

Episcopal.

Golden Pippin, erroneously.

Cathead, incorrectly.

Philadelphia Pippin.

Pound Royal of some.

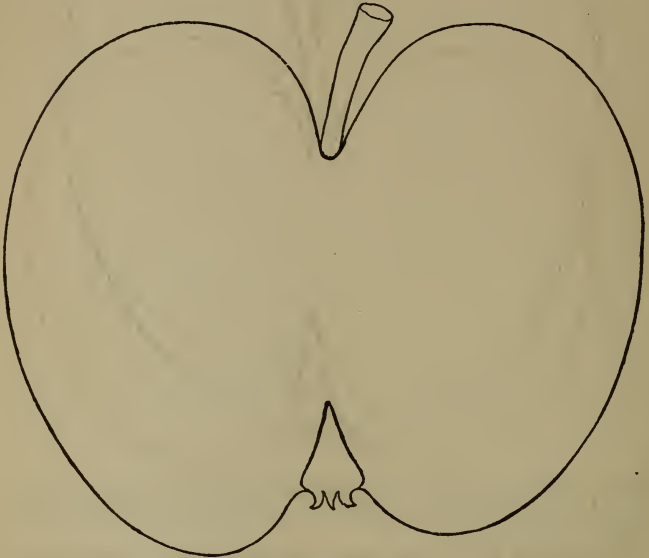
New York Pippin.

Van Dyne of some.

The Fall Pippin is, we think, decidedly an American variety. It is very probably a seedling raised in this country from the *White Spanish Reinette*, or the Holland pippin, both of which it so much resembles, and from which it, in fact, differs most strongly in the season of maturity. The Fall Pippin is a noble fruit, and is considered the first of autumn apples in the Middle States, where its beauty, large size, and its delicious flavor for the table or for cooking render it very popular.

The tree is a very vigorous, strong grower, spreading. Young shoots reddish brown.

Fruit very large, roundish, generally a little flattened, pretty regular, sometimes with obscure ribs at the eye. Stalk rather long, three-fourths of an inch, projecting considerably beyond the fruit (which distinguishes it from the Holland Pippin), set in a rather small, shallow, round cavity. Calyx open,



Fall Pippin.

not very large, rather deeply sunk in a round, narrow basin. Skin smooth, yellowish green, becoming a fine yellow, with often a tinge of brownish blush on one side, and with a few scattered dots. Flesh white, very tender and mellow, with a rich, aromatic flavor. Very good to best. October to December.

FALL WINE.

Sweet Wine.
Ohio Wine.

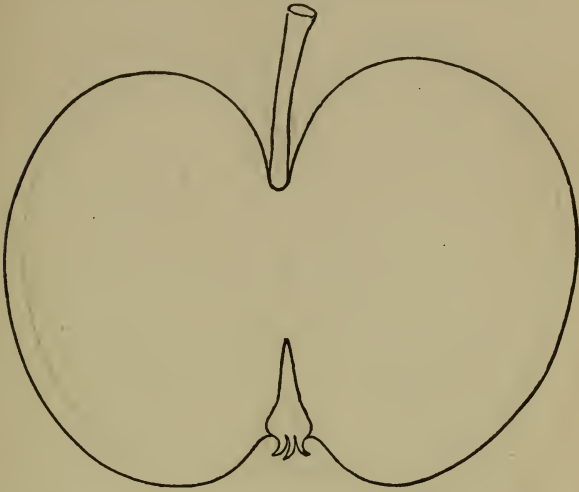
Sharpe's Spice.
Uncle Sam's best.

Musk Spice.
Hower or House.

Origin unknown, probably an old Eastern fruit called "Wine" or "Sweet Wine," but not now much cultivated

on account of the fruit being defective. In the rich Western soils it thrives admirably, producing fine fruit, yet in a few localities they complain of its being knurly. Tree healthy, but of rather slender growth, bearing moderate crops annually.

Fruit above medium. Stem rather long, slender, in a broad, deep cavity, surrounded by clear waxen yellow. Calyx par-



Fall Wine.

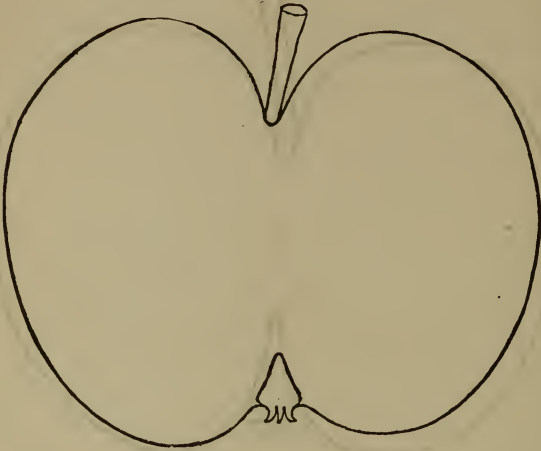
tially closed in a broad, deep, corrugated basin. Skin striped and shaded with red, on a light ground, with numerous russet dots. Flesh yellowish, juicy, tender, with a rich, aromatic, *very* mild, subacid flavor, almost sweet. Very good to best. September, October.

FAMEUSE.

Pomme de Neige. Sanguineus. Chimney. Snow.

A very celebrated Canada fruit (probably an old French variety), which has its name from the snow-white color of its flesh, or, as some say, from the village from whence it was first taken to England. It is an excellent, productive autumn apple, and is especially valuable in northern latitudes. Tree moderately vigorous, round-headed, hardy, very productive alternate years. Young shoots reddish brown.

Fruit of medium size, roundish, somewhat flattened. Skin with a ground of pale whitish yellow, mixed with faint streaks of pale red on the shady side, but marked with blotches and short stripes of darker red, and becoming a fine deep red in the sun. Stalk quite slender, half an inch long, planted in a narrow funnel-shaped cavity. Calyx small, closed, and set in a shallow, rather narrow basin. Flesh remarkably white, often stained, very tender, juicy, and with a slight perfume.



Fameuse.

Very good, almost best. Ripe in October and November. A regular bearer and a handsome dessert fruit.

There is a variety under name of *Striped Fameuse*, claimed to be distinct, the fruit being more striped and less highly colored.

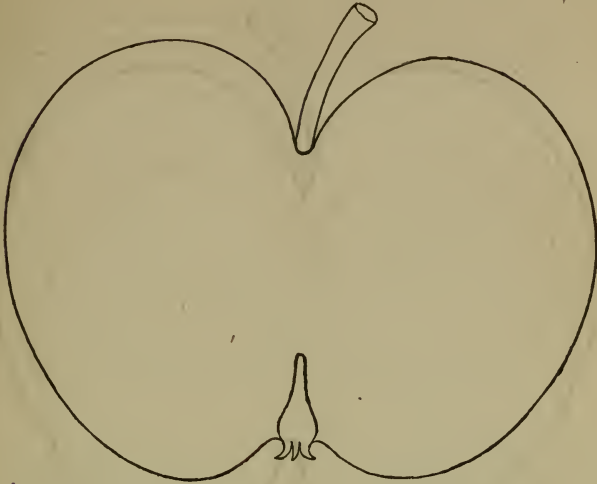
FAMILY.

McLoud's Family.

A native of Georgia. Tree a fine regular grower and very productive.

Fruit medium, oblate conical, yellowish, shaded, striped, and splashed with dull red over half or more of its surface, thickly sprinkled with large light dots. Stalk short and small. Cavity pretty large, slightly russeted. Calyx closed. Segments medium, partially recurved. Basin medium, a lit-

tle wrinkled. Flesh white, tender, juicy, mild, pleasant, subacid. Very good. August, September. At the South, July, August.



Family.

FALL QUEEN.

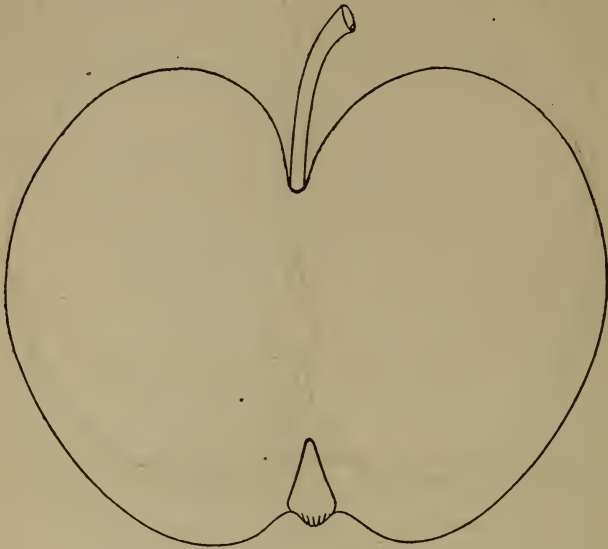
Gros Pommier.
Gros Pomier.
Haas.

Maryland Queen.
Horse of some
Hoss.

Originated on the grounds of Gabriel Cerrè many years since, adjoining the then village of St. Louis (now city), in Missouri. It was at first called Gros Pommier, but now generally Fall Queen or Haas, and we retain this, as it is most commonly used. It is very popular through most of the West and Southwest as a profitable market fruit, and for family use. Tree hardy, very vigorous, upright, forming a beautiful symmetric head—an early, annual, and abundant bearer.

Fruit medium to large, oblate, slightly conical, angular or slightly ribbed; skin smooth, pale greenish yellow, shaded nearly over the whole surface with light and dark red, and some rather obscure splashes and stripes, and a few light dots. Stalk short and small, inserted in a medium cavity, a little greenish. Calyx closed, basin medium or small, slightly corrugated. Flesh quite white, fine, often stained next

the skin and sometimes through the flesh, tender, very juicy, vinous, brisk subacid. Good to very good. Core medium or large. September, October.



Fall Queen.

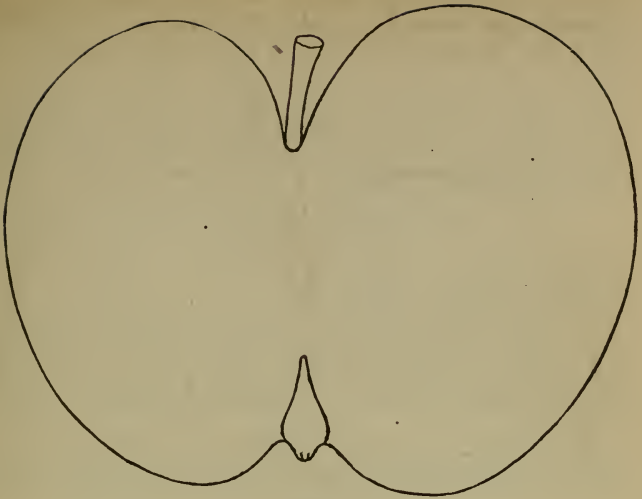
FANNY.

Originated near Strasburgh, Lancaster Co., Pa., on the farm formerly owned by Jacob Beam. Tree vigorous, spreading, very productive. Young wood dark grayish brown, two shades darker than Red Astrachan, and grayish.

Fruit large, roundish oblate, slightly conic, deep rich crimson red, moderately sprinkled with light dots. Stalk short, small. Cavity large, deep. Calyx closed. Segments short. Flesh white, a little stained next the skin, tender, juicy, pleasant subacid. Very good. Core small. August. A new Apple of great promise as a market sort.

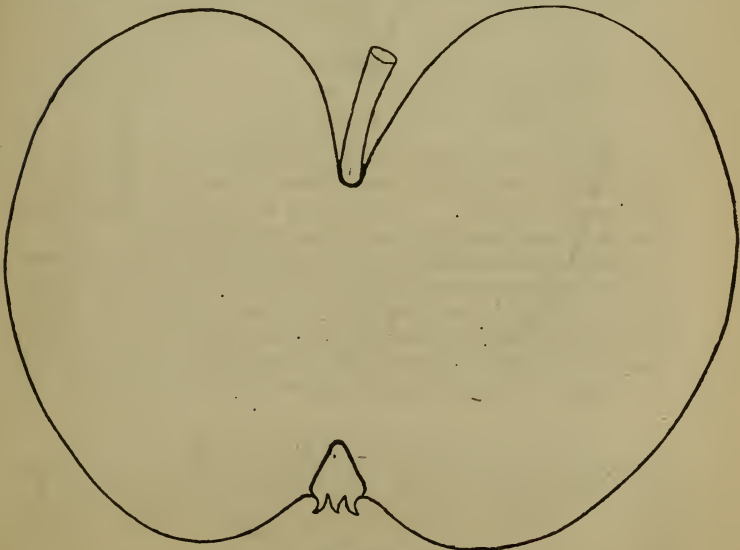
FLAKE'S FALL.

Originated with the late Col. Flake, of Mercer, Pa., where it is esteemed a valuable and profitable apple, either for market or the table. Tree a moderate grower, rather upright, a good bearer.



Fanny.

Fruit large, form oblate, slightly conic. Color yellowish, overspread, shaded, striped, and splashed with light and dark



Flake's Fall.

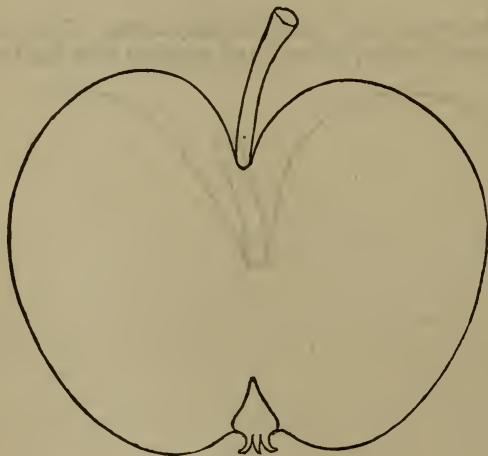
crimson, becoming very dark in the sun, thickly sprinkled with light and russet dots, some with dark centre. Stalk very short, and rather stout. Cavity large, deep, russeted, the splashes and nettings extending outside. Calyx open, or partially closed. Segments large, to a point, and rather separated. Basin medium, uneven. Flesh white, tender, moderately juicy, mild subacid, peculiarly aromatic. Core small. Very good. October, November.

FOURTH OF JULY.

Siberian August. Tetofsky, erroneously. McAdow's June.
Stewart's Nonpareil? August Apple.

A German Apple, introduced by C. F. Jaeger, of Columbus, Ohio. Valuable mainly for its hardiness and early maturity as a cooking or market variety. Tree a strong and upright grower, forming a fine head. Young shoots long, dark reddish brown.

Fruit medium or below, roundish oblate conical, slightly ribbed, whitish yellow, covered with a thin whitish bloom,



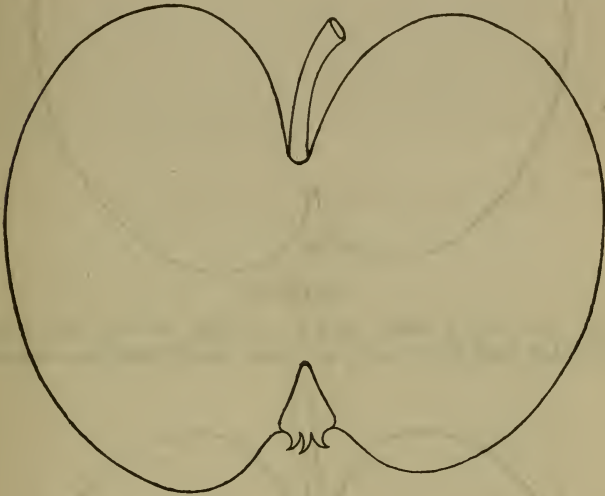
Fourth of July.

and striped and splashed with bright red, large light dots. Stalk rather short and slender, often with bracts. Cavity medium, regular. Calyx closed. Segments rather long generally recurved. Basin small, slightly uneven. Flesh white, juicy, sprightly, brisk subacid. Good. Core small

July. In fruit this closely resembles the Tetofsky, but the color of the wood, habit of growth, and foliage of old trees render its distinctiveness plain.

FULTON.

A Western fruit, originated in the orchard or nursery of A. G. Downing, Canton, Fulton Co., Ill., a vigorous grower, hardy, spreading, irregular, an annual and productive bearer. Young shoots slender, clear light reddish brown.



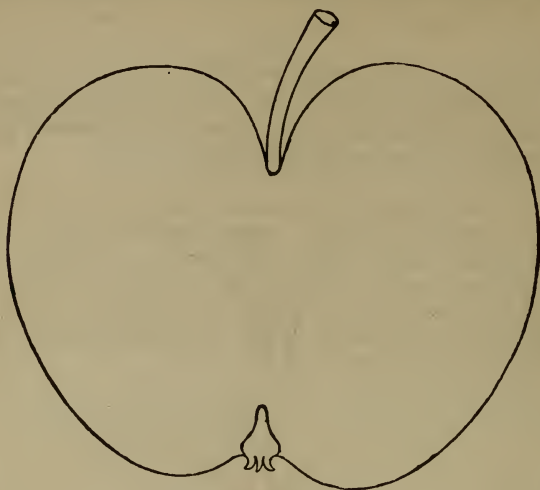
Fulton.

Fruit about medium, roundish oblate, light yellow, sprinkled with green or gray dots, having a blush on the sunny side. Stalk three-fourths of an inch, rather slender, inserted in a broad deep cavity. Calyx large, open. Segments small, recurved, in a pretty large basin. Flesh yellowish, juicy, tender, mild subacid, almost sweet. Very good. Core small. November to February.

GARDEN ROYAL.

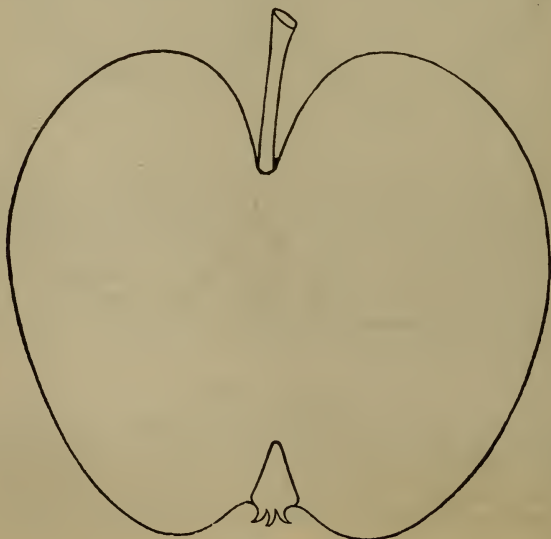
Originated on the farm of D. Bowker, Sudbury, Mass. Tree of moderate, very upright growth, forming a beautiful roundish, regular, even head, very productive. Young shoots dark dull reddish brown, slightly grayish or imperfect downy.

Fruit medium or below. Form roundish oblate, very slightly conic. Color greenish yellow, shaded, striped, and splashed



Garden Royal.

with rich red, a little dull or grayish toward the stalk. Sprinkled with light and gray dots. Stalk medium, slender.



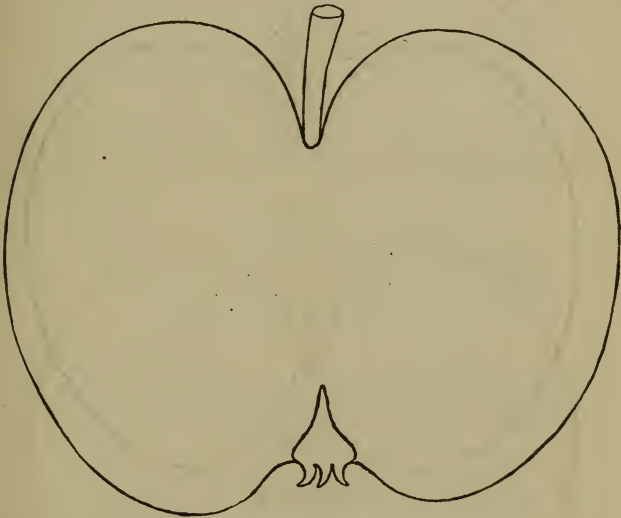
Garden Sweet.

Cavity deep, acute. Calyx open or partially closed. Segments sometimes a little recurved. Basin shallow, slightly uneven. Flesh yellow, very tender, juicy, rich, mild subacid, aromatic. Best. Core small. Last of August, September.

GARDEN SWEET.

A New England Apple. Tree hardy, thrifty, spreading, and very productive alternate years. Young shoots strong, light reddish brown, slightly downy.

Fruit medium, roundish conic. Color yellow, shaded and splashed with crimson nearly over the whole surface, many light and gray dots. Stalk rather short and small. Cavity acute. Calyx closed. Segments partially recurved. Basin large, abrupt, corrugated. Flesh yellowish white, tender, juicy, rich, sweet. Very good. Core medium. September and October. A valuable variety for cooking or stock feeding, continuing a long time in use.



Geneva Pippin.

GENEVA PIPPIN.

Winter Pippin of Geneva.

An Apple bearing the above local name was found growing in the garden of Mrs. Crittenden, Geneva, and is deserving of notice. The appearance of the tree and fruit is strikingly

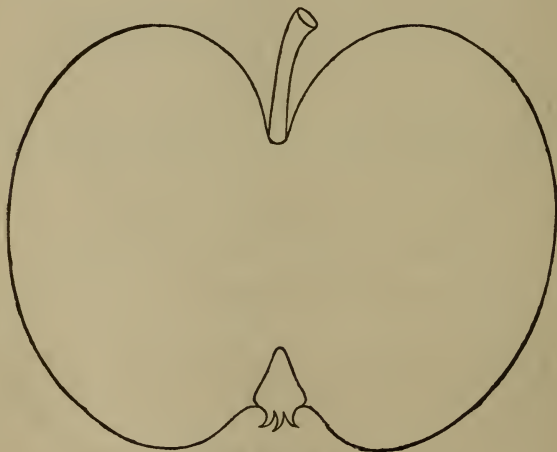
like that of the Fall Pippin, but is a late keeper, continuing in perfection until May. Young wood reddish brown, slightly downy.

Fruit large, roundish oblate, fine yellow, with rarely a bronzed cheek, sparsely covered with gray dots. Stalk short and small, inserted in a narrow cavity. Calyx open. Segments long. Basin open. Flesh yellow, tender, juicy, vinous. Very good or best. January to May.

GOLDEN RUSSET.

English Golden Russet. English Golden. Russet Golden.

This is an old English Apple described by Ronalds and Lindley as Golden Russet, and as that is its commonly accepted name in this country we have followed it. It is one of the popular Apples, succeeding in nearly all sections, and especially in rich Western soils. The tree is thrifty, vigorous, spreading, rather irregular, forming a bushy head.



Golden Russet.

Young shoots slender, dull reddish brown, slightly downy, with numerous small white dots. An early bearer and very productive.

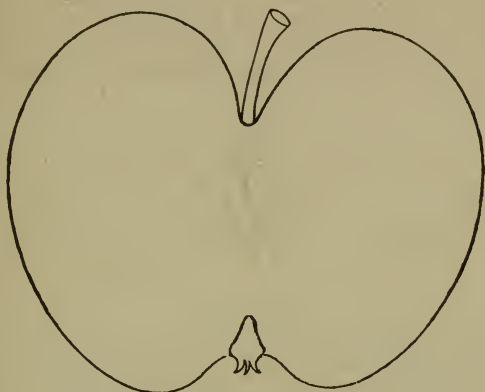
Fruit medium or below, roundish, or roundish oblate. Skin rough. Color yellow, mostly covered with dull russet, and having a bronzed cheek in the sun. Stalk short, small. Cavity medium, or rather deep. Calyx closed. Segments

rather long, often a little recurved. Basin broad, rather large, slightly corrugated. Flesh whitish yellow, fine-grained, rather compact, sprightly, mild subacid. Good to very good. December to March.

GOLDEN RUSSET, OF MASSACHUSETTS.

Origin unknown. Tree vigorous, upright, productive; not an early bearer, but productive when it does come into bearing. Young shoots clear reddish brown.

Fruit small to medium, roundish oblate, conic. Skin golden russet, with a sunny cheek. Stalk small and short,



Golden Russet, of Massachusetts.

inserted in a deep cavity. Calyx nearly closed. Segments small, recurved. Basin deep, round, and open. Flesh yellowish white, tender, rich, mild, sweet subacid. Very good. January, April.

There are many Golden Russets about the country, and it is difficult to identify them. This is from Massachusetts, and distinct from those grown in New York and West.

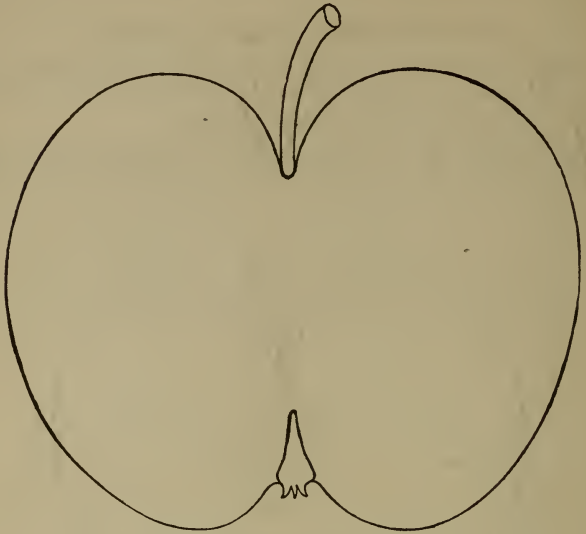
GOLDEN SWEET.

Orange Sweeting.

Early Golden Sweet.

A celebrated Connecticut fruit. Tree very vigorous, spreading forming a tree of moderate size, hardy and very productive. Young shoots reddish brown.

Fruit above the medium size, roundish, scarcely flattened, fair, and well formed; when fully ripe, pale yellow or straw color. Stalk about an inch long, slender at its junction with



Golden Sweet.

the fruit. Calyx closed, and set in a basin of moderate depth. Flesh tender, sweet, rich, and excellent. Good to very good. August and September. A valuable sort for cooking, market, or stock feeding.

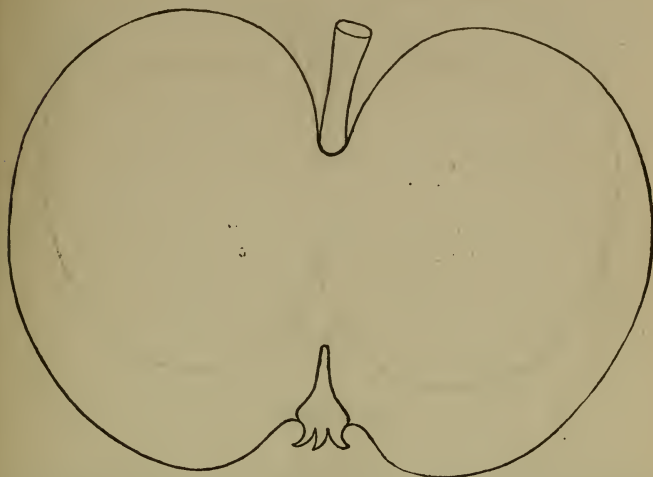
GRAVENSTEIN.

Grave Slije.

A superb-looking German Apple, which originated at Gravenstein in Holstein, and is thought one of the finest apples of the North of Europe. It fully sustains its reputation here, and is, unquestionably, a fruit of first-rate quality. Tree very vigorous, spreading, forming a large, broad head. Very productive. An early bearer. Young wood reddish brown.

Fruit large, rather flattened, and a little one-sided or angular, broadest at the base. Stalk quite short and strong, deeply set. Calyx large, closed, in a wide, deep, rather irregular basin. Segments long, irregular, recurved. Skin

greenish yellow at first, but becoming bright yellow, and beautifully dashed and pencilled, and marbled with light and deep red and orange. Flesh tender and crisp, with a high-



Gravenstein.

flavored, somewhat aromatic taste. Very good. September and October. A valuable apple for market or cooking, succeeding admirably wherever grown.

GREEN CHEESE.

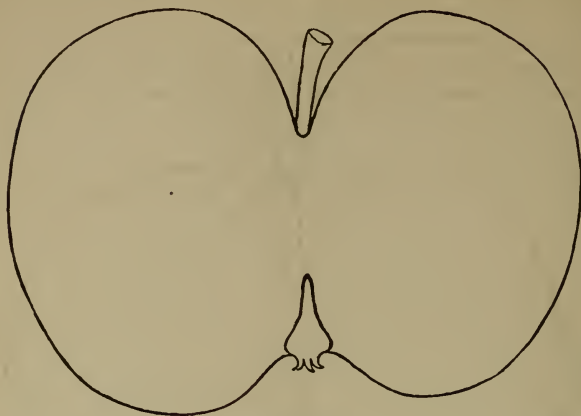
Green Crank.	Yellow Crank.	Southern Greening.
Southern Golden Pippin.	Winter Greening.	Carolina Greening.
Green Skin.	Winter Cheese.	Turner's Cheese.
	Greening.	

An old variety, grown largely in Kentucky and other Southern States. It has been extensively propagated by suckers, but the exact place of the original tree is unknown. Although not best in quality, it has so many good properties adapting it to the South and Southwest, that it is widely disseminated under the various synonyms given above.

Tree moderately vigorous, upright, and has the habit of blooming late, which gives it a special value. A good bearer and long keeper. Young shoots slender, grayish brown.

Fruit medium, oblate, occasionally oblique, pale greenish yellow, moderately sprinkled with brown dots. Stalk short,

slender. Cavity large, deep, russeted. Calyx closed. Segments slightly recurved. Basin broad, deep, uneven. Flesh yellowish white, tender, crisp, juicy, rich, sprightly subacid. Core small, compact. Very good. November to March.



Green Cheese.

lowish white, tender, crisp, juicy, rich, sprightly subacid. Core small, compact. Very good. November to March.

GREEN NEWTOWN PIPPIN.

Hunt's Fine Green Pippin.
Brooke's Pippin?
Newtown Pippin.

Green Winter Pippin.
American Newtown Pippin.
Petersburgh Pippin.

Hunt's Green Newtown Pippin.

The Newtown Pippin stands at the head of all Apples, and is, when in perfection, acknowledged to be unrivalled in all the qualities which constitute a high-flavored dessert apple, to which it combines the quality of long keeping without the least shrivelling, retaining its high flavor to the last. It commands the highest price in Covent Garden Market, London. This variety is a native of Newtown, Long Island, and it requires a pretty strong, deep, warm soil to attain its full perfection, and in the orchard it should be well manured every two or three years. The tree is of rather slender and slow growth, and even while young is always remarkable for its rough bark.

Fruit of medium size, roundish, a little irregular in its outline, caused by two or three obscure ribs on the sides—and broadest at the base, next the stalk; about three inches in

diameter, and two and a half deep. Color dull green, becoming olive green when ripe, with a faint, dull brownish blush on one side, dotted with small gray specks, and with delicate russet rays around the stalk. Calyx quite small and closed, set in a narrow and shallow basin. Stalk half an inch long, rather slender, deeply sunk in a wide, funnel-shaped cavity. Flesh greenish white, very juicy, crisp, with a fine aroma, and an exceedingly high and delicious flavor. Best. When



Green Newtown Pippin.

the fruit is not grown on healthy trees, it is liable to be spotted with black spots. This is one of the finest keeping apples, and is in eating from December to May, but is in the finest perfection in March.

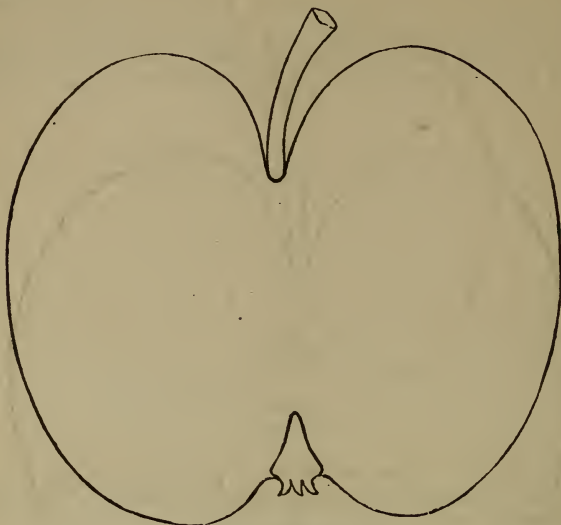
This is entirely distinct from Yellow Newtown Pippin.

GRIMES' GOLDEN PIPPIN.

Grimes Golden.

This valuable Apple originated many years since, on the farm of Thomas Grimes, Brooke Co., Va. In its native locality it is highly prized for the peculiar hardihood of the tree, withstanding uninjured the most severe winters, and never breaking in its limbs. Also for its uniform regular annual productiveness.

Tree vigorous, hardy, upright spreading, very productive, branches with peculiar knobs at the base of each, connecting it with the main limbs. Young wood dark dull red brown, grayish.



Grimes' Golden Pippin.

Fruit medium, roundish oblate, slightly conical. Skin uneven. Color rich golden yellow, sprinkled moderately with small gray and light dots. Stalk rather short and slender. Cavity rather deep, sometimes slightly russeted. Calyx closed or partly open. Basin abrupt, uneven. Flesh yellow, compact, crisp, tender, juicy, rich, sprightly, spicy subacid, peculiar aroma. Core rather small. Very good to best. December to March.

HALL.

Hall's Seedling.

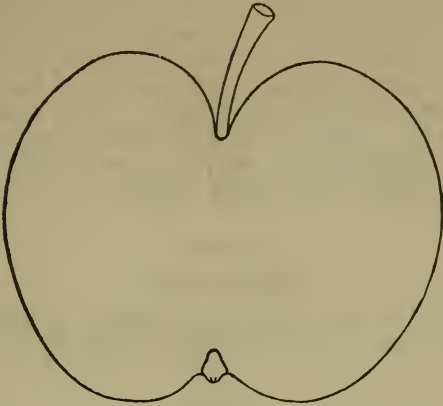
Hall's Red.

Jenny Seedling.

Origin, on the grounds of Mr. Hall, Franklin Co., N. C. Tree of moderate growth, hardy, upright, with long, slender, reddish brown, grayish branches, and remarkably firm wood. The tree never attains a very large size; is very productive alternate years, but being very small, is only valuable for home use, and is considered in North Carolina the best long-keeping dessert apple they cultivate.

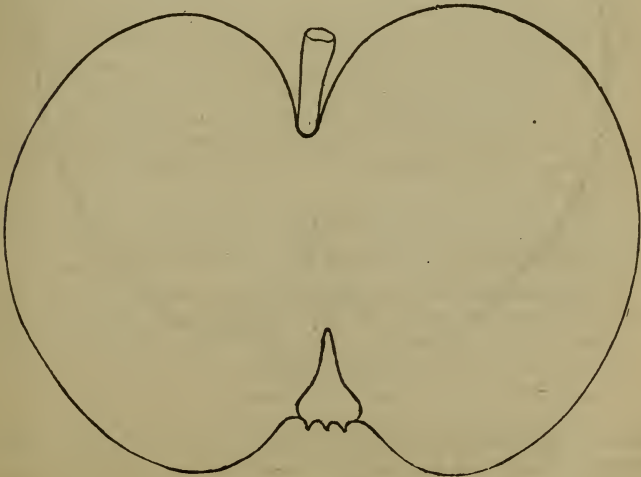
Fruit small, oblate, slightly conic. Skin smooth, thick, mostly shaded with crimson, and covered with various colored

dots. Stalk of medium length, slender, curved, inserted in a round, deep, open cavity. Calyx closed, generally in a small



Hall.

uneven basin. Flesh yellowish, fine-grained, juicy, with a very rich, vinous, saccharine, aromatic flavor. Very good. December to April.



Haskell Sweet,

HASKELL SWEET.

Sassafras Sweet.

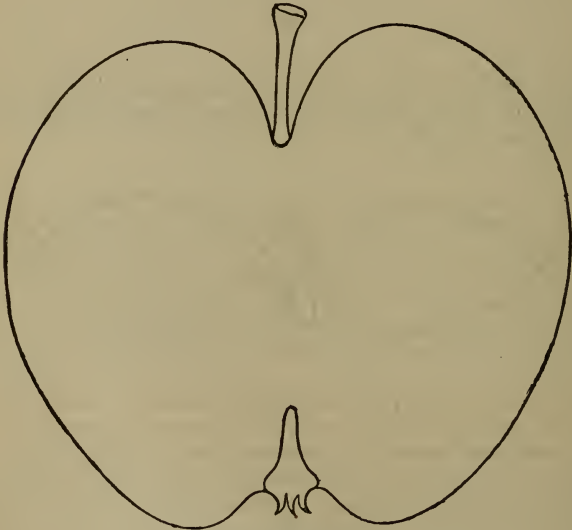
Origin, farm of Deacon Haskell, Ipswich, Mass. Tree hardy, vigorous, spreading, regular in form, and very productive alternate years. Young wood light grayish brown.

Fruit medium or above, oblate. Color pale yellow, sometimes with a blush, and sometimes nettings of russet. Stalk short, inserted in a rather broad, deep cavity, often russeted. Calyx closed. Basin broad and large, of medium depth. Flesh yellowish, tender, juicy, very sweet, rich, aromatic. Very good to best. September, October.

HATCHER.

Hatcher's Seedling.

Originated on the farm of the late O. C. Hatcher, near Franklin, Conn. Tree an upright, thrifty, vigorous grower,



Hatcher's Seedling.

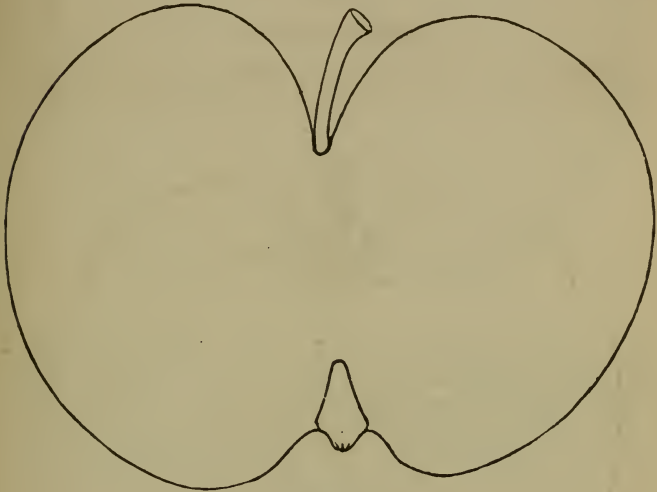
not an early bearer, but produces good crops annually; a late keeper, and one of the most popular apples in Middle Tennessee.

Fruit medium, roundish, inclining to conic, slightly angular. Skin very dark rich red, almost purplish, sprinkled with a few light dots. Stalk short and rather small, inserted in a medium cavity, often slightly russeted. Calyx open. Flesh yellow, fine, rather compact, juicy, mild, pleasant, rich subacid, almost sweet. Very good. Core small. January, February.

HAWLEY.

Origin, Columbia Co., N. Y. Tree vigorous, spreading, and bears annually.

Fruit large, roundish oblate conic. Skin fine yellow, some-



Hawley

what waxen or oily, and considerably dotted. Stalk short, inserted in a rather deep cavity. Calyx small, nearly closed, in a moderate, somewhat furrowed basin. Flesh whitish, very tender, juicy, rich, mild subacid. Ripe September.

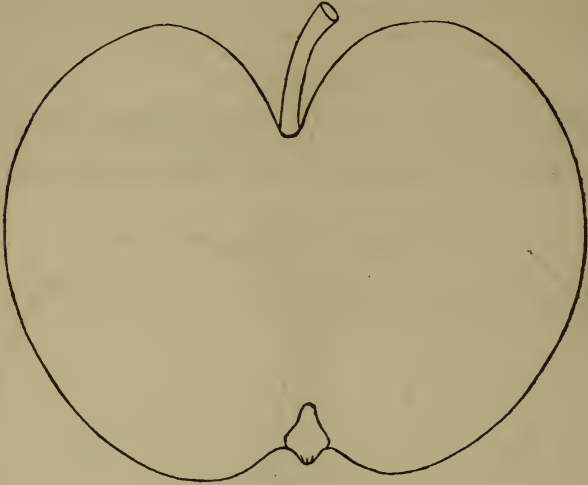
A fruit of very good quality, but as it soon decays, its value is thereby much depreciated.

HAWTHORNDEN.

White Hawthornden.

A celebrated Scotch Apple, which originated at Hawthornden, the birthplace of the poet Drummond. It resembles,

somewhat, our Maiden's Blush, but is inferior to that fruit in flavor. An early and excellent bearer, a handsome fruit, and good for cooking or drying, and profitable for market.



Hawthornden.

Tree vigorous, upright, spreading, and, when in bearing, somewhat pendulous. Young shoots very short-jointed, dull reddish brown. Buds prominent.

Fruit rather above the medium size, pretty regularly formed, roundish, rather flattened. Skin very smooth, pale light yellow, nearly white in the shade, with a fine blush where exposed to the sun. Flesh white, juicy, of a simple, pleasant flavor. Good. September.

There is a *New*, or winter *Hawthornden*, the wood of which is brownish red, tree more robust, the fruit larger, and a longer keeper than the above.

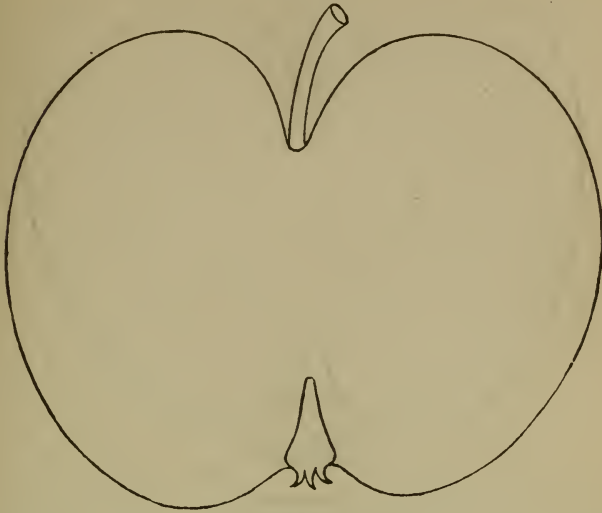
HICKS'.

Buckram.

Originated with Isaac Hicks, North Hempstead, L. I. Tree an upright, strong grower, an early and abundant bearer. Young shoots stout, very short-jointed, dark brown, fine downy. Buds broad, flat, prominent, especially at ends.

Fruit medium or above, roundish, color pale greenish yel-

low, somewhat striped and splashed with crimson, thinly sprinkled with light and gray dots. Stalk rather short. Cavity deep, slightly russeted. Calyx closed. Segments short,



Hicks.

often a little recurved. Basin rather large and uneven. Flesh whitish, tender, moderately juicy, rich, sweet, slightly aromatic. Core rather large. Very good. August. A new Apple, of good promise.

HIGBY SWEET.

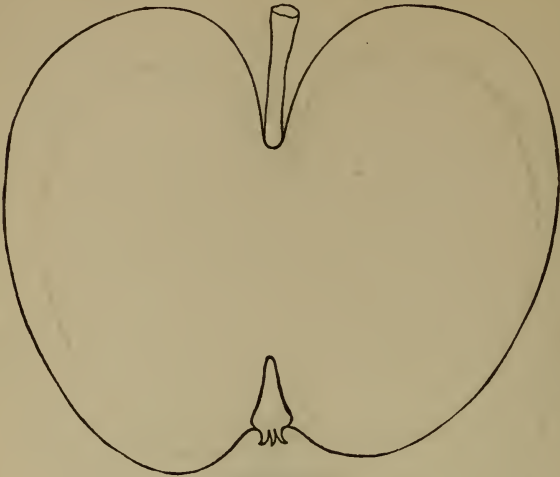
Lady Cheek Sweet.

Ladies' Blush.

Originated by Ezra Woodworth, of Williamsfield, Ashtabula Co., Ohio. This is one of the most delicate of sweet Apples, valuable either for the table or market. Tree a thrifty, upright grower, an early and good bearer. Young shoots very short-jointed, moderately stout, dark rich reddish brown, with very few light specks.

Fruit medium, roundish, slightly conical, sometimes oblique. Color light waxen yellow, shaded with fine clear rich red in the sun, thinly sprinkled with gray and light dots. Stalk short. Cavity acute, rather deep, sometimes a little russeted. Calyx closed. Segments short, erect. Basin narrow, deep,

uneven. Flesh white, very tender, juicy, sweet, excellent. Core small. Very good to best. November to January.



Higby Sweet.

HIGHTOP SWEET.

Summer Sweet.

Sweet June.

Origin, Plymouth, Mass. An old variety, highly prized at the West. Growth upright, vigorous. Tree hardy, very productive, an early and abundant bearer, light reddish brown shoots.

Fruit medium or below, roundish, regular. Skin very smooth. Color light yellow, partially covered with green dots. Stalk medium, inserted in a deep narrow cavity, surrounded by thin russet. Calyx small, closed. Basin shallow, slightly furrowed. Flesh yellowish, very sweet, not very juicy, but pleasant and rich. Very good. August.

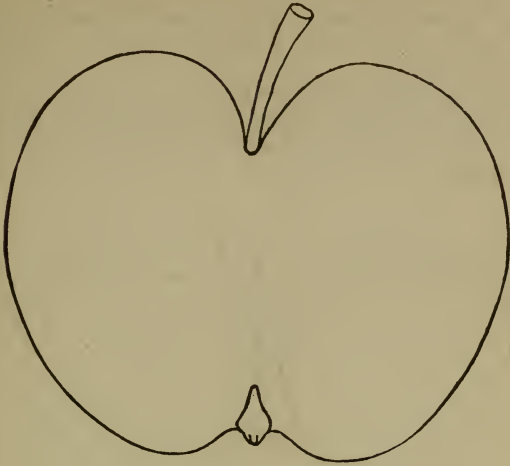
HOG ISLAND SWEET.

Canada Sweet. Sweet Pippin. English Sweet, erroneously.

Origin, Hog Island, adjoining Long Island. Tree vigorous and productive. Wood dark brown, slightly downy, short-jointed, valuable for family use and stock feeding.

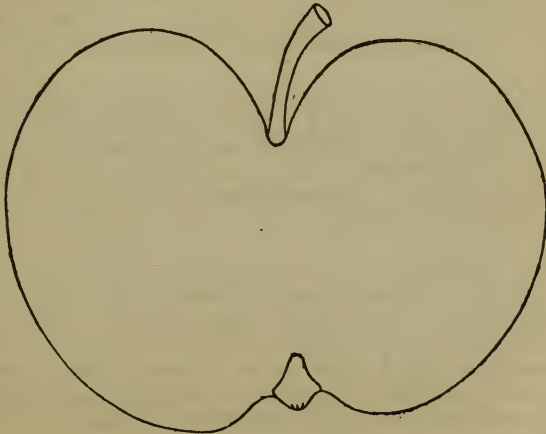
Fruit of medium size, oblate, yellow, striped with red, with

a bright crimson cheek. Stalk rather short, slender, inserted in a deep, abrupt cavity. Calyx closed, set in a broad basin



Hightop Sweet.

of moderate depth. Flesh yellow, juicy, crisp, tender, slightly aromatic, with a very sweet, rich, excellent flavor. Good to very good. September, October.



Hog Island Sweet.

HOLLAND PIPPIN.

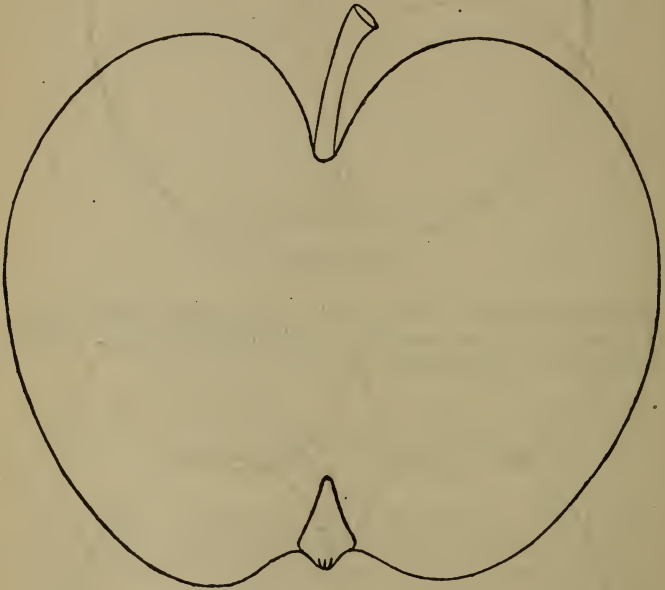
Reinette d'Hollande.

Summer Pippin.

Pie Apple.

This and the Fall Pippin are frequently confounded together. They are indeed of the same origin. One of the strongest points of difference lies in their time of ripening. Tree hardy, vigorous, spreading.

The Holland Pippin begins to fall from the tree and is fit for pies about the middle of August, and from that time to the first of November is one of the very best kitchen and market apples.



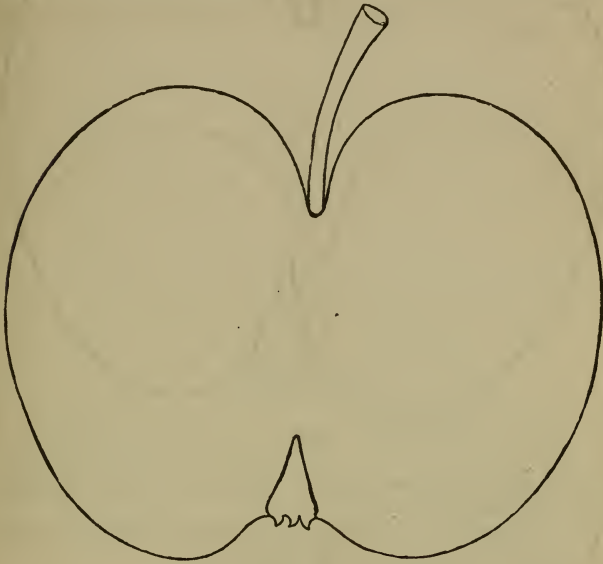
Holland Pippin.

Fruit very large, roundish, a little more square in outline than the Fall Pippin, and not so much flattened, though a good deal like it, a little narrowed next the eye. Stalk half an inch long, thick, deeply sunk. Calyx small, closed, moderately sunk in a slight plaited basin. Skin greenish yellow or pale green, becoming pale yellow when fully ripe, washed on one side with a little dull red or pale brown, with a few scattered, large, greenish dots. Good.

HOOVER.

Wataaugah.

Raised by Mr. Hoover, of Edisto, South Carolina. It is pretty extensively disseminated and much favored where grown. The trees are quite distinct, having large foliage and retaining it until quite late into fall. It forms a beautiful upright spreading tree. Young shoots short-jointed, clear reddish brown, slightly downy.



Hoover.

Fruit medium, roundish, sometimes roundish oblate, slightly oblique, yellowish, mostly overspread, splashed, and striped with two shades of dark rich red, often almost purplish red, some conspicuous light dots, and patches of russet. Stalk medium or rather long. Cavity large, thinly russeted. Calyx open. Basin slightly furrowed. Flesh fine, whitish, crisp, rather firm, tender, juicy, rich subacid. Core small. Very good. November to February.

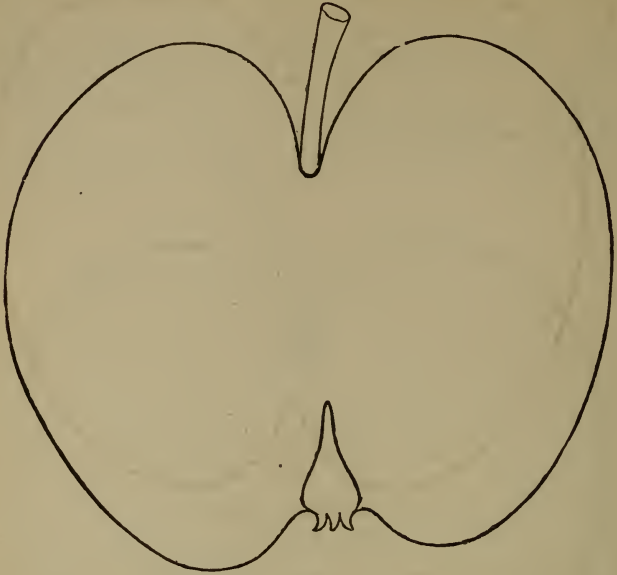
HORSE APPLE.

Haas.
Summer Horse.

Yellow Hoss.
Trippe's Horse.

Origin supposed to be North Carolina. Tree hardy, vigorous, an annual, early and abundant bearer, valuable for drying and culinary purposes. Young wood light reddish brown.

Fruit large, roundish, yellow, sometimes tinged with red, and small patches of russet. Flesh yellow, rather firm and



Horse.

coarse, tender, pleasant subacid. Good. Last of July and first of August.

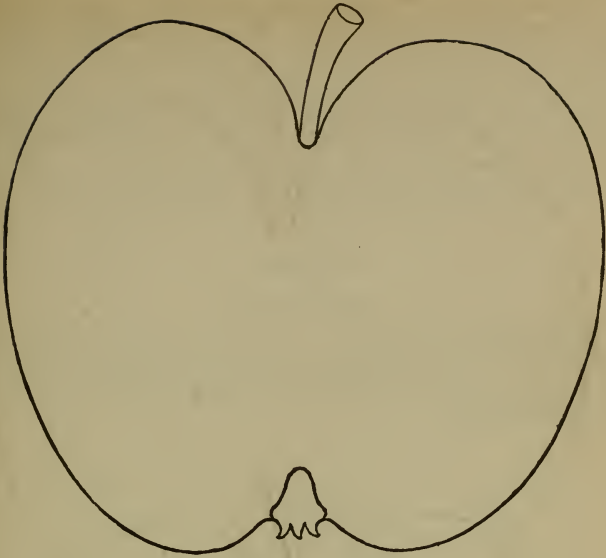
There is said to be another Horse Apple, ripening a month or more later; we have not examined it.

HUBBARDSTON NONSUCH.

John May. Old Town Pippin. Hubbardston.

A fine, large, early winter fruit, which originated in the town of Hubbardston, Mass. The tree is a vigorous grower, forming a handsome round head, and bears very large crops. Young shoots dull grayish brown, slightly downy. It is worthy of extensive orchard culture.

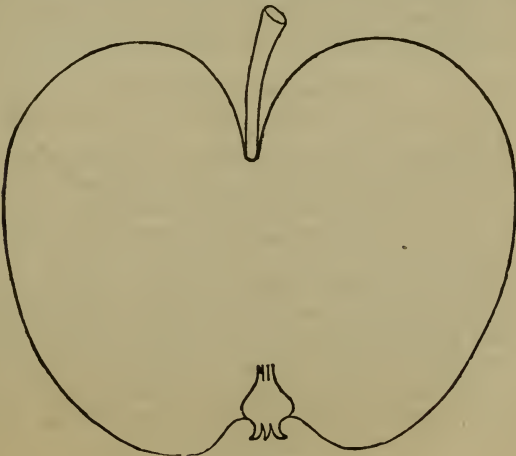
Fruit large, roundish, much narrower near the eye. Skin smooth, striped with splashes, and irregular broken stripes of pale and bright red, which nearly cover a yellowish ground. The calyx open, and the stalk short, in a russeted hollow. Flesh yellow, juicy, and tender, with an agreeable mingling of sweetness and acidity in its flavor. Very good to best. October to January.



Hubbardston Nonsuch.

HUNT'S RUSSET.

Supposed to have originated with the Hunt family, of Concord, Mass., many years since. Tree hardy, moderate grower, upright, spreading when in bearing, an annual and good bearer. Young shoots light reddish brown, slightly grayish.



Hunt's Russet.

Fruit medium, or below, roundish oblate, slightly conic. Color yellow, mostly covered with thin dull russet, with a blush of bright rich red in the sun, few brown dots. Stalk varying in length. Cavity large, deep, acute. Calyx partially open. Segments medium, a little reflexed. Basin medium, slightly corrugated. Flesh yellowish white, fine-grained, tender, juicy, rich, brisk subacid, slightly aromatic. Very good or best. Core compact. January to April.

HURLBUT.

Hurlbut Stripe.

Origin, farm of General Leonard Hurlbut, Winchester, Conn. Tree very vigorous, and great bearer, but late coming into bearing. Young wood dark brownish red, slightly downy. Buds prominent.



Hurlbut.

Fruit medium, oblate, slightly conic, angular, regular. Skin pale yellow, shaded with red stripes, and splashed with darker red, and thinly sprinkled with light dots. Stalk short, rather slender, inserted in a broad deep cavity, surrounded by russet. Calyx closed. Basin rather shallow. Flesh white, crisp, tender, juicy, mild, sprightly subacid. Good to very good. Core small. October, December.

JEFFERIS.

Origin on the lands of Isaac Jefferis, Newlin Township, Chester Co., Pa. Growth moderate, spreading, very productive. A fair and handsome fruit, of excellent quality, in use all of September. Young wood light reddish brown, smooth.



Jefferis.

Fruit medium, oblate, inclining to conic, yellow, shaded and splashed with crimson, and thickly covered with large whitish dots, sometimes slight russet. Stalk short and small, inserted in a rather large cavity. Calyx closed, set in a round open basin. Flesh yellowish white, tender, juicy, with a rich, mild, subacid flavor. Very good. September.

JERSEY SWEETING.

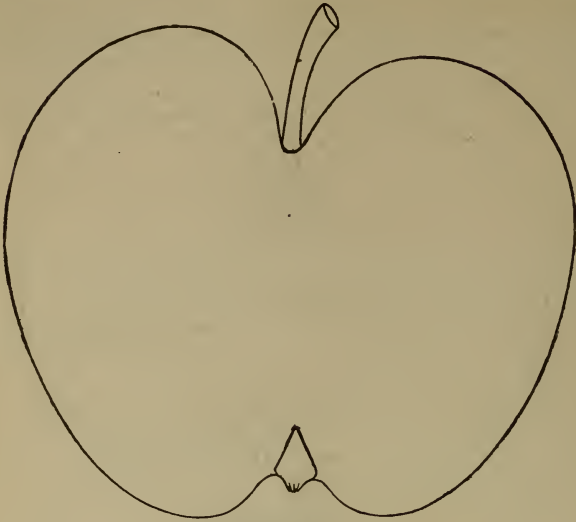
July Branch.

Origin unknown. Tree moderately vigorous, forming a handsome round head; an early bearer, and very productive. Young wood dark reddish brown, downy.

A very popular Apple in the Middle States, where it is not only highly valued for the dessert, but, owing to its saccharine quality, it is also planted largely for the fattening of swine.

Fruit medium size, roundish ovate, tapering to the eye. The calyx is small, closed, very slightly sunk, in a small plaited basin. Stalk half an inch long, in a rather narrow cavity. Skin thin, greenish yellow, washed and streaked, and often entirely covered with stripes of pale and dull red.

Flesh white, fine-grained, and exceedingly juicy, tender, sweet, and sprightly. Good to very good. Young wood



Jersey Sweeting.

stout, and short-jointed. This apple commences maturing about the last of August, and continues ripening till frost.



Jewett's Fine Red.

JEWETT'S FINE RED.

Nodhead.

Origin, Hollins, New Hampshire. Tree of moderate growth, and productive, requires high culture to produce fair fruit.

Fruit medium, roundish oblate or oblate, greenish white, striped, splashed, and shaded with crimson, some of the splashes almost purplish, having a dull grayish bloom. Stalk short, inserted in a broad, deep cavity. Calyx firmly closed, or half open, set in a small basin. Flesh white, fine, tender, juicy, very pleasant, sprightly, almost sweet. Good to very good. November to February.

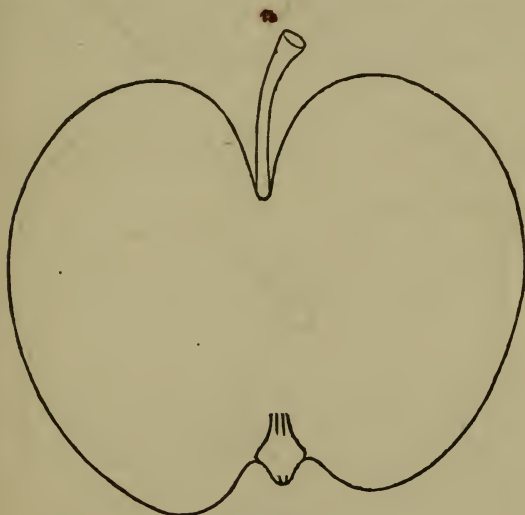
JONATHAN.

King Philip.

Philip Rick.

New Spitzenburgh.

The Jonathan is a very beautiful dessert Apple, and its great beauty, good flavor, and productiveness in all soils, unite to recommend it to orchard planters. The original



Jonathan.

tree of this variety is growing on the farm of Mr. Philip Rick, of Kingston, New York. It was first described by the late Judge Buel, and named by him in compliment to Jonathan Hasbrouck, Esq., of the same place, who made known

the fruit to him. It succeeds wherever grown, and proves one of the best in quality, and most profitable either for table or market. The tree is hardy, moderately vigorous, forming an upright spreading, round head, an early bearer, and very productive. Young shoots rather slender, slightly pendulous, grayish brown.

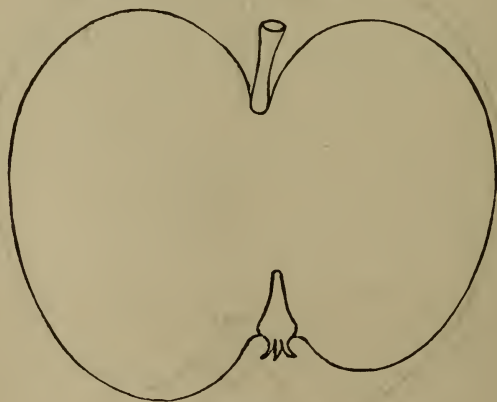
Fruit of medium size, regularly formed, roundish conical, or tapering to the eye. Skin thin and smooth, the ground clear light yellow, nearly covered by lively red stripes, and deepening into brilliant or dark red in the sun. Stalk three-fourths of an inch long, rather slender, inserted in a deep, regular cavity. Calyx set in a deep, rather broad basin. Flesh white, rarely a little pinkish, very tender and juicy, with a mild, sprightly, vinous flavor. This fruit evidently belongs to the Spitzenburgh class. Best. November to March and May.

JULIAN.

Juling.

Julien.

An Apple of Southern origin. Tree moderately vigorous, spreading, very productive. Young shoots light reddish brown, somewhat grayish, many white dots.



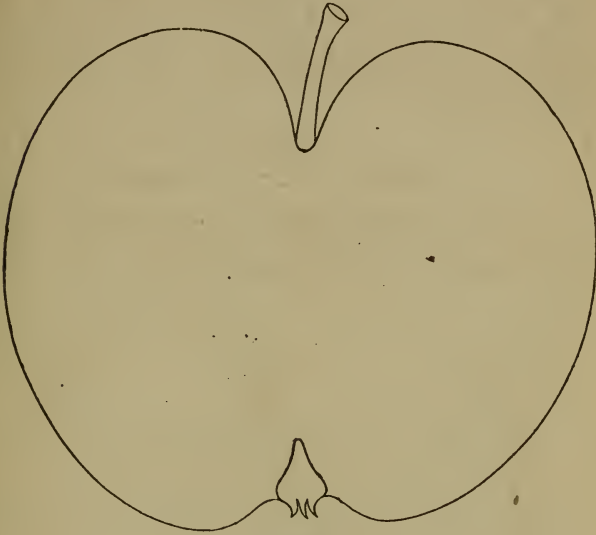
Julian.

Fruit above medium, roundish, inclining to conic. Sides unequal. Color waxen whitish, striped, splashed, and mottled with rich red, moderately sprinkled with light dots, some having dark centres. Stalk short, small. Cavity deep, sometimes russeted. Calyx small, closed. Segments long, slen-

der, slightly recurved. Basin deep, slightly corrugated. Flesh yellowish white, tender, juicy, pleasant subacid. Good to very good. July and August.

KENTUCKY.

Origin unknown, probably a local name—came from Kentucky many years since. Tree rather hardy, vigorous, forming a round spreading head; an early and abundant bearer, excellent for cooking, and a fair eating apple, fully equal to Maiden's Blush.



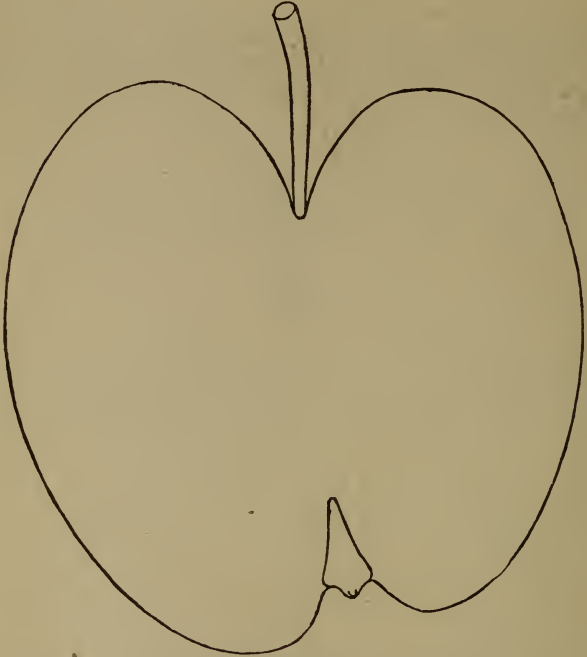
Kentucky.

Fruit large and very uniform, roundish, slightly conical. Skin yellowish, marbled, shaded and rather obscurely splashed, and striped with red and a few light dots; stalk short, inserted in a narrow cavity. Calyx large, half open; basin medium, a little uneven. Flesh half fine, yellowish, crisp, juicy, quite acid at first, but when fully ripe a pleasant brisk subacid. Very good. September, October

KESWICK CODLIN.

A noted English cooking Apple, which may be gathered for tarts as early as the month of August, and continues in

use till November. It is an early and a great bearer, and a vigorous tree, and is one of the most profitable of orchard sorts for cooking or market. Tree very hardy, forming a large, regular, upright, spreading, round head.



Keswick Codlin.

Fruit a little above the middle size, rather conical, with a few obscure ribs. Stalk short and deeply set. Calyx rather large. Skin greenish yellow, washed with a faint blush on one side. Flesh yellowish white, juicy, with a pleasant acid flavor.

KING OF TOMPKINS COUNTY.

King Apple.

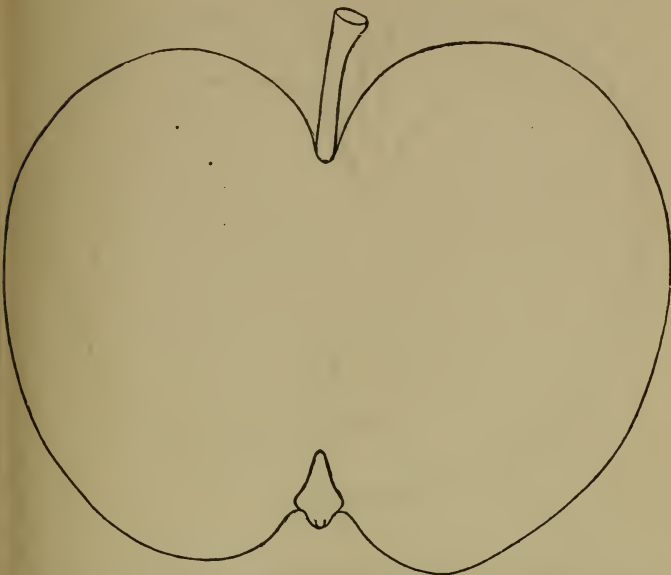
Toms Red.

Tommy Red.

Origin uncertain; said to have originated with Thomas Thacher, Warren Co., N. J. A valuable market fruit. Tree very vigorous, spreading, an abundant bearer annually.

Young shoots very dark reddish brown, quite downy, especially toward the ends.

Fruit large, globular, inclining to conic, sometimes oblate, angular. Color yellowish, mostly shaded with red, striped



King of Tompkins County.

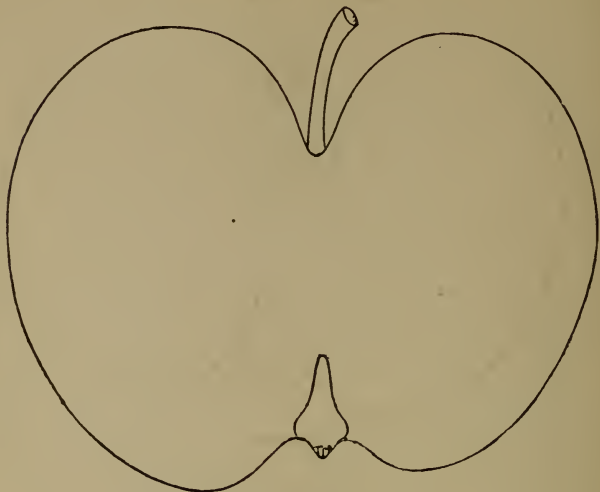
and splashed with crimson. Stalk rather stout and short, inserted in a large, somewhat irregular cavity. Calyx small and closed, set in a medium, slightly corrugated basin. Flesh yellowish, rather coarse, juicy, tender, with an exceedingly agreeable, rich, vinous flavor, delightfully aromatic. Very good to best. December to March.

KINNAIRD'S CHOICE.

Originated on the farm of the late Michael Kinnaird, of Franklin, Tenn. Tree a thrifty, vigorous grower, not very upright or regular—similar to winesap, an early and an annual bearer, but produces heavier crops alternate years.

Fruit medium, oblate, inclining to conic, slightly angular or obscurely ribbed, sides sometimes unequal, skin yellow, al-

most covered with dark rich red, many small light dots towards the crown, and larger ones and less number near the base. Stalk short, small, inserted in a wide deep cavity, some-



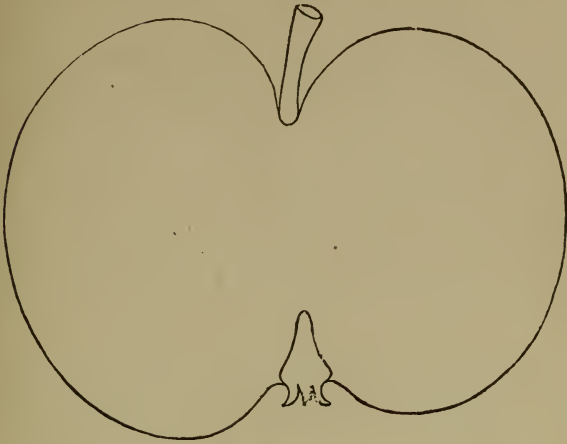
Kinnaird's Choice.

times by a lip, russeted. Calyx closed; basin large, deep, furrowed. Flesh yellowish, half fine, crisp, tender, juicy, mild, rich, subacid, slightly aromatic. Very good. Core small. January.

KLAPROTH.

This beautiful Apple, a native of Lancaster Co., Pa. (on the farm of Mr. Brennaman), was brought into notice by Dr. J. K. Eshleman, of Downington, Pa., and promises to be an excellent fruit, especially for market purposes. It bears carriage remarkably well; a most prolific bearer and vigorous grower. We give the Dr.'s description. Young wood very grayish dull reddish brown. Size medium, form oblate. Skin greenish yellow, streaked and stained with red, deepened on the sunny side, dotted all over with light specks, and occasional russet spots near the stalk, which is short and inserted in a smooth deep cavity. Calyx small and closed. Segments reflexed, set in a wide, regular, and well-formed

basin. Flesh white, very crisp, juicy, tender, and pleasant subacid flavor, and until quite ripe acid predominates. Very good. August to October.



Klapproth.

LADY APPLE.

Api.

Pomme d'Api Rouge.

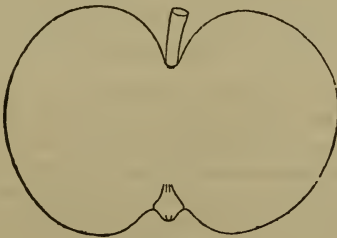
Api Petit.

Petit Api Rouge.

Pomme Rose.

Gros Api Rouge.

An exquisite little dessert fruit, the pretty size and beautiful color of which render it a universal favorite; as it is a



Lady Apple.

great bearer, it is also a profitable sort for the orchardist, bringing the highest price of any fancy apple in the market. It is an old French variety, and is nearly always known abroad

by the name of *Api*; but the name of Lady Apple has become too universal here to change it now. No amateur's collection should be without it.

Fruit quite small, but regularly formed and flat. Skin smooth and glossy, with a brilliant deep red cheek, contrasting with a lively lemon yellow ground. Stalk of medium length, and deeply inserted. Calyx small, sunk in a basin with small plaits. Flesh white, crisp, tender, and juicy, with a pleasant flavor. The tree has upright, almost black shoots, with small leaves; forms a very upright, small head, and bears its fruit in bunches. The latter is very hardy, and may be left on the tree till severe frosts. The Lady Apple is in use from December to May.

The *Api Noir*, or *Black Lady Apple*, differs from the foregoing sort only in the color, which is nearly black. In shape, size, season, and flavor, it is nearly the same. It is, from its unusually dark hue, a singular and interesting fruit—poor flavor.

The true *Api Étoile*, or *Star Lady Apple*, figured and described by Poiteau, in the *Pomologie française*, is another very distinct variety; the fruit is of the same general character, but having five prominent angles, which give it the form of a star. This variety is rather scarce, the common Lady Apple being frequently sent out for it by French nurserymen. It keeps until quite late in the spring, when its flavor becomes excellent, though in winter it is rather dry. The growth of the tree resembles that of the other *Apis*.

The *Api Gros*, or *Large Lady Apple*, is of a similar habit in growth of the tree to the true Lady Apple, the fruit a trifle larger, more roundish, less brightly colored, and quite inferior in quality.

The *Api Gros Pomme de Rose*, or *Rose-colored Lady Apple*, is also another variety, with fruit of medium size, roundish, pale yellow, washed with bright rosy red. Flesh yellowish white, fine-grained, juicy, crisp, aromatic.

LADY'S SWEET

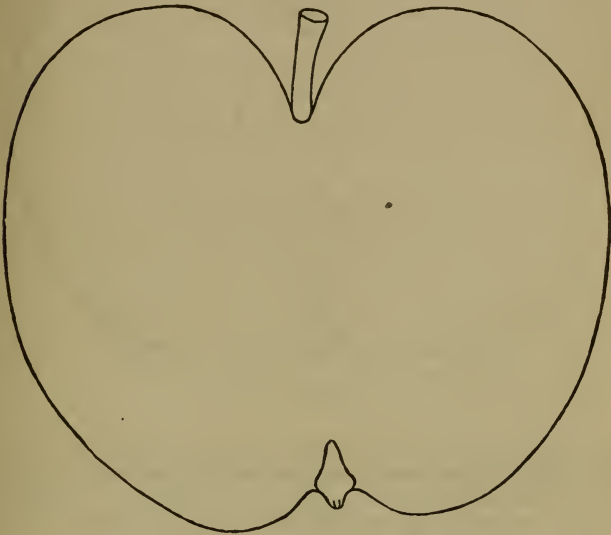
Pommeroy. Lady's Sweeting. Roa Yon. Ladies' Sweet.

We consider this one of the finest winter sweet Apples for the dessert yet known or cultivated in this country,

Its handsome appearance, delightful perfume, sprightly flavor, 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. The wood is not very strong, but it grows thriftily,

and bears very abundantly, making a round spreading head. Young shoots reddish brown, downy. Buds small.

Fruit large, roundish ovate, narrowing pretty rapidly to 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,



Lady's Sweet.

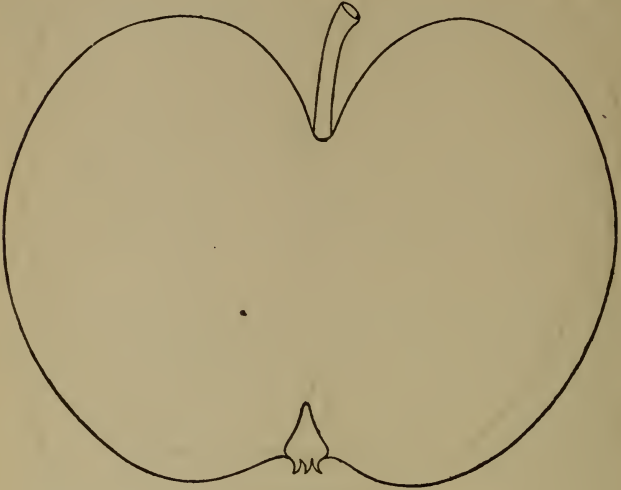
and rays of the same around the stalk. Calyx quite small, set in a narrow, shallow, plaited basin. Stalk half an inch long, in a shallow cavity. Flesh greenish white, exceedingly tender, juicy, and crisp, with a delicious, sprightly, agreeably perfumed flavor. Very good or best. Keeps without shrivelling, or losing its flavor, till May.

LONDON.

Origin uncertain, found on the farm of Buel Landon, Grand Isle, Vt., and by him introduced to notice. Tree

vigorous, with low spreading branches, and bears moderately every year.

Fruit medium, roundish, inclining to oblate. Color yellow, mottled and shaded with red or deep crimson, obscurely splashed and striped, and covered with numerous light and



London.

brown dots. Stalk short. Cavity large, surrounded by russet. Calyx open, basin corrugated and shallow. Flesh yellowish, firm, crisp, juicy, with a rich, mild subacid flavor, aromatic. Very good. February to May.

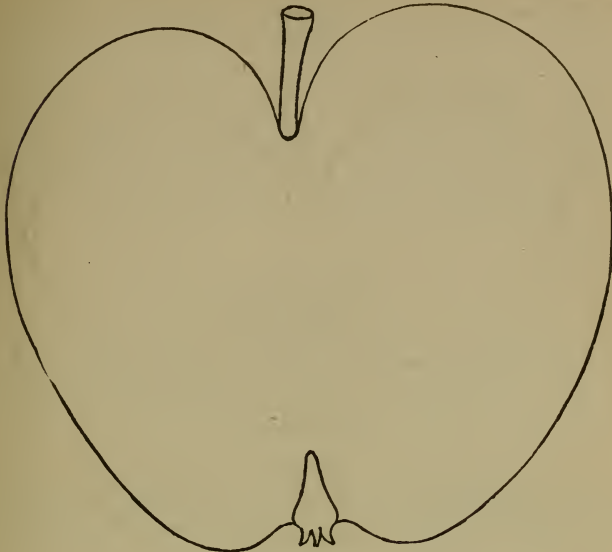
LARGE YELLOW BOUGH.

Early Sweet Bough.	Sweet Harvest.	Bough.
August Sweet.	Washington, incorrectly.	Sweet Bough.

A native Apple, ripening in harvest-time, and one of the first quality, only second as a dessert fruit to the Early Harvest. It is not so much esteemed for the kitchen as the latter, as it is too sweet for pies and sauce, but it is generally much admired for the table, and is worthy of a place in every collection.

Fruit above the middle size, and oblong ovate in form. Skin smooth, pale greenish yellow. Stalk rather long, and

the eye narrow and deep. Flesh white, very tender and crisp when fully ripe, and with a rich, sweet, sprightly flavor. Ripens from the middle of July to the tenth of August.



Large Yellow Bough.

Tree moderately vigorous, bears abundantly, and forms a round head. Young shoots grayish brown, very slightly downy.

LATE STRAWBERRY.

Autumn Strawberry.

Origin, Aurora, N. Y., on lands formerly owned by Judge Phelps. Tree vigorous, upright, spreading, hardy. Young wood smooth, reddish brown, a regular annual bearer after it is established.

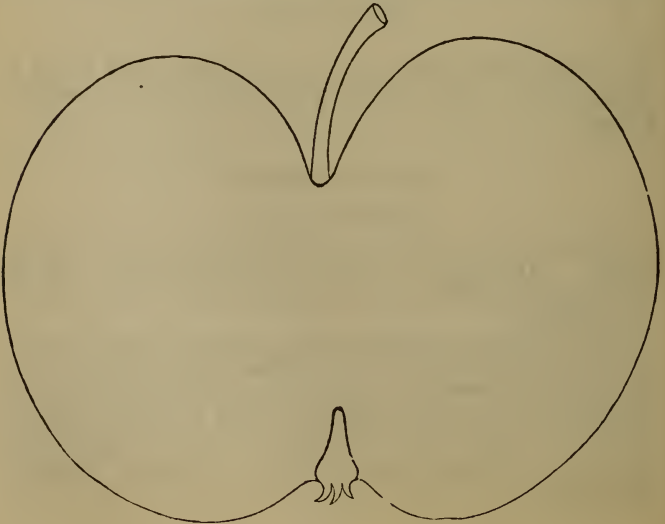
Fruit medium, roundish oblate, inclining to conic, sometimes obscurely ribbed. Color whitish, striped and splashed with light and dark red, and often covered with a thin bloom. Stalk rather long, slender, curved. Cavity large, deep, slightly russeted. Basin abrupt, corrugated. Flesh yellowish white, tender, juicy, pleasant vinous, subacid. Very good. October, December.



Late Strawberry.

LAWVER.

This beautiful apple is said to have originated on the farm now owned by Henry Burichter, near Parkville, Missouri.



Lawver.

Specimens received from A. M. Lawver, of Cobden, Illinois, were very handsome, good size and good quality, and its showy appearance and late keeping will make it sought after as a market fruit.

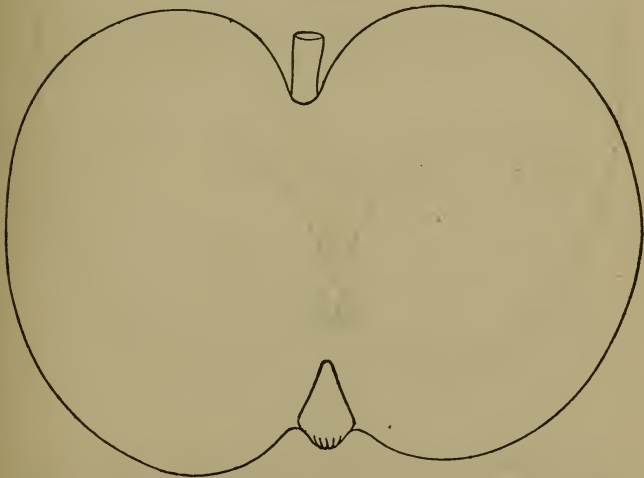
Fruit large, roundish oblate to oblate, regular. Skin entirely covered with light and dark rich red or crimson, inclining to purplish in the sun, some specimens of a light crimson or carmine, mixed with a thin grayish bloom, and many small light and gray dots. Stalk of medium length, slender, inserted in a large, deep, regular cavity. Calyx small, closed; basin medium, slightly plaited. Flesh yellowish, half fine, rather compact, crisp, tender, juicy, mild subacid. Good to very good. Core large. January, May.

LEDGE SWEET.

Portsmouth Sweet.

Origin, Portsmouth, N. H. Tree vigorous, spreading, productive, regular bearer.

Fruit medium, oblate, skin pale, whitish yellow, thinly



Ledge Sweet.

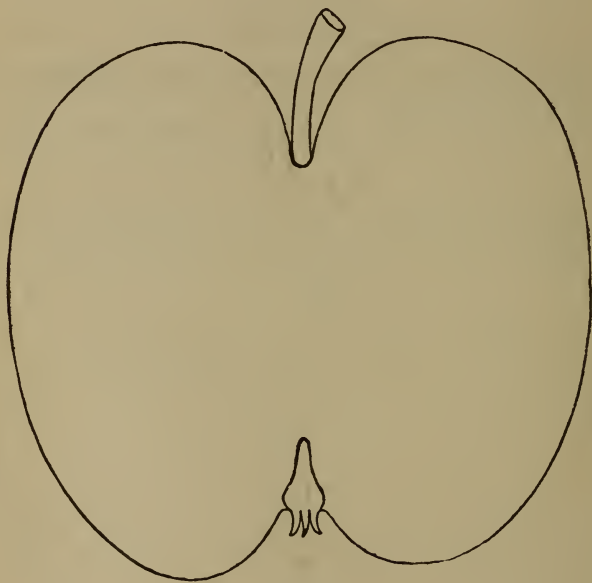
shaded with red, splashed and striped with dark red, thinly sprinkled with light and gray dots. Stalk very short, stout.

Cavity broad, not deep. Calyx closed. Segments short. Basin medium, slightly corrugated. Flesh yellowish, a little coarse, tender, juicy, mild, half sweet, pleasant. Core small. Good or very good. December to March.

LOWELL.

Queen Anne.	Michigan Golden.	Greasy Pippin.
Orange.	Tallow Apple.	Golden Pippin of some.
Pound Royal of some.	Risley.	

Origin unknown. Tree hardy, vigorous, forming a beautiful round head, productive, an early and annual bearer. A good fall Apple for culinary uses and for market. Young wood reddish brown.



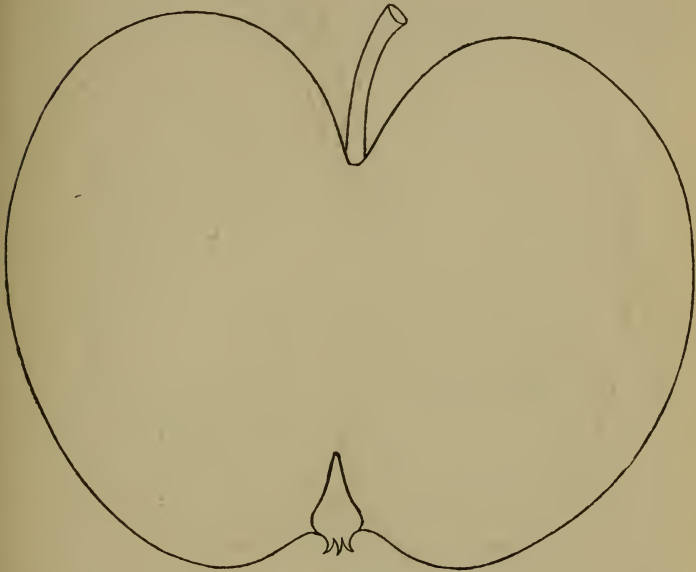
Lowell.

Fruit large, roundish, skin light, bright waxen yellow, oily, many light dots. Stalk of medium length. Cavity deep, uneven. Basin deep, abrupt, and furrowed. Calyx closed. Flesh yellowish white, with a brisk, rich, rather acid flavor. Good to very good. September, October.

McAFEE'S NONSUCH.

McAfee.	Winter Pearmain.
McAfee's Red.	Large Striped Winter Pearmain.
Striped Pearmain.	Striped Winter Pearmain.
Snorter.	Large Striped Pearmain.
Nonsuch.	Storrs' Wine.
Teeke.	Missouri Superior.
Gray's Keeper.	Striped Sweet Pippin.
Park's Keeper.	New Missouri.
Wyandotte.	Valandingham's Wine.
Gray Apple.	White Crow.
Indian.	Ladies' Favorite of some.
Hubbardston Nonsuch, erroneously.	

An old variety which originated in the orchard of George McAfee, near Harodsborg, Mercer Co., Kentucky. We are indebted to Dr. Wm. M. Howsley, of Leavenworth, Kansas,



McAfee's Nonsuch.

for its history, origin, etc. Tree very vigorous, forming a round spreading head. It does not come early into bearing, but is very productive when it attains some age. It is considerably grown through the West, under the names of Striped Winter Pearmain and Striped Sweet Pippin; also more or

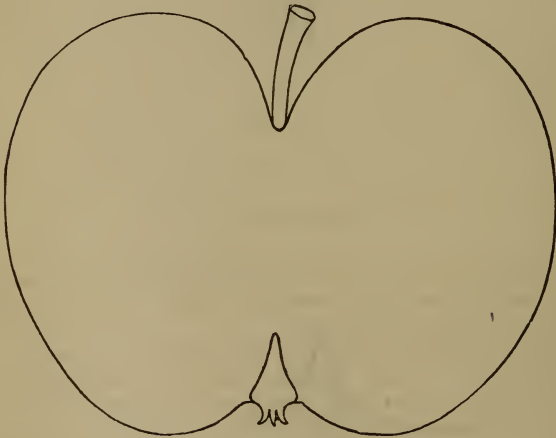
less by the signs, as named above. It is valued in most localities as one of the best of its season.

Fruit medium to large, roundish oblate, inclining to conic. Skin yellow, striped, splashed, and marbled with light and dark bright red nearly over the whole surface, yet showing the yellow ground all through, thickly sprinkled with large and small light dots, some areole. Stalk short to long, slender, inserted in a large deep cavity, often thinly russeted. Calyx small, closed; basin rather small, slightly plaited. Flesh yellow, half fine, crisp, tender, juicy, rich, mild subacid, almost sweet, slightly aromatic. Very good. Core medium. October, February.

McLELLAN

Martin.

Origin, Woodstock, Conn. Tree thrifty, upright, very productive, annual bearer, and handsome. Young shoots dull grayish reddish brown, slightly downy

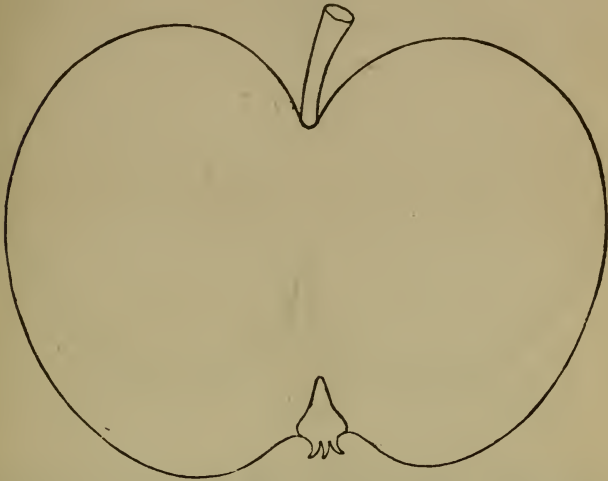


McLellan.

Fruit medium or above, roundish oblate, slightly conic, very regular, and fair. Color yellow, mostly striped, marbled, and splashed with red. Stalk short, inserted in a rather deep cavity. Calyx small, nearly closed. Basin moderate, slightly uneven. Flesh white, very tender, juicy, with a fine vinous flavor, almost saccharine. Very good. December to March.

MAIDEN'S BLUSH.

A remarkably beautiful Apple, a native of New Jersey, and first described by Coxe. It begins to ripen about the 20th of August, and continues until the last of October. It has all the beauty of color of the pretty little Lady Apple, and is much cultivated and admired, both for the table and for cooking. It is also very highly esteemed for drying.



Maiden's Blush.

This variety forms a handsome, rapid-growing tree, with a fine spreading head, and bears large crops. It is very valuable as a profitable market sort.

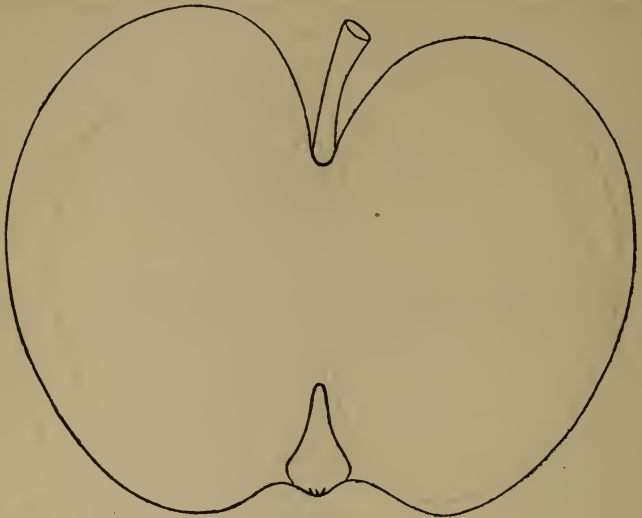
Fruit of medium size, oblate, very regularly shaped, and a little narrower towards the eye. Skin smooth, with a delicate waxen appearance, pale lemon yellow in the shade, with a brilliant crimson cheek next the sun, the two colors often joining in brilliant red. Stalk short, planted in a rather wide deep hollow. Basin moderately depressed. Calyx closed. Flesh white, tender, sprightly, pleasant subacid. Good.

MAJOR.

Chillisquage.

Originated with Major Samuel McMahon, Northumberland Co., Pa. This is a showy market Apple of really excellent

quality. The tree is a rapid and vigorous grower, with rather irregular, upright, spreading shoots, reddish brown, slightly grayish.



Major.

Fruit large. Form roundish, often oblate, slightly inclining to conic. Sides sometimes unequal. Color greenish, shaded and rather obscurely striped and splashed with deep red, many light russet gray dots. Stalk short. Cavity deep. Calyx large, with stiff, short segments. Basin large, broad, and furrowed. Flesh yellowish, rather firm, crisp, juicy, rich subacid. Core small. Very good. November to April.

MANGUM.

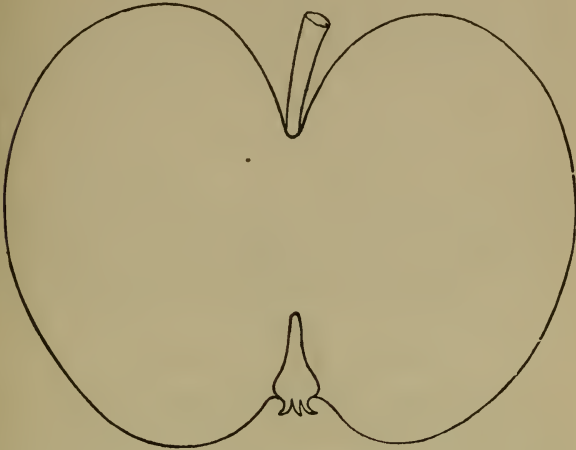
Fall Cheese of Va.
Gully.
Carter's Winter.
Alabama Pearmain?
Cheese.
Carter of Ala.

Patton.
Sam Wingard.
Seago.
Maxfield.
Johnston's Favorite.
Blakely.

A Southern variety of uncertain origin. It is extensively cultivated South, where it is counted as one of the most desirable and reliable apples. Tree a good, fair grower, with

young shoots of a grayish brown, very productive. An annual bearer.

Fruit medium, oblate, slightly conic, yellowish, striped and mostly shaded with red, thickly sprinkled with whitish and



Mangum.

bronze dots. Stalk short and small, inserted in a broad cavity surrounded by russet. Calyx partially closed. Basin slightly corrugated. Flesh yellow, very tender, juicy, mild subacid. Very good to best. October, November.

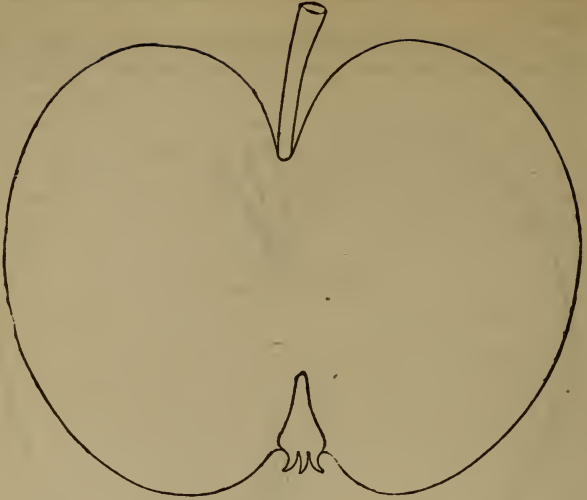
MANOMET.

Horse Block.

Manomet Sweet.

Origin, on the Holbrook Farm, near Plymouth, Mass. Tree vigorous, with a round, rather spreading head, an early bearer, and productive. Young shoots dark reddish brown. This is one of the finest of sweet apples, esteemed highly wherever grown:

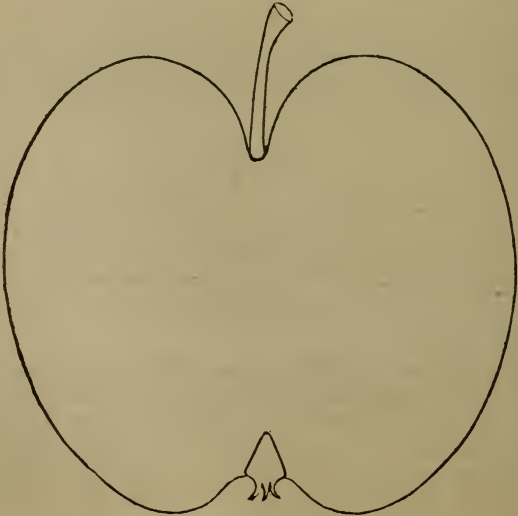
Fruit medium, roundish oblate; skin fine yellow, with a richly shaded cheek, sometimes nearly covering the whole surface, and sprinkled with a few light and gray dots. Stalk rather slender, inserted in a shallow cavity, slightly surrounded by russet. Calyx closed. Basin rather large, deep, corrugated. Flesh tender, juicy, sweet, and rich. Very good. Core small. August, September.



Manomet.

MARSTON'S RED WINTER.

Origin, Greenland, N. H. Tree hardy, of moderate growth, spreading. Young shoots reddish brown, slightly downy.



Marston's Red Winter.

Great bearer every other year and moderate crops alternate ones.

Fruit medium or below, roundish conic. Stalk rather slender, in a narrow, deep, slightly russeted cavity—sometimes with a lip. Calyx partially closed. Segments long, in a deep corrugated basin. Color whitish yellow, shaded, rather obscurely splashed, and striped with bright red and crimson, thickly sprinkled with minute dots. Flesh whitish yellow, very juicy, tender, sprightly subacid. Good to very good. December to March.

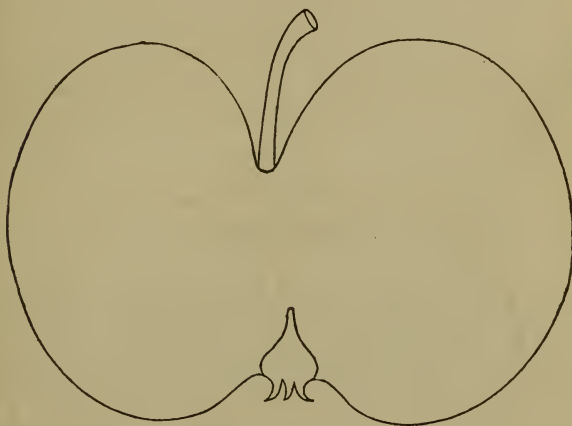
MASON'S STRANGER.

Mason's Pippin.

Izzard.

Old Field.

Originated on the land of Dr. George Mason, Greenville Co., Virginia. Tree of vigorous growth, having a well-formed head, very symmetric; a very productive, late-keeping variety, and much prized in the vicinity of its origin.

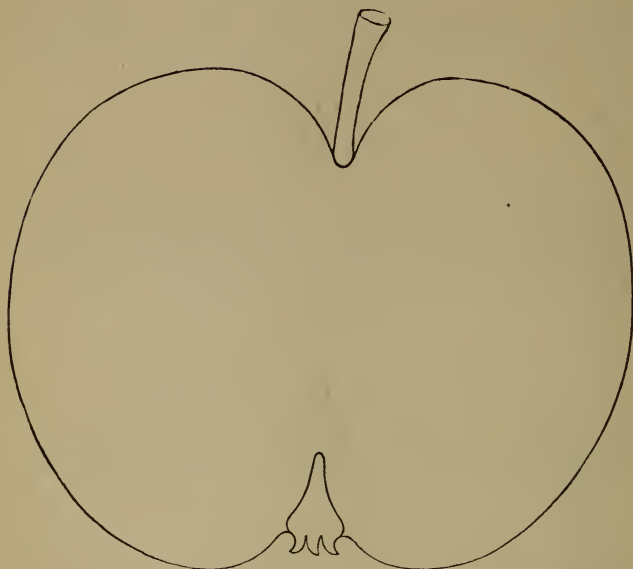


Mason's Stranger.

Fruit nearly of medium size, oblate; skin smooth and waxen-like, bright yellow, sometimes a shade of pale light red, and a few brownish dots. Stalk short, small, inserted in a large cavity, thinly russeted. Calyx open, basin quite large, deep, smooth. Flesh whitish, fine, compact, crisp, juicy, mild subacid, somewhat spicy, inclining to sweet. Very good. Core small.

MAVERACK'S SWEET.

Raised by Dr. Maverack, Pendleton District, S. C. Tree vigorous, upright, spreading, sometimes irregular; an early and good bearer. Young shoots reddish grayish brown, slightly downy.



Maverack's Sweet.

Fruit large, roundish oblate, yellow, mostly shaded with rich deep red, and sprinkled with gray dots. Stalk short, inserted in an open cavity. Calyx open, set in a deep corrugated basin. Flesh yellowish, rather coarse-grained, breaking, tender, rich, sweet. Good to very good. Core small. November to February. A valuable sweet apple for market or cooking.

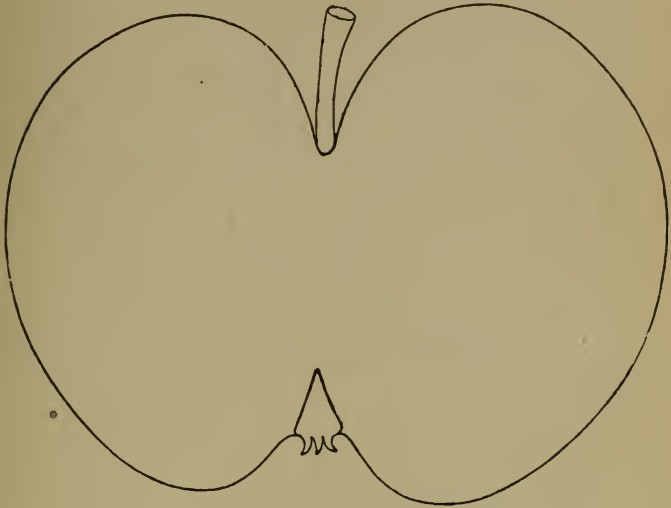
MELON.

Norton's Melon. Watermelon.

Origin, orchard of Heman Chapin, East Bloomfield, N. Y. Tree upright, compact, round head, of rather slow growth while young, very productive alternate years. Young shoots dull grayish reddish brown. One of the best and most valua-

ble sorts for the dessert; a little too tender for shipping long distances.

Fruit medium or above. Form roundish oblate, slightly conic, obscure ribs towards apex. Color pale yellow, nearly covered with light crimson, splashed, striped, and mottled



Melon.

with carmine, some traces of russet, and moderately sprinkled with light and brown dots. Stalk medium, slender. Cavity large, deep, regular, often considerably russeted. Calyx partially closed. Segments medium, erect, sometimes a little recurved. Basin rather abrupt, slightly corrugated. Flesh white, very tender, juicy, refreshing, lively vinous subacid. Core small. Best. November to March.

MEXICO.

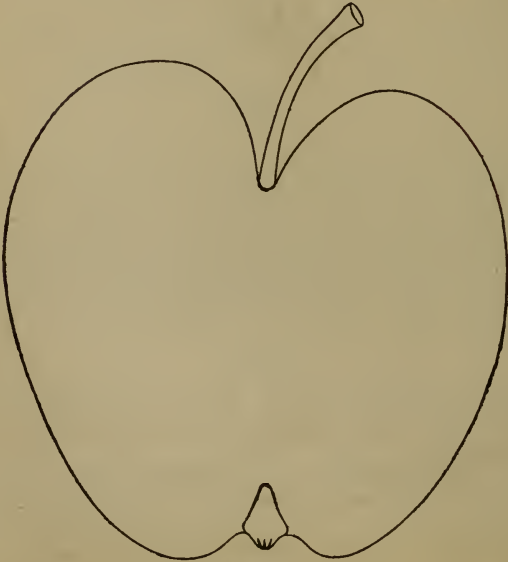
Origin, Canterbury, Conn. Tree of moderate growth, spreading, productive, hardy. Young shoots dull grayish brown, downy.

Fruit medium, roundish oblate, crimson, striped, splashed, and shaded with very dark red, a little yellow in the shade, with a few large light dots. Stalk medium length. Cavity broad, shallow, russeted. Calyx closed in a narrow basin. Flesh whitish, stained with red, tender, rather juicy, pleasant



Mexico.

subacid. Good to very good. Core small. September,
October.



Minister.

MINISTER.

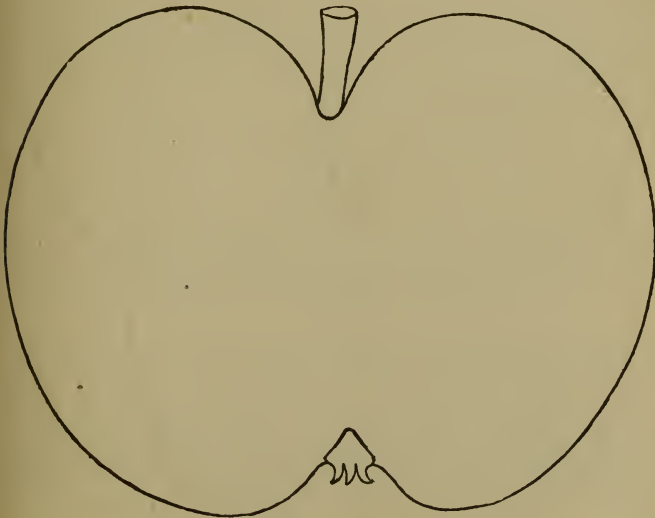
A New England variety, introduced to notice by the late R. Manning. It originated on the farm of Mr. Saunders, Rowley, Mass. Tree moderately vigorous, upright spreading, very productive. Young shoots dark reddish brown.

Fruit large, oblong, tapering to the eye, around which are a few furrows—and resembling the Yellow Belle-Fleur in outline. Skin striped and splashed near the stalk, with bright red on a greenish yellow ground. Stalk an inch long, slender, curved to one side, and pretty deeply inserted. Calyx small, closed, inserted in a very narrow plaited or furrowed basin. Flesh yellowish white, very tender, with a somewhat acid, but very agreeable flavor. Good to very good. Core large and open. October to February.

MONMOUTH PIPPIN.

Red Cheek Pippin.

A native of Monmouth Co., N. J., of moderate upright growth, and productive. Young shoots dark olive.



Monmouth Pippin.

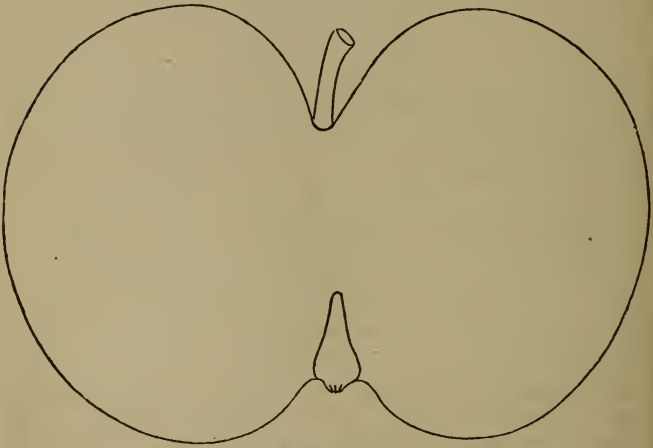
Fruit large, oblate, a little inclining to conic, obscurely five-angled, slightly flattened at base and crown. Color pale

yellow, with a beautiful warm cheek, and numerous russet dots. Stalk rather short, inserted in a large, slightly russeted cavity. Calyx partially closed. Basin deep, abrupt, and corrugated. Flesh juicy, fine, brisk, aromatic subacid. Very good to best. November to March.

MONTE BELLO.

Originated with Matthew Gray, at Riverside, Monte Bello Township, Illinois. Tree rather upright, moderately vigorous, healthy, an annual bearer and very productive. A. C. Hammond, from whom specimens were received, writes that he considers it an apple of great promise, fruit always fair and productive.

Fruit above medium, oblate, regular. Skin pale yellow,



Monte Bello.

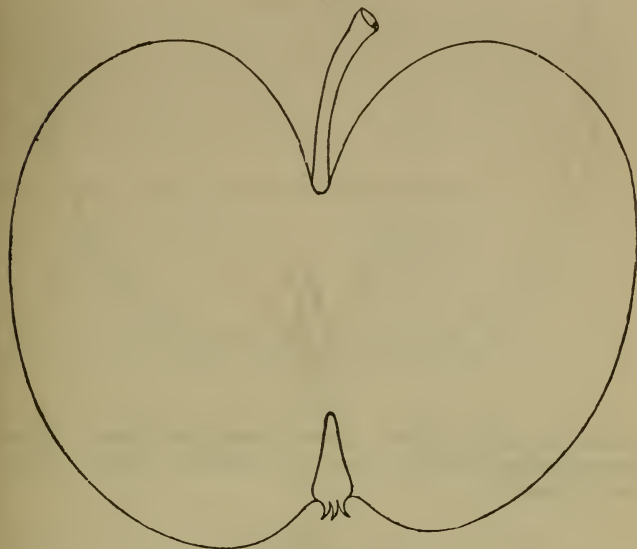
shaded and mottled with light red, splashed and striped with dark rich red over the whole surface, and a few large light dots. Stalk very short, small, inserted in a large broad cavity, russeted. Calyx small, nearly closed; basin large, deep, smooth. Flesh quite white, often a little stained next the skin, fine, very tender, juicy, mild subacid, vinous. Very good. Core small or medium. September, November.

MOTE'S SWEET.

Originated on the property of L. S. Mote, Miami Co., Ohio. A valuable, but as yet comparatively new Apple. Tree vig-

orous, upright spreading, productive. Young shoots light reddish brown, downy.

Fruit large. Form roundish, somewhat roundish oblate conic. Color pale whitish yellow, with a tinge of red in the sun, and moderately sprinkled with gray dots. Stalk medi-



Mote's Sweet.

um, slender. Cavity large, deep. Calyx closed or partially open. Segments short, erect. Basin medium, uneven. Flesh yellowish, tender, moderately juicy, rich honeyed sweet. Very good. Core small. September, October.

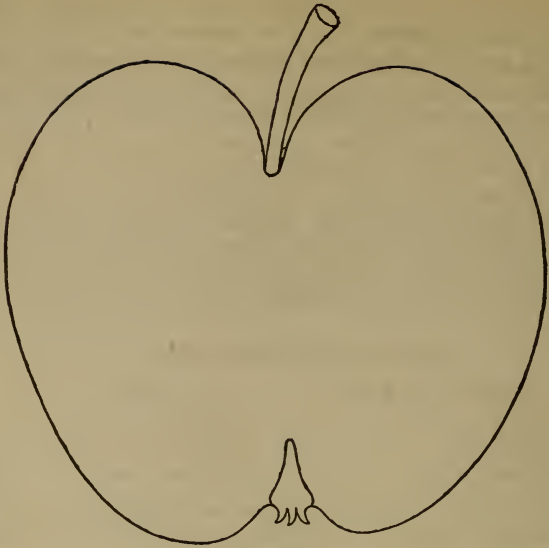
MOTHER.

Queen Anne.

Gardener's Apple.

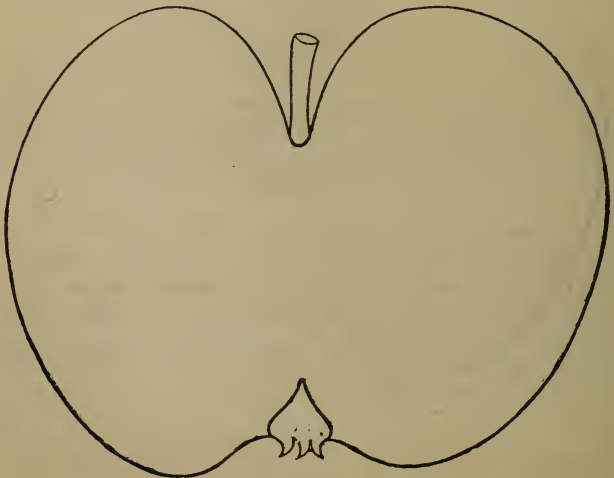
Origin, Bolton, Mass. Tree moderately vigorous, upright spreading, and productive. Young shoots grayish brown, downy. One of the best of Apples for the dessert, rather too tender for shipment.

Fruit medium. Form roundish, slightly conical. Color yellow, almost entirely overspread with light, clear, rich red, splashed and marbled with many deeper shades, many minute light dots. Stalk short, small. Cavity acute, often a little



Mother.

russeted. Calyx closed. Basin small, corrugated. Flesh yellow, tender, juicy, rich, aromatic subacid. Best. November, February.



Ned.

NED.

Saylor.

Libhart.

Originated on the farm of Edward Saylor, Marietta, Pa. Tree vigorous, rather straggling, with slender shoots, dark reddish brown, slightly grayish, very productive.

Fruit medium, roundish oblate, obscurely ribbed, slightly conic. Skin yellow, shaded, striped, and splashed with two shades of dark rich red, and sprinkled with large light conspicuous dots. Stalk short, slender. Cavity rather large, deep. Calyx large, half open. Basin broad, slightly corrugated. Flesh white, tender, juicy, mild, pleasant subacid. Core small. Good to very good. December to February.

NEWTOWN SPITZENBURGH.

Vandevere of New York

Ox Eye.

Matchless.

Joe Berry.

Spiced Ox Eye.

Spitzenburgh.

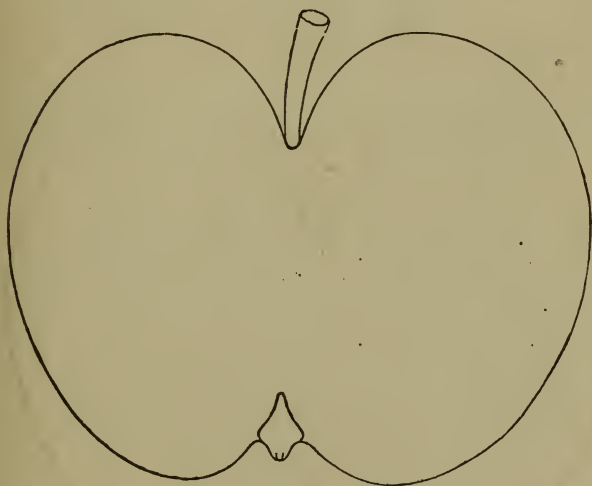
Burlington.

Kountz.

Barrett's Spitzenburgh.

Wine, erroneously.

This old and valuable Apple has been long known in New York as the Vandevere, but as it was first described by Coxe



Newtown Spitzenburgh.

as Newtown Spitzenburgh, we continue that name. It had its origin in Newtown, Long Island. Tree moderate, vigor-

ous, spreading, and productive in rich, light soil of most excellent fruit, which is suited to more tastes than any other Apple of its season.

Fruit medium, oblate, slightly conic, fine yellow, washed with light red, striped and splashed with deeper red, and richly shaded with carmine on the sunny side, covered with a light bloom, and sprinkled with peculiar gray specks. Stalk short, inserted in a wide cavity. Calyx small, closed, set in a regular basin of moderate depth. Flesh yellow, crisp, tender, with a rich, sprightly, vinous flavor, scarcely subacid. Best. October to February.

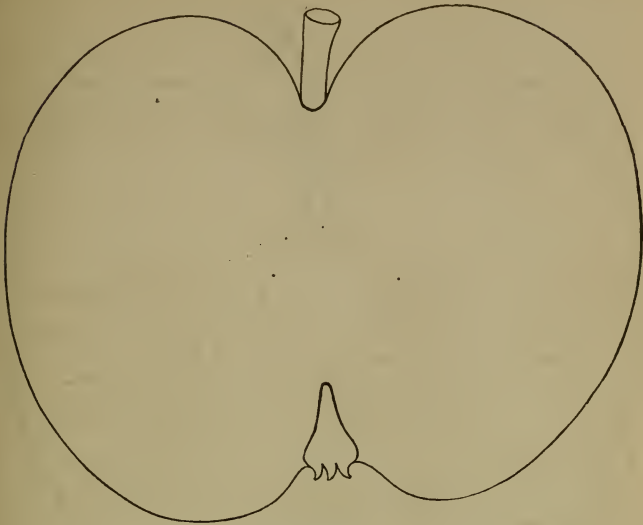
NICKAJACK.

Caroline.	Hollman.	Alleghany.
Berry.	Aberdeen.	Chaltram Pippin.
Summerour.	Trenham.	Gowden.
Accidental.	Big Hill.	Graham's Red Warrior.
Red Pippin.	Carolina Spice.	Walb.
Howard.	Cheatan Pippin.	Winter Horse.
Hubbard.	Chatham Pippin.	Missouri Pippin.
Mobbs.	Winter Rose.	Missouri Red.
Cheataw.	Red Hazel.	Leanham.
Edward Shantee.	Wander.	Winter Horse.
Pound.	Red Warrior, erroneously.	Jackson Red.
Wall.	Forsythe's Seedling.	World's Wonder.
Carolina Red.	Ruckman's Red.	

This Apple is very widely disseminated in sections of the South and Southwest, it having as it were the habit of reproducing itself from seed, or at least so nearly identical as to be impossible to distinguish the seedling from the parent, hence one cause of so many synonyms. The first dissemination of it known was by a Colonel Summerour, of Lincoln County, N. C., under the name of Winter Rose; but as it was found on Nickajack Creek, it soon took that name, and is now best known thereby. The habit of the tree is spreading, forming a very large head. On branches two, three, or four years old, there are woody knobs or warts of various sizes, which, when cut from the branch, are found to contain kernels entirely detached from the regular grain of the wood. The great value of the variety consists in the hardihood and productiveness of the tree rather than the character of the fruit, which is not more than good in quality. Young shoots bright, clear, dark reddish.

Fruit large. Form roundish to roundish oblate, slightly conic, sometimes oblique. Color yellowish, striped, shaded, and splashed with two shades of red, and with a grayish appearance, as if covered with a thin bloom, many large areole

dots. Stalk short. Cavity large, medium depth. Calyx partially open. Basin medium, slightly corrugated. Flesh yellowish compact, moderately tender and juicy, negative sub-acid. Good. Core small, closed. December to April.



Nickajack.

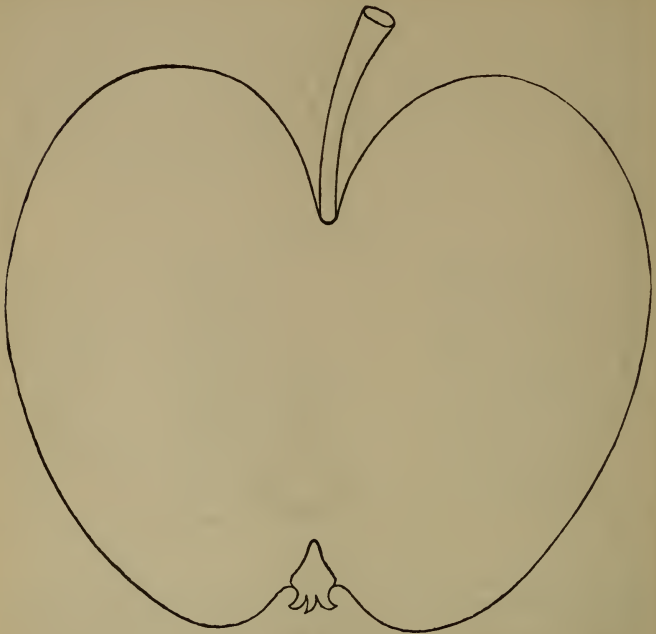
lowish compact, moderately tender and juicy, negative sub-acid. Good. Core small, closed. December to April.

NORTHERN SPY.

This beautiful 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 Heman Chapin, of East Bloomfield, near Rochester, N. Y. The trees require high culture, and open heads to let in the sun, otherwise the fruit is wanting in flavor, and apt to be imperfect and knotty. Young shoots dark reddish brown. The tree blooms late, often escaping vernal frosts.

Fruit large, roundish oblate conical. Skin thin, smooth, in the shade greenish or pale yellow, in the sun covered with light or 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,

sometimes marked with russet. Calyx small, closed. Basin narrow, abrupt, furrowed. Flesh white, fine-grained, tender,



Northern Spy.

slightly subacid, with a peculiarly fresh and delicious flavor. Core large and open. Very good to best. December to June.

OHIO NONPAREIL.

Myer's Nonpareil.

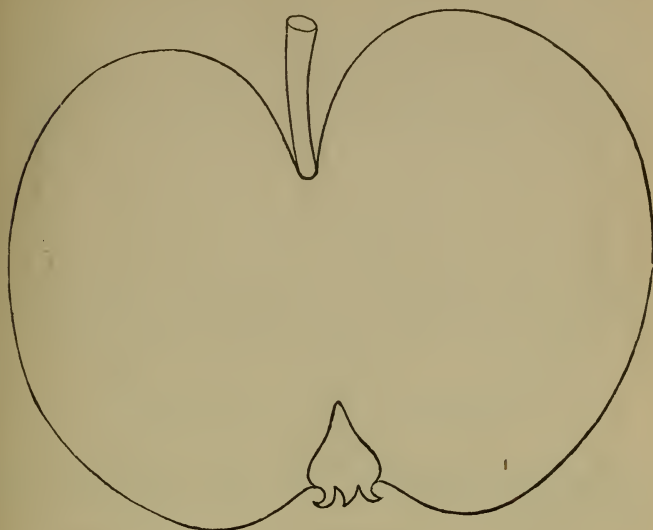
Western Beauty, erroneously.

Cattell Apple.

Rusty Core.

This is one of the most valuable of autumn Apples, whether for market or table use. Its origin is in doubt, the first known trees of it being in the orchard of — Bowman, Massillon, Ohio. The young trees are very vigorous, with stout, straight shoots, while the orchard trees are very wide, regular, open, spreading, requiring little or no thinning, and bearing the fruit evenly over the whole tree, and all fair-sized, smooth fruit; a good bearer, but not profuse. Young shoots smooth, rich, dark reddish brown.

Fruit medium to large. Form roundish oblate. Color yellow, shaded, marbled, and splashed with two shades of rich red, thinly sprinkled with light and gray dots. Stalk me-



Ohio Nonpareil.

dium, rather slender. Cavity large, deep, regular. Calyx rather large, partially open. Segments rather short. Basin medium. Flesh yellowish white, fine-grained, tender, juicy, rich, slightly aromatic subacid. Core small. Very good. October, November.

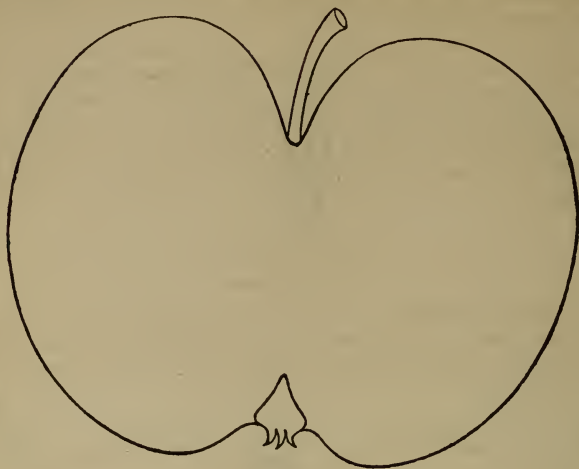
PEACH.

Winter Peach.

Origin unknown. Mr. Rivers says it is an American apple, but we have been unable to trace its history. It is a handsome and excellent winter apple, keeps well, is desirable for family use, and promises to be a profitable market variety. Tree a thrifty, upright grower, and bears good crops alternate years.

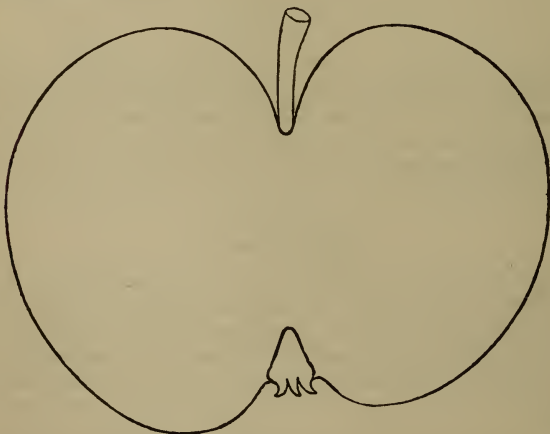
Fruit nearly of medium size, oblate, slightly conic. Skin smooth, almost waxy, white at first, but changing to whitish yellow, having a blush or rich red where exposed to the sun, and many minute light and gray dots. Stalk short and small, inserted in a large deep cavity, sometimes thinly russeted.

Calyx half open. Basin medium or rather large, slightly uneven. Flesh white, fine, crisp, tender, juicy, with a refresh-



Peach.

ing, pleasant subacid flavor. Very good. Core small. December, April.



Peach-Pond Sweet.

PEACH-POND SWEET.

This is a most excellent autumn variety, from a small vil-

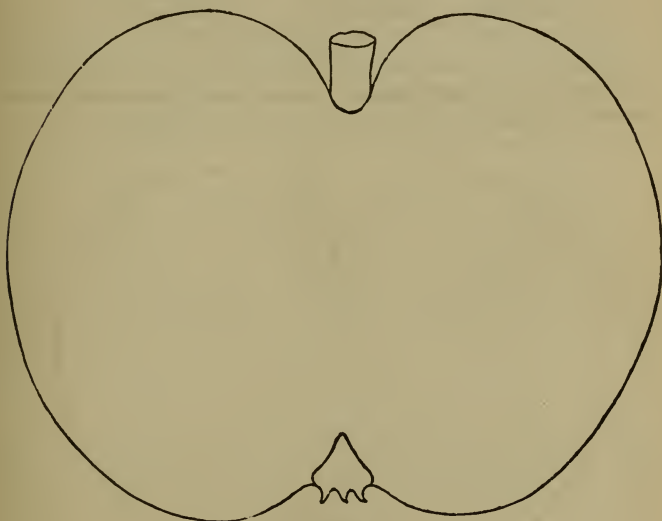
lage of this name in Dutchess Co., N. Y. It appears well worthy of a more general dissemination. Tree vigorous, spreading; very productive every other year. Young shoots dull grayish brown.

Fruit of medium size, oblate. Skin pale yellow, shaded, splashed and striped with light red nearly over the whole surface, and a few brown dots. Stalk rather short, inserted in a medium cavity, often slightly russeted. Calyx half open. Basin medium, smooth. Flesh yellowish, fine, tender, juicy, with a rich, sweet honeyed flavor. Very good. September, October.

PECK'S PLEASANT.

Waltz Apple.

A first-rate fruit in all respects, belonging to the Newtown Pippin class. It has long been cultivated in Rhode Island, where, we think, it originated, and in the northern part of Con-



Peck's Pleasant.

necticut, and deserves extensive dissemination. It considerably resembles the Yellow Newtown Pippin, with more tender flesh, and is scarcely inferior to it in flavor.

The tree is a moderate, spreading grower, but bears regu-

larly and well, and the fruit commands a high price in the market. The apples on the lower branches of old trees are flat, while those on the upper branches are nearly conical. Young shoots reddish brown, slightly downy.

Fruit above medium size, roundish oblate, a little ribbed, and slightly flattened, with an indistinct furrow on one side. Skin smooth, and when first gathered, green, with a little dark red; but when ripe a beautiful clear yellow, with bright blush on the sunny side and near the stalk, marked with scattered gray dots. The stalk is peculiarly fleshy and flattened, short, and sunk in a wide, rather wavy cavity. Calyx open, woolly, sunk in a narrow, abruptly and pretty deeply sunk basin. Flesh yellowish, fine-grained, juicy, crisp and tender, with a delicious, high aromatic sprightly subacid. Very good or best. November to March.

PITTSBURGH PIPPIN.

Flat Pippin.	Swiss Pippin.	Swiss Apple.
Father Apple.	William Tell.	Schwitzer Apple.
Greasy Back.	Pippin.	Wythe.

Origin supposed to be Pittsburgh, Pa. Tree a vigorous, irregular grower, somewhat drooping in habit, in some localities an early and good bearer, and in others only a moderate bearer. Young shoots dull reddish brown, downy.



Pittsburgh Pippin.

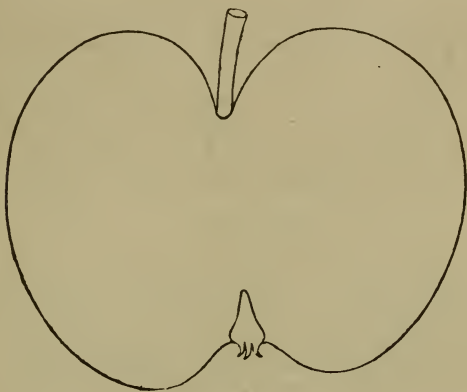
Fruit large, oblate, obscurely ribbed, pale yellow, rarely with a blush, sparsely sprinkled with brown dots. Stalk short and small, in a large cavity, sometimes a little russeted. Calyx nearly closed. Basin broad and corrugated. Flesh whitish, juicy, tender, sprightly subacid. Very good. November to April.

POMME GRISE.

Pomme de Cuir.
Gray Apple.

Grise.
Leather Apple of Turic.

A small gray Apple, from Canada, probably of Swiss or French origin, and undoubtedly one of the finest dessert Apples for a northern climate. It is not a strong grower, but is a good early bearer, and has an excellent flavor. Young wood reddish brown.



Pomme Grise.

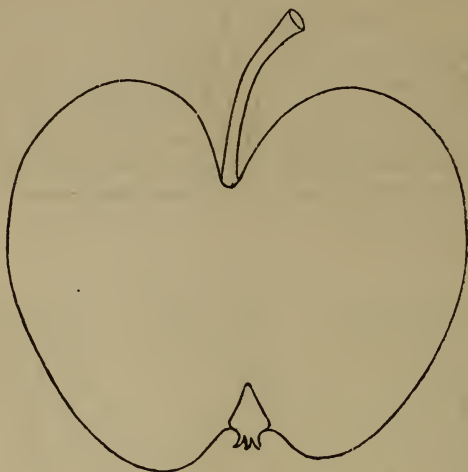
Fruit below medium size, oblate regular. Skin greenish gray or cinnamon russet, with a little red towards the sun. Calyx small, set in a round basin. Flesh tender, rich, and high-flavored. Very good to best. December to February.

POMME GRISE D'OR.

Swayzie Pomme Grise.

An old variety of unknown origin, I am informed it is considerably grown in Canada and some portions of Western New York, and there are trees of it near Niagara on the Colonel

Swayzie farm—where it probably originated—two feet in diameter. Tree hardy, upright, moderately vigorous, and a good bearer every other year. The fruit is more oblong, more golden in color, and more aromatic than the Pomme Grise, and is considered superior to it.



Pomme Grise d'Or.

Fruit small, oblate, or roundish oblate, conical. Skin deep yellow, covered with a thin light cinnamon grayish russet, and many rather obscure light dots. Stalk short to long, slender, inserted in a rather broad deep, irregular cavity. Calyx closed. Basin quite large, deep, slightly corrugated. Flesh whitish, fine, tender, juicy, mild subacid, rich, and aromatic. Very good or best. Core rather small. January to March or April.

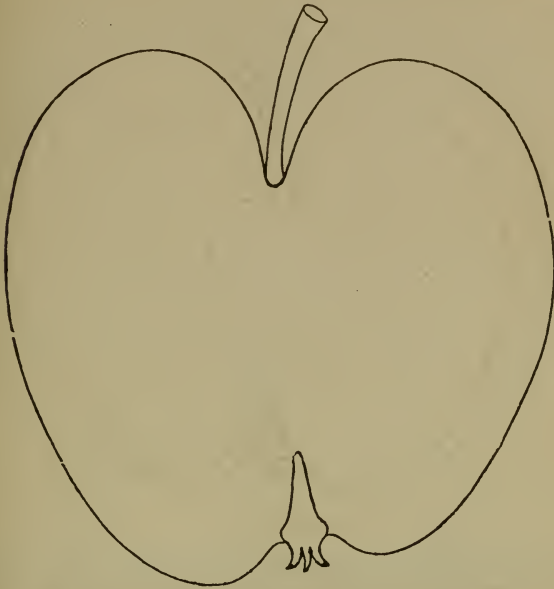
PORTER.

Jennings.

A first-rate New England fruit, raised by the Rev. S. Porter, of Sherburne, Mass., and wherever grown a decided favorite. The tree is hardy, a moderately vigorous grower, forming a low, round head, and producing abundantly, if in good soil, a fruit uniformly fair and even in size and form. It is a valuable market fruit, and continues a long time in use.

Fruit rather large, regular, oblong, narrowing to the eye.

Color clear glossy bright yellow, and, when exposed, with a dull blush next the sun. Calyx closed. Segments irregular, set in a narrow and deep basin. Stalk rather slender, not three-fourths of an inch long. Flesh fine-grained, and abound-



Porter.

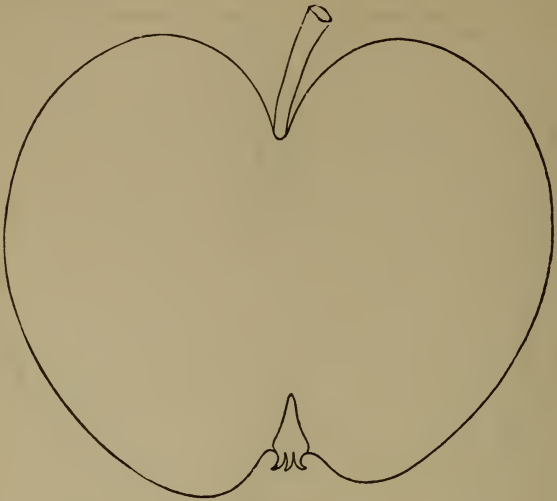
ing with juice, sprightly, agreeable aromatic subacid. Very good to best. Ripens in September, and deserves general cultivation.

PRIMATE.

Rough and Ready.	Jenkins' Summer Pippin.	North American Best.
Sour Harvest.	Early Tart Harvest.	Tart Bough.
July Apple.	Zour Bough.	Cooper Apple.
Scott.	Powers.	Early Baldwin.

The true origin of this delicious amateur's Apple is unknown, supposed to be New Jersey. It appears to have been long known and grown in various sections of our States, under different names. The tree is hardy, a strong and stocky grower, and forms a beautiful head, very productive. Young shoots short-jointed, reddish brown, quite downy. Buds rather prominent.

Fruit medium, roundish oblate conic, greenish white, with a crimson blush on the exposed side. Stalk of medium length, inserted in a rather large, deep, irregular cavity. Calyx



Primate.

closed in an abrupt, open, somewhat corrugated basin. Flesh white, very tender, sprightly, refreshing, mild subacid. Very good or best. An excellent dessert Apple, ripening the last of August, and continuing in use till October.

PRYOR'S RED.

Pitzer Hill.

Big Hill.

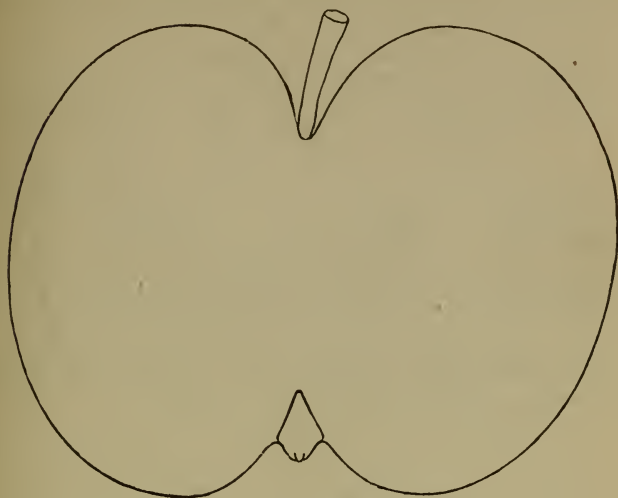
Prior's Red.

Bonford.

Origin unknown. Tree upright, not very vigorous, nor an early bearer; requires a deep, rich soil, and a warm season or a southern climate for the full development of its excellence. Young wood and buds clear reddish brown, many large conspicuous gray dots.

Fruit medium, somewhat globular oblate, obliquely depressed. Color greenish yellow, shaded with red, striped with dark crimson, and thickly sprinkled with large star-shaped light dots; some areole, and some seasons much covered with russet. Stalk short and thick, inserted in a small acute cavity, surrounded by traces of russet, which sometimes considerably overspread the fruit. Calyx firmly closed,

set in a rather large deep basin. Flesh yellowish, tender, juicy, very rich, pleasant subacid. Very good. January to March.



Pryor's Red.

There is an apple under the name of Pryor's Blue, which may be distinct from the above, and may prove identical.

PUMPKIN SWEET.

Vermont Pumpkin Sweet. Lyman's Pumpkin Sweet. Pound Sweet.

A very large sweet Apple, which we received from Mr. S. Lyman, of Manchester, Conn. It is, perhaps, inferior to the Jersey Sweet or the Summer Sweet Paradise for the table, but is a very valuable apple for baking, and deserves a place on this account in every orchard. Tree vigorous, upright, spreading, very productive. Young wood brown.

Fruit very large, roundish, more or less furrowed or ribbed, especially near the stalk. Color pale green, with obscure whitish streaks near the stalk, and numerous white dots near the eye, sometimes becoming a little yellow next the sun. Flesh white, very sweet, but not very juicy. Good. September to December.

There is also in Connecticut and Massachusetts another *Pumpkin Sweet*, the tree of which is a strong, upright grower

with large foliage and very productive. Young wood reddish brown, slightly downy.

Fruit large, roundish oblate, rich yellow, frequently with considerable russet. Flesh yellowish white, breaking, rich, sugary, sweet, ripening in September and October. Very valuable for baking or stock feeding.

There are also several other Apples under the name of Pumpkin Sweet, but we consider the two above described as the best we have known.

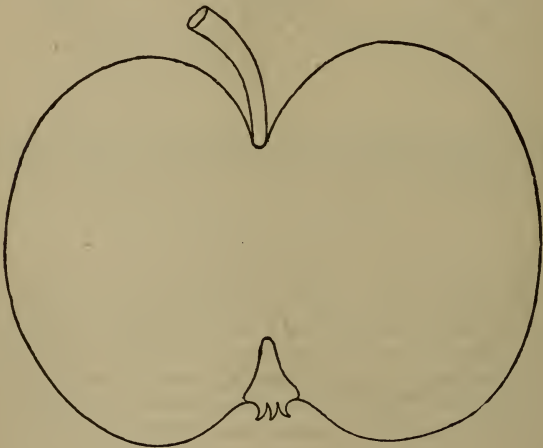
RAMBO.

Fall Romanite.
Gray Romanite.
Striped Rambo.

Delaware.
Romanite.
Seek-no-Further.
Terry's Redstreak.

Bread-and-Cheese Apple.
Rambouillet.
Trumpington?

The Rambo is one of the most popular autumn or early winter fruits. It is a highly valuable Apple for the table or kitchen, and the tree thrives well on light sandy soil, being a native of the banks of the Delaware. The tree is of a vigorous, rather spreading habit, quite productive.



Rambo.

Fruit of medium size, flat, smooth, yellowish white in the shade, streaked and marbled with pale yellow and red in the sun, and speckled with large rough dots. Stalk long, rather slender, curved to one side, and deeply planted in a smooth funnel-like cavity. Calyx closed, set in a broad basin, which

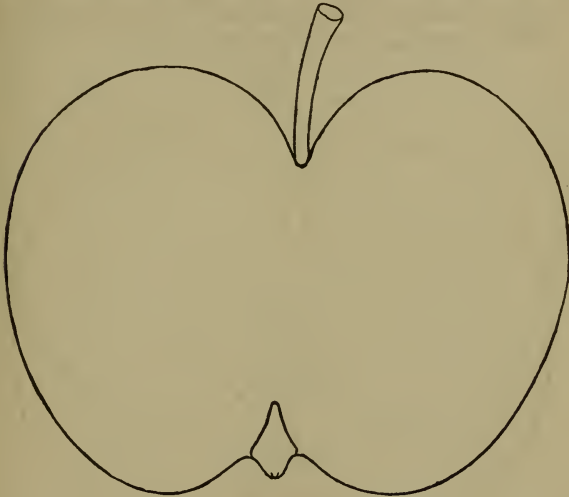
is slightly plaited around it. Flesh greenish white, very tender, rich, mild subacid. Very good. October to December.

There is claimed to be a distinct or sub-variety of this, called *Red Rambo*, the fruit of which is more red; otherwise there is no perceptible difference.

RAWLES' JENET.

Missouri Janet?	Rock Remain.	Genneting.
Red Neverfail?	Rock Rinmon.	Jennett.
Rawles' Jannet.	Yellow Janett.	Neverfail.
Raule's Jannetting.	Winter Jannetting.	Indiana Jannetting.
Rawle's Genet.	Jeniton.	Raul's Gennetting.
	Jefferson Pippin.	

Originated in Amherst Co., Va., on the farm of Caleb Rawles. Tree round-headed, hardy, vigorous, very productive; should hang late before picking; often over-bears, when



Rawle's Janet.

the fruit is small and imperfect; it puts forth its leaves and blossoms much later than other varieties in the spring, and consequently avoids injury by late frost; it is, therefore, particularly valuable for the South and Southwest, where it is much cultivated. Young wood clear reddish brown.

Fruit medium, oblate conic, yellowish, shaded with red and

striped with crimson. Stalk short and rather thick, inserted in a broad open cavity. Calyx partially open, set in a rather shallow basin. Flesh whitish yellow, tender, juicy, pleasant subacid. Good to very good. February to June. So far has not succeeded well at the North.

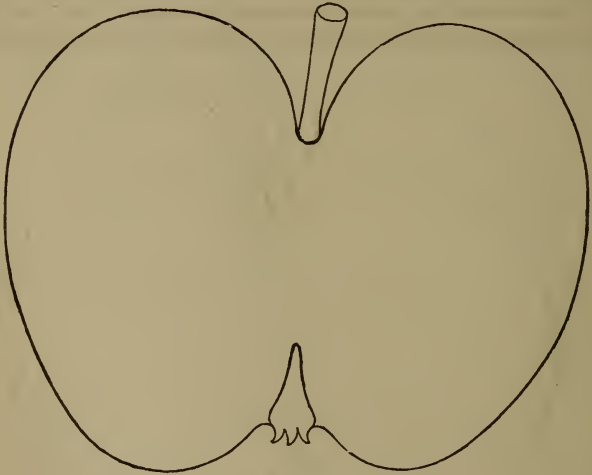
RED ASTRACHAN.

Deterding's Early.
Astrachan Rouge.

Vermillon d'Été.
Abe Lincoln.

Rother Astrakan.

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



Red Astrachan.

fruits, and its quality is good; but if not taken from the tree as soon as ripe, it is liable to become mealy. Tree a vigorous grower, upright spreading, or forming a round head. An early and abundant bearer. Young shoots clear reddish brown.

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 deep crimson, with sometimes a little greenish yellow in the shade, and occasionally

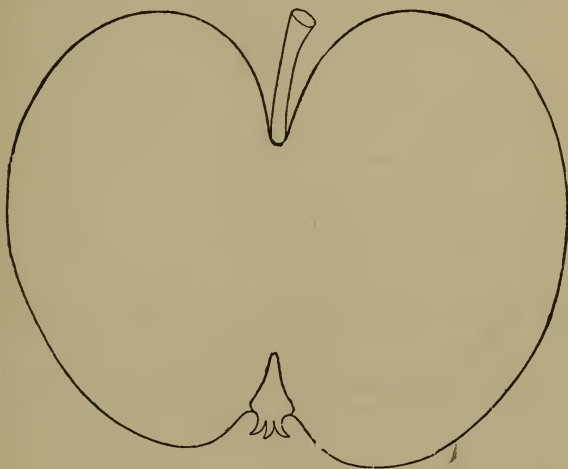
a little russet near the stalk, and covered with a pale white bloom. Stalk rather short and deeply inserted. Calyx partially closed, set in a slight basin, which is sometimes a little irregular. Flesh quite white, crisp, moderately juicy, with an agreeable, rich, acid flavor. Good to very good. Ripens from last of July to middle of August.

RED CANADA.

Old Nonsuch, of Mass. Poland. Richfield Nonsuch.
Steele's Red Winter.

An old fruit, formerly much grown in Connecticut and Massachusetts, but is not now much planted, on account of its small size and poor fruit; succeeds well in Western New York, Ohio, and Michigan. Tree thrifty, but of slender growth, making a round spreading head; very productive. Young wood brownish olive.

Fruit medium, oblate, inclining to conic. Skin yellow, mostly shaded with deep red or crimson, somewhat striped or

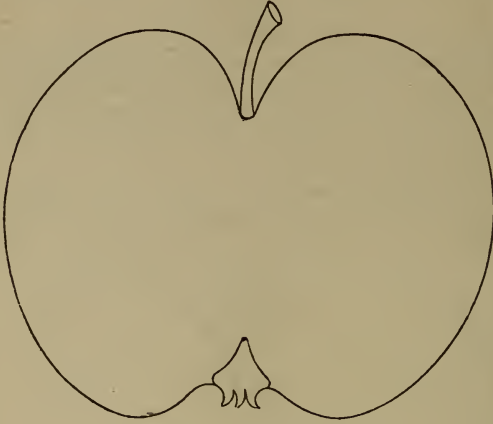


Red Canada.

splashed on the sunny side, and thickly sprinkled with gray, and sometimes greenish dots. Stalk short inserted in a broad, deep cavity. Calyx closed. Segments long, in a small, narrow, somewhat irregular basin. Core small, close. Flesh white, tender, crisp, abounding with a brisk, refreshing juice, and retaining its fine, delicate flavor to the last. Very good to best. January to May.

RED JEWELL.

This new apple originated with the late Matthew Thompson, of Elkton, Ky., and was introduced by J. S. Downer, of Fairview, Ky., who informs me that its good flavor, handsome appearance, and long-keeping qualities are destined to make it very popular, both for table and market. Tree moderately vigorous, round-headed, and productive.



Red Jewell.

Fruit below medium, oblate, sometimes a little oblique. Skin entirely covered with dark, rich red, almost purplish on the sunny side, and thickly sprinkled with light yellowish irregular-shaped dots. Stalk rather short, slender, inserted in a medium smooth cavity. Calyx half open. Basin of medium size, slightly corrugated. Flesh yellowish, fine, compact, juicy, mild, rich subacid. Very good. Core small. January, April.

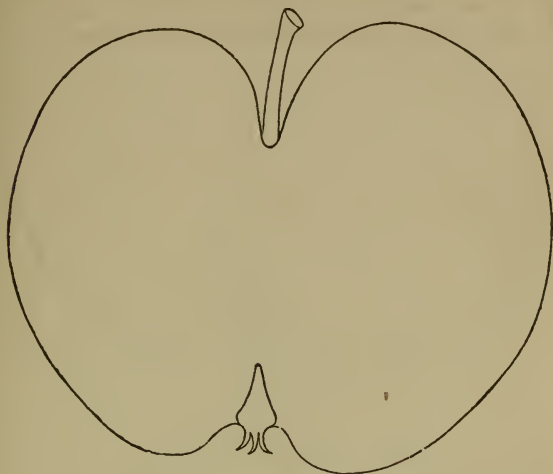
RED JUNE SWEET.

Striped Red Harvest. Striped Sweet Harvest. June Sweeting.

Origin unknown, but has been cultivated in some localities in Pennsylvania for many years, and is there prized as the best early sweet Apple they grow.

Tree moderately vigorous, of a rather spreading habit, a regular and abundant bearer.

Fruit medium, roundish oblate, narrowing a little at both ends, slightly angular. Skin whitish, splashed and striped with light and dark red over most of the surface, and a few light dots. Stalk short and small, inserted in a narrow deep



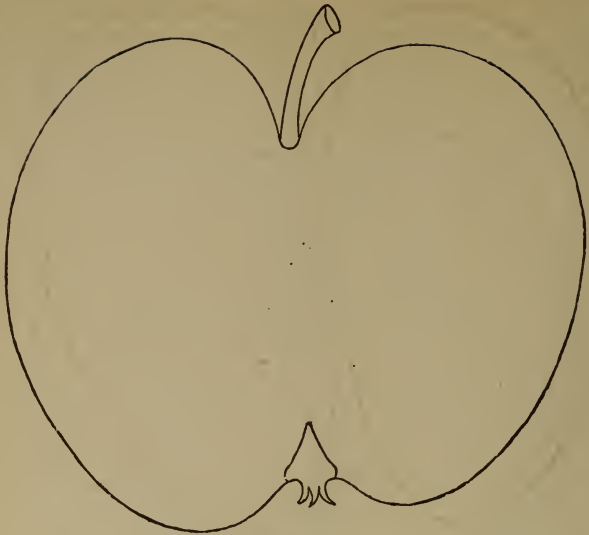
Red June Sweet.

cavity. Calyx small, closed. Basin small, deep, corrugated. Flesh white, moderately juicy, tender, mild, rather rich, pleasant, sweet. Very good. Core small. August.

RED RUSSET.

Origin, farm of Mr. Sanborn, Hampton Falls, N. H. Tree very vigorous, upright spreading, and productive. Young wood clear reddish brown.

Fruit medium, roundish oblate, slightly conic. Skin yellow, shaded with dull red and deep carmine in the sun, and thickly covered with gray dots, with a slight appearance of rough russet on most of the surface. Stalk rather short and small, inserted in a medium cavity, surrounded with thin russet. Calyx nearly closed. Segments long, recurved, in a narrow, uneven basin. Flesh yellow, solid, crisp, tender, with an excellent rich, subacid flavor, somewhat resembling Baldwin. Very good. January to April.



Red Russet.

RED WINTER PEARMAIN.

Red Lady Finger.	Red Vandevere.	Meig's.
Bunkum.	Batchelor.	Tinson's Red.
Robertson's Pearmain.	Southern Fall Pippin.	Powers.
Jackson's Red.	Red Fall Pippin.	Winter Cheese of some.
Buncombe.	Kirby Red.	

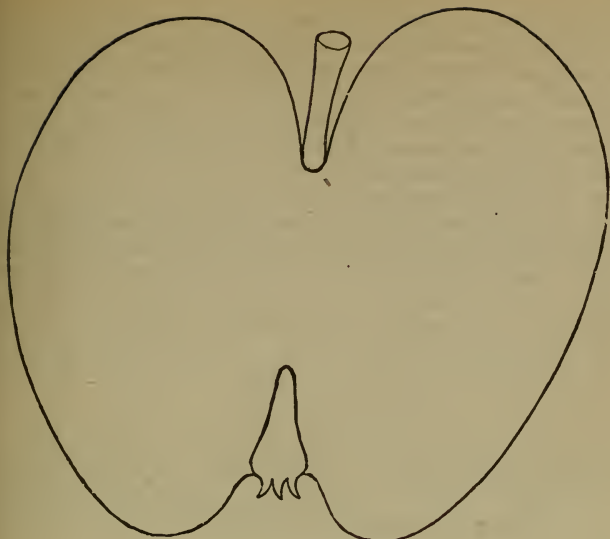
Origin unknown. An old variety. Tree of vigorous upright growth; a regular bearer. Young shoots clear rich reddish brown, slightly downy.

Fruit medium size, roundish oblong conic, yellowish white, mostly shaded with maroon and thickly sprinkled with large light dots. Stalk very short, in an acute deep cavity, slightly russeted. Calyx closed, set in a small, round, open basin. Flesh whitish yellow, tender, juicy, mild subacid, or nearly sweet, slightly aromatic. Good to very good. January to March.

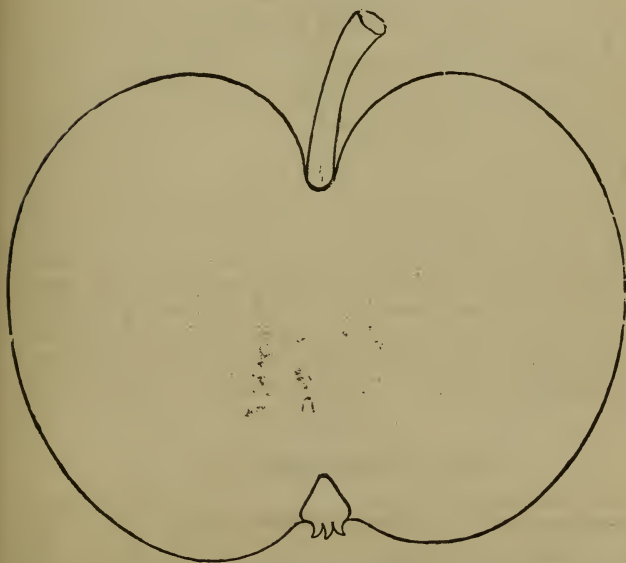
RHODE ISLAND GREENING.

Burlington Greening.	Russine.	Bell Dubois.
Jersey Greening.	Grünling von Rhode Island.	

The Rhode Island Greening is such a universal favorite, and is so generally known, that it seems almost superfluous to



Red Winter Pearmain.



Rhode Island Greening.

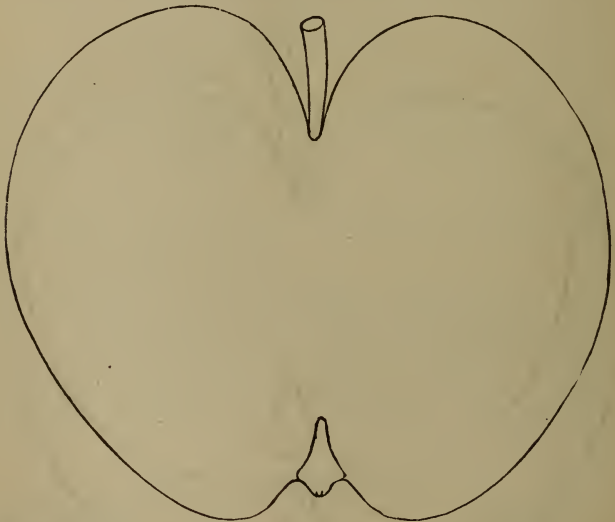
give a description of it. It succeeds well in almost all of the northern sections of the States, and on a great variety of soils, and where it does succeed is one of the most esteemed and profitable among early winter fruits. In Southern Ohio, Indiana, and farther south, it drops too early. Tree a very vigorous, strong, spreading grower. Young shoots reddish brown. Very productive.

Fruit large, roundish, a little flattened, pretty regular, but often obscurely ribbed, dark green, becoming greenish yellow when ripe, when it sometimes shows a dull blush near the stalk. Calyx small, woolly, closed, in a slightly sunk, scarcely plaited basin. Stalk three-fourths of an inch long, curved, thickest at the bottom. Flesh yellow, fine-grained, tender, crisp, with an abundance of rich, slightly aromatic, lively acid juice. Very good. November to February.

RIBSTON PIPPIN.

Glory of York. Travers'. Formosa Pippin. Rockhill's Russet.

The Ribston Pippin, a Yorkshire Apple, stands as high in Great Britain as the Bank of England, and to say that an



Ribston Pippin.

Apple has a Ribston flavor is there the highest praise that can be bestowed. But it is scarcely so much esteemed here,

and must be content to give place with us to the Newtown Pippin, the Swaar, the Spitzenburgh, or the Baldwin. In Maine, Northern New York, and parts of Canada, it is very fine and productive. Tree hardy, spreading, rather irregular.

Fruit of medium size, roundish, greenish yellow, mixed with a little russet near the stalk, and clouded with dull red on the sunny side. Stalk short, slender, planted in a rather wide cavity. Calyx small, closed, and set in an angular basin. Flesh deep yellow, firm, crisp, with a sharp, rich, aromatic flavor. Very good November to April.

RICHARD'S GRAFT.

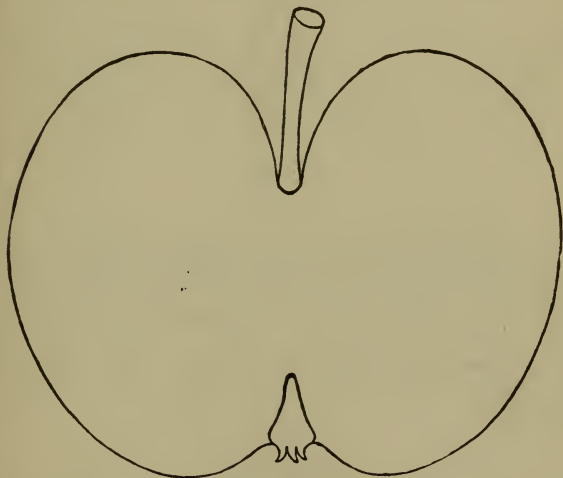
Derrick's Graft.
Strawberry.

Red Spitzenburgh.
Wine.
Uncle Richard's Graft.

Derrickinan.
Dirck's Graft.

Originated at Greenport, Columbia Co., N. Y. An excellent fall Apple, worthy of extended cultivation. Tree a free, upright spreading grower, hardy, productive. Young shoots very dark reddish brown, downy.

Fruit medium, roundish oblate. Color yellow, nearly



Richard's Graft.

covered with splashes, marblings, and shades of rich red. Stalk medium length, slender. Cavity large. Calyx small, closed. Segments sometimes recurved. Basin medium, slightly uneven. Flesh yellowish, tender, juicy, pleasant, rich, aromatic subacid. Very good. September, October.

RICHMOND.

Origin, farm of D. C. Richmond, Sandusky, Ohio. Tree a strong upright grower, bearing large crops every other year. Fruit fair and handsome, and esteemed as one of the best of its season.



Richmond.

Fruit rather large, roundish oblate. Skin light yellow, shaded, splashed, and striped with light and dark red over two-thirds its surface, and sprinkled with a few light and brown dots. Stalk short, small, inserted in a large deep cavity, sometimes with thin russet. Calyx large, open. Basin large, deep, slightly corrugated. Flesh white, fine, tender, juicy, rich, honeyed sweet. Very good. October to February.

ROMANITE.

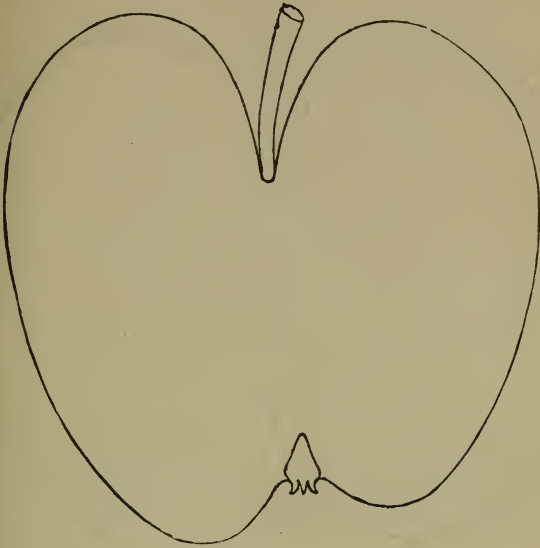
Broad River.

Southern Romanite.

The origin of this Apple is unknown, but supposed to be North Carolina. It has been sometimes confounded or placed as identical with Shockley in North Carolina, where it is much grown, but it is quite distinct. It is also distinct from

Gilpin, sometimes known as Romanite. Tree vigorous, spreading, very productive. Branches slender. Wood short-jointed, dull grayish brown.

Fruit small, roundish conical, truncated, yellow ground, mostly overspread with clear, light, handsome red, indistinct



Romanite.

light dots. Stalk slender, cavity deep, narrow. Calyx in an abrupt basin. Flesh yellowish, fine-grained, rather firm, juicy, mild, pleasant subacid. Good to very good. February, April. Valuable as a keeper, and for the evenness of its fruit.

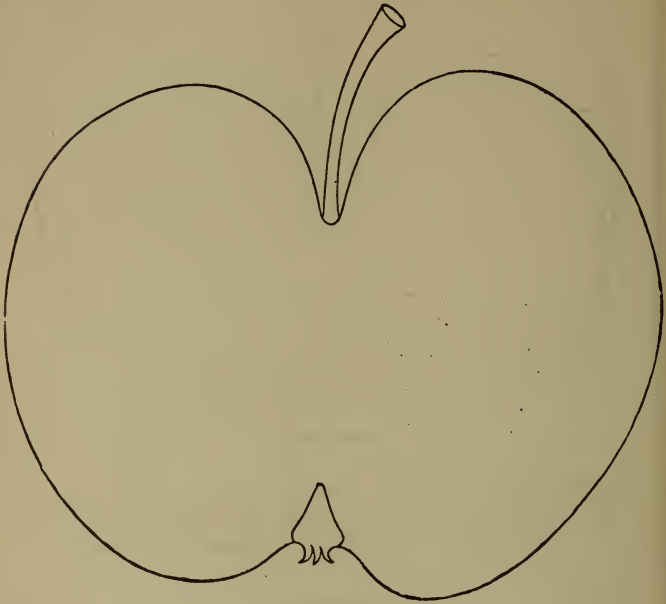
ROME BEAUTY.

Gillett's Seedling.

Originated with H. N. Gillett, Quaker Bottom, Ohio. Tree a moderate grower, forming a regular round head; succeeds well at the Southwest, especially in light soil; very productive. Young wood clear reddish brown, slightly downy or gray. A late bloomer.

Fruit large, roundish oblate, approaching conic, yellow,

shaded and striped with bright red, and sprinkled with light dots. Stalk an inch long, slender, inserted in a large, deep cavity, surrounded by greenish russet. Calyx partially closed,



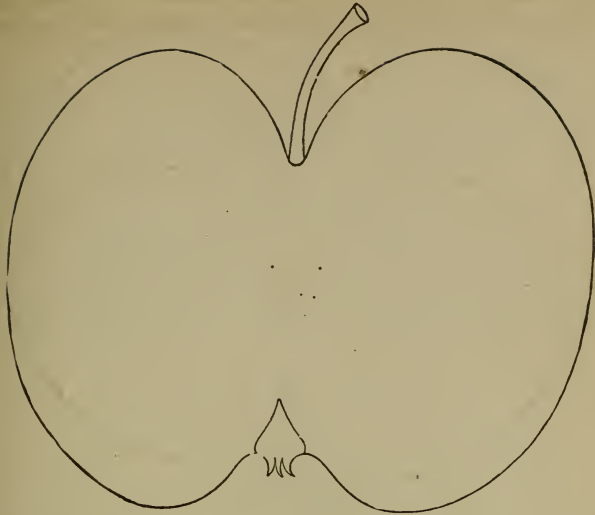
Rome Beauty.

set in a narrow, deep basin. Flesh yellowish, tender, juicy, sprightly subacid. Good. Core rather large. October to February.

ROSE RED.

Origin unknown, supposed to be on the farm formerly owned by Gideon Ramsdell, of Egypt, Monroe Co., N. Y. Tree a thrifty, strong grower, upright, inclining to spread. Very productive and regular bearer.

Fruit medium, oblate, or roundish oblate. Skin whitish, shaded, striped, and splashed with light and dark red—sometimes quite dark—nearly over the whole surface; many light dots, a portion being areole. Stalk rather short, small, inserted in a large deep cavity, smooth and a little greenish russet. Calyx



Rose Red.

half closed, basin large, deep, nearly smooth. Flesh fine, yellowish, very tender, juicy, lively subacid, vinous. Very good. Core small. Middle of September till December.

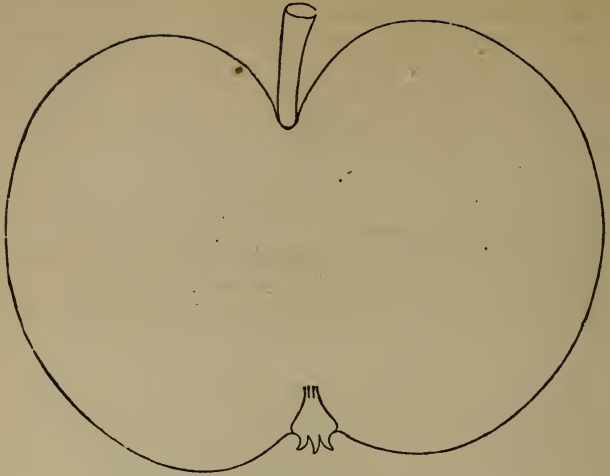
ROXBURY RUSSET.

Reinette Rousse de Boston.
Howe's Russet.
Marietta Russet.
Belpré Russet.

Boston Russet.
Putnam Russet.
Warner Russet.
Sylvan Russet.

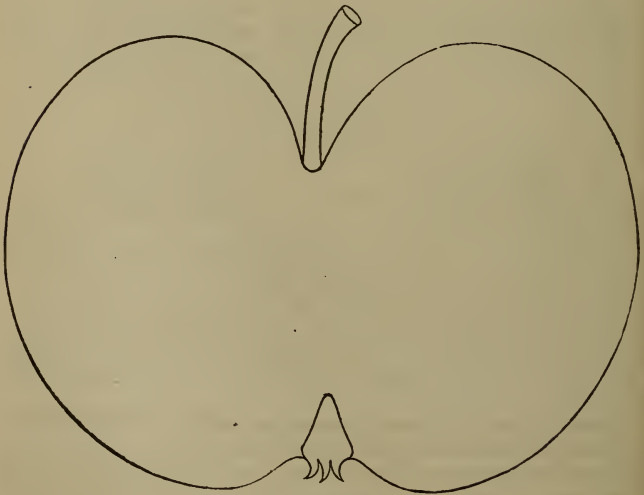
This Russet, a native of Massachusetts, is one of the most popular market fruits in the country, as it is excellent, a prodigious bearer, and keeps till late in the spring wherever the soil and climate suit it. South and West it drops its fruit too early, and is therefore not valuable. The tree is healthy, vigorous, spreading, with young shoots of a reddish brown, downy.

Fruit of medium size, often large, roundish, a little flattened, and slightly angular. Skin at first dull green, covered with brownish yellow russet when ripe, with, rarely, a faint blush on one side. Stalk nearly three-fourths of an inch long, rather slender, not deeply inserted. Calyx closed, set in a round basin of moderate depth. Flesh greenish white, moderately juicy, with a rather rich subacid flavor. Good to



Roxbury Russet.

very good. Ripens in January, and may be brought to market in June.



St. Lawrence.

ST. LAWRENCE.

York and Lancaster.

Origin uncertain. Tree hardy, vigorous, upright, spread-

ing, very productive. Young shoots smooth, reddish brown. A handsome and popular market apple in Canada.

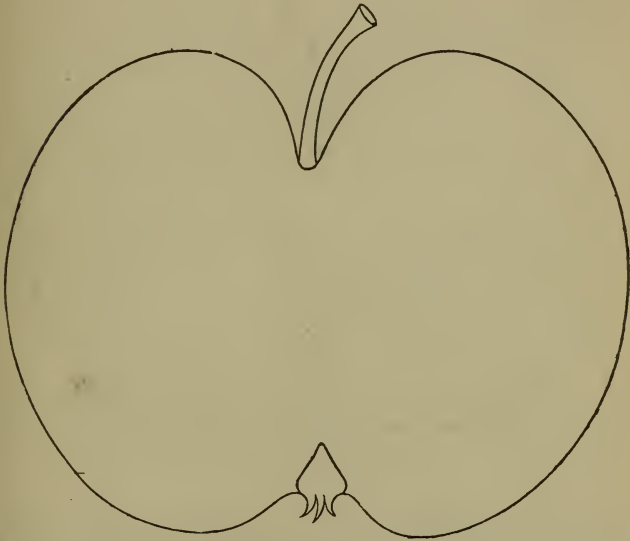
Fruit large, oblate, tapering towards the eye, yellowish, striped and splashed with carmine. Stalk of medium length, inserted in a large cavity. Calyx firmly closed. Basin small and deep. Flesh white, lightly stained, crisp, juicy, tender, and vinous. Good to very good. September, October.

SEPTEMBER.

Pride of September.

Waring's September.

Origin Boalsburgh, Pa., received from Wm. G. Waring, of Tyrone, Pa. Tree hardy, vigorous, spreading, an annual bearer, and very productive of fair handsome fruit. Valuable



September.

market apple of its season, good for family use and for eating. Young wood smooth, dark reddish brown.

Fruit medium to large, roundish oblate, slightly conic, smooth and regular. Skin light bright yellow, having a few distinct scattered light and green dots. Stalk short to medium, slender, inserted in a rather large deep cavity, often thinly russeted. Calyx half closed, segments long, recurved. Basin

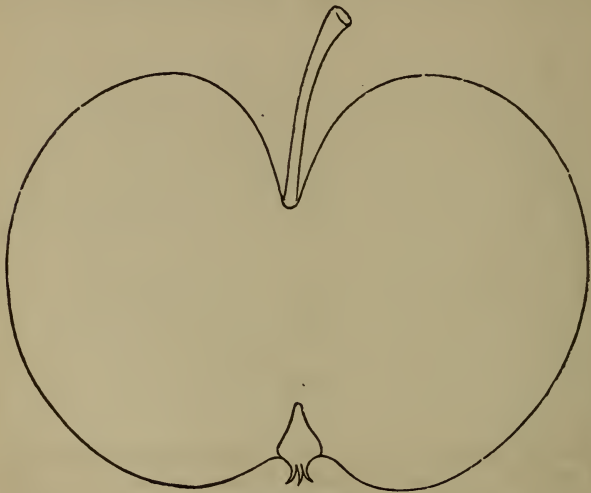
medium, slightly corrugated. Flesh whitish yellow, half fine, tender, juicy, very agreeable subacid. Very good. September.

SHIAWASSEE BEAUTY.

Michigan Beauty.

Originated in Shiawassee Co., Mich. Tree a strong upright grower, until in full bearing, when it becomes partially pendent, very productive. Young wood dull reddish brown, slightly downy. This variety resembles Fameuse, but its wood shows its distinctiveness.

Fruit medium, oblate, slightly conic, smooth and regular.



Shiawassee Beauty.

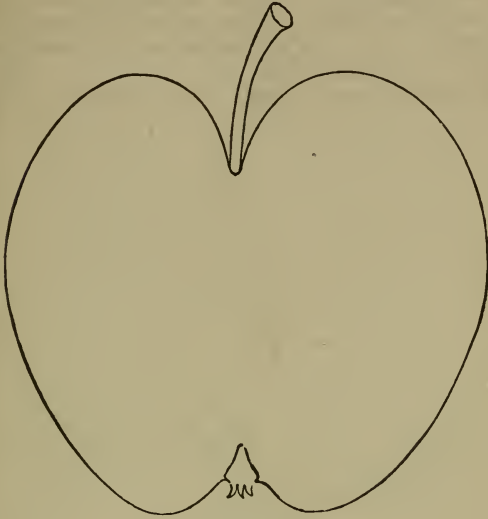
Skin whitish, shaded with light and dark rich red nearly over the whole surface—some obscure splashes and stripes on the shaded side, and a few light dots. Stalk short to long, slender, inserted in a large deep cavity, often slightly russeted. Calyx closed. Basin medium, slightly corrugated. Flesh very white, tender, juicy, refreshing subacid flavor. Very good. Core small. October, January.

SHOCKLEY.

Origin, Georgia. Tree moderately vigorous, upright, very

productive, bearing young and regularly. Young wood reddish, grayish on under side.

Fruit below medium, roundish conical, truncated. Skin pale yellow, overspread with red, sometimes obscure splashes and stripes, inconspicuous minute dots. Stalk long, slender,



Shockley.

inserted in a deep acute cavity. Calyx partially closed, set in a shallow corrugated basin. Flesh white, crisp, juicy, rich, saccharine, slightly vinous, and pleasant. Good. April, May.

This is one of the most profitable varieties at the South, where it not only bears abundantly, but keeps and sells remarkably well.

SMITH'S CIDER.

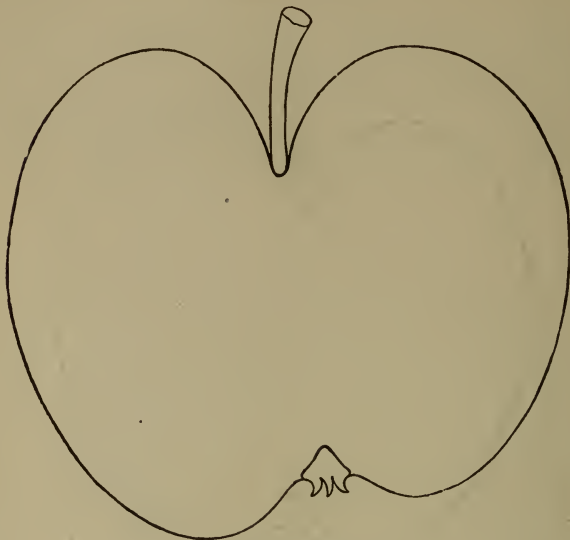
Smith's.
Fuller.

Pennsylvania Cider.
Fowler.

Popular Bluff.

Origin, Bucks Co., Pa. This Apple is widely grown, and much esteemed as a profitable market sort. The tree is a vigorous, straggling, spreading grower, and productive. Young wood a rich dark brown.

Fruit medium to large, roundish oblate conic, yellow, shaded and striped with red, sparsely covered with light dots—a portion areole. Stalk slender, of medium length, in-



Smith's Cider.

serted in a deep, rather narrow cavity, sometimes russeted. Calyx closed, set in a broad, rather shallow basin. Flesh whitish, tender, juicy, crisp, pleasant, mild subacid. Good. December, March.

SMOKEHOUSE.

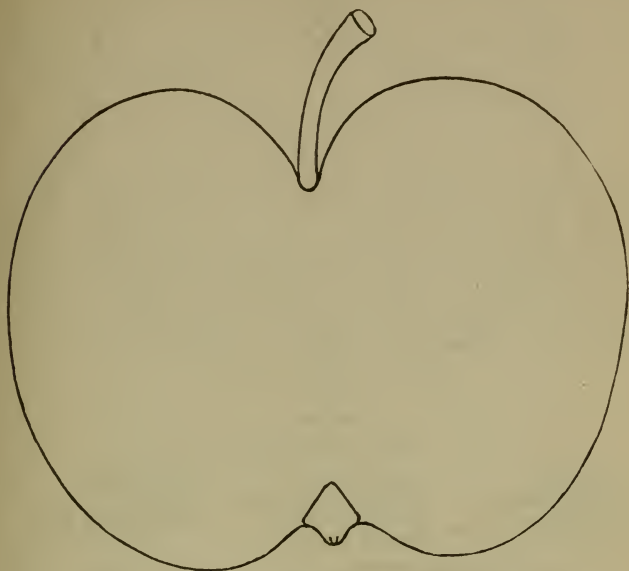
Millcreek Vandevere. Red Vandevere. English Vandevere.

Origin, Lancaster Co., Pa., near Millcreek, grew on the farm of ——— Gibbons, near his smokehouse, hence its name. An old variety and popular in Pennsylvania. It somewhat resembles the old Pennsylvania Vandevere, and is supposed to be a seedling of it.

Tree moderately vigorous, with a spreading head, a good bearer. Young wood dull dark reddish brown.

Fruit rather above medium, roundish oblate, skin yellow,

shaded and splashed with crimson, and thinly sprinkled with large gray and brown dots. Stalk rather long, curved, inserted in a broad cavity. Calyx closed, set in a wide basin, of



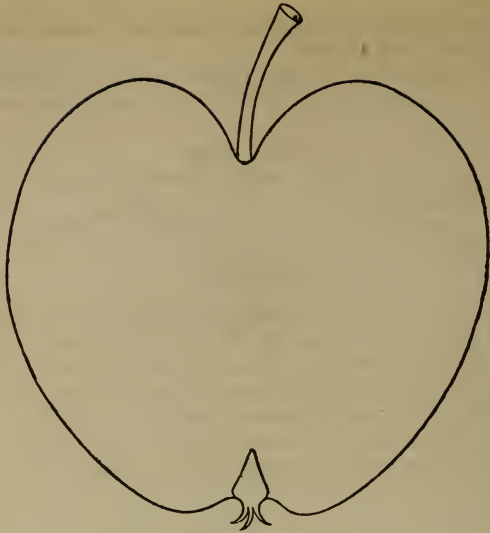
Smokehouse.

moderate depth, slightly corrugated. Flesh yellowish, somewhat firm, juicy, crisp, rather rich subacid. Good. September to February. Valued for culinary uses.

SOMERSET.

Origin uncertain, supposed to have originated in the town of Somerset, N. Y. Tree vigorous, spreading, an annual bearer, but heavier crops every other year; a rich, high-flavored fall apple, desirable for family use.

Fruit below medium, roundish conical, much narrowed towards the calyx. Skin whitish yellow, some nettings and patches of russet, and a few brown dots. Stalk of medium length, slender, inserted in a moderate cavity. Calyx closed. Basin small, corrugated. Flesh quite white, fine-grained, very tender, juicy, rich, and highly aromatic. Very good or best. Core medium. October.



Somerset.

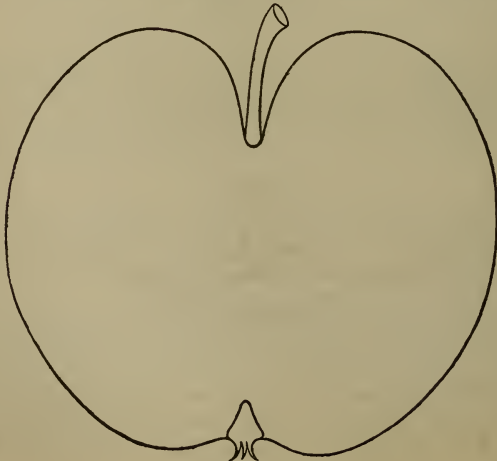
SOPS OF WINE.

Sopsavine.
 Red Shropsavine.
 Bell's Early.

Shropshirvine.
 Worden's Pie Apple.
 Washington.
 Sops in Wine.

Bennington.
 Hominy.
 Dodge's Early Red.

An old European variety. Tree hardy, vigorous, up-



Sops of Wine.

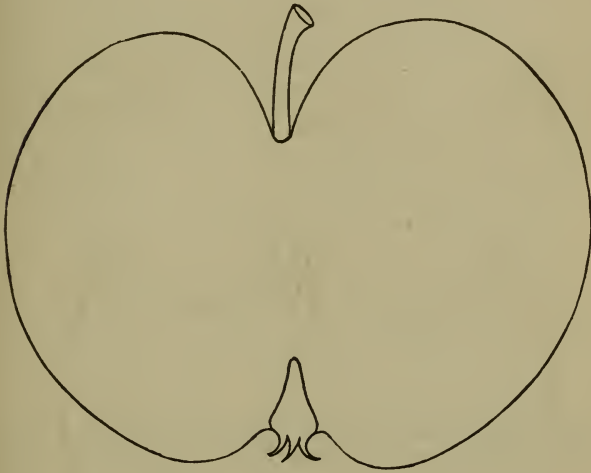
right, round head; an early and productive variety alternate years, a good market sort.

Fruit medium, roundish, yellow and red, splashed and shaded with deep red, and sprinkled with white and gray dots, and a thin bloom. Stalk slender, in a narrow cavity. Calyx closed. Basin rather shallow, uneven. Flesh white, often stained, not very juicy, mild, pleasant subacid. Good. August, September.

SOULARD.

Raised by Antoine Lessieur, of Portage des Sioux, Missouri, a few miles above St. Louis. Tree very vigorous, upright, slightly spreading when in fruit, an early and abundant bearer. This is highly prized in the neighborhood of its origin, where it is said to have no superior of its season.

Fruit medium to large, oblate, slightly conic, slightly angular or obscurely ribbed. Skin whitish, shaded, striped and



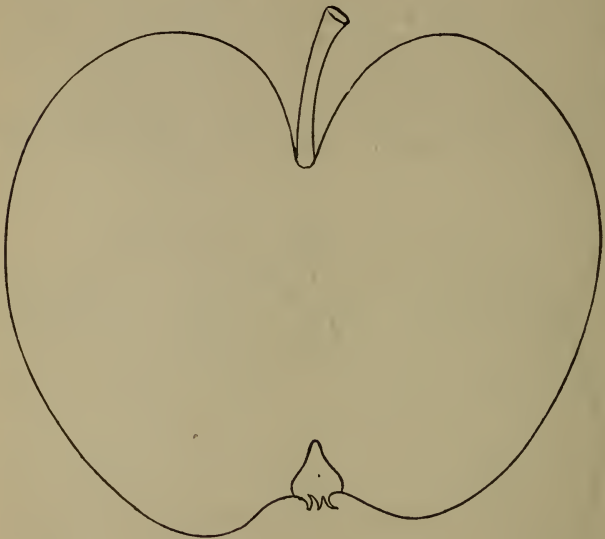
Soulard.

splashed with light and dark bright red over most of the surface, with a few light and brown dots; stalk short, small, inserted in a pretty large cavity, slight russet. Calyx closed, segments long, partly recurved. Basin medium, corrugated. Flesh

quite white, very tender, very juicy, sprightly subacid, vinous. Very good or best. Core rather large. October, November.

STARK.

Origin unknown ; grown in some parts of Ohio, and valued as a long keeper and profitable market fruit. Tree vigorous, upright at first, but forming a round open head. Very productive. Young shoots dark brownish red.

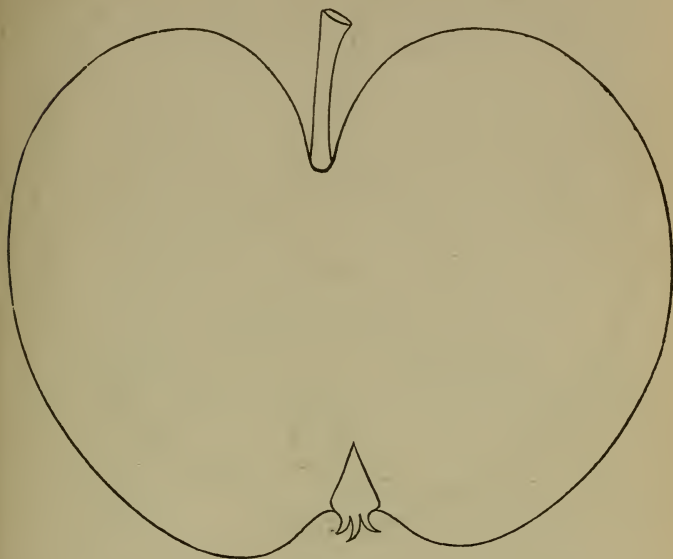


Stark.

Fruit large, roundish oblate, inclining to conic, sometimes a little elongated, and sometimes slightly oblique. Skin greenish yellow, shaded, splashed, and striped with light and dark red nearly over the whole surface, and thickly sprinkled with light and brown dots, a portion of them areole dots. Stalk short to long, inserted in a medium cavity, often slightly russeted. Calyx closed. Basin rather large, slightly corrugated. Flesh yellowish, a little coarse, moderately juicy, mild subacid. Good. Core small. January to May.

STARR.

This large early apple originated with John Starr, of Woodbury, New Jersey. Tree said to be a vigorous upright grower, forming a round head, branches rather slender, a good bearer, and a valuable early market variety.



Starr.

Fruit large, roundish oblate, obscurely ribbed. Skin greenish white, or pale yellow at full maturity; it has sometimes a shade of light red in the sun, and moderately sprinkled with light and brown dots. Stalk short, inserted in a large deep cavity. Calyx closed. Basin of medium size, slightly corrugated. Flesh whitish, crisp, tender, juicy, sprightly subacid. Good to very good. Core medium. Ripens last of July and first half of August.

STREAKED PIPPIN.

Red Pippin.

Skunk, erroneously.

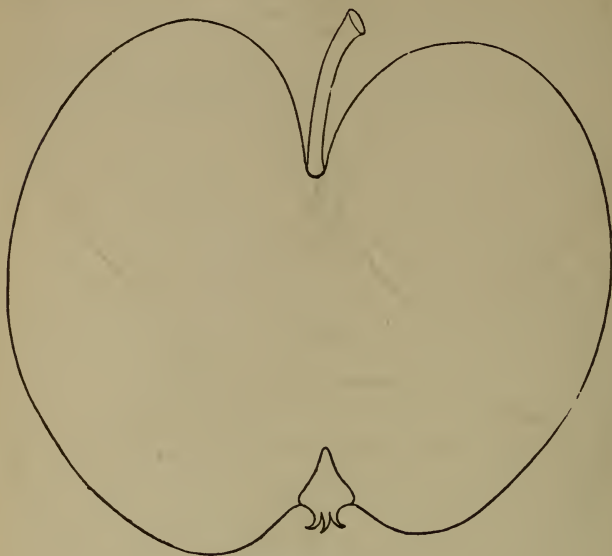
Hempstead.

Red Streaked Pippin.

Quaker of some.

Origin, Westbury, Long Island, N. Y. Tree thrifty, hardy, vigorous, spreading, and productive, and a good market fruit.

Fruit large, roundish, slightly conical. Skin pale yellow, shaded, splashed, and striped with rich red, few light and gray dots. Stalk short, small. Cavity narrow, sometimes russeted.



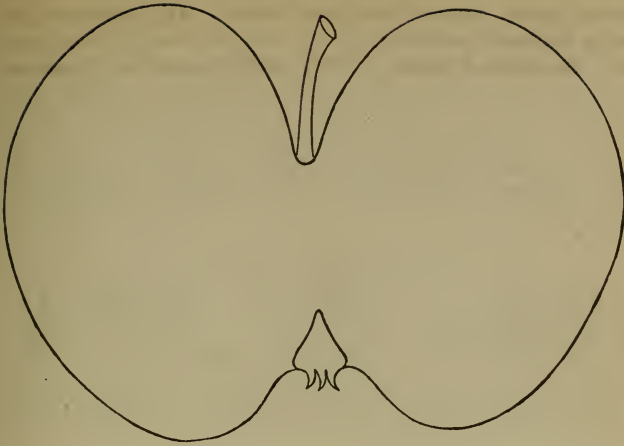
Streaked Pippin.

Calyx closed. Basin medium, slightly corrugated. Flesh yellow, a little coarse, tender, juicy, pleasant subacid, slightly aromatic. Good to very good. November to January.

STYMUS.

This new and really excellent Apple originated on the farm of Jacob Stymus, Dobb's Ferry, N. Y. Tree moderately thrifty, upright, and productive. Young shoots dull reddish brown, slightly downy.

Fruit medium, oblate, inclining to conic, yellowish, shaded, splashed, and striped with light and dark crimson, some of the splashes very dark. Stalk short, small. Cavity large, deep. Calyx closed or partially open. Segments short, erect. Basin large, deep, uneven. Flesh whitish, fine, tender, juicy, mild, pleasant subacid, slightly aromatic. Core small. Very good. October, November.



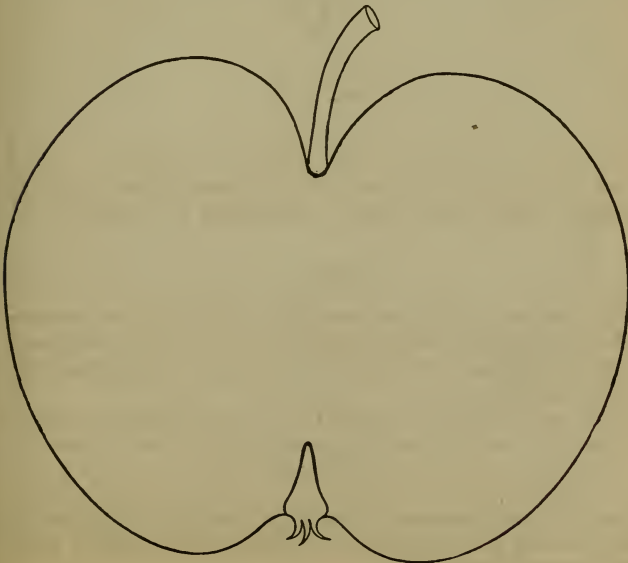
Symus.

SUMMER HAGLOE.

Hagloe.

Early Hagloe.

An old sort. Tree vigorous, but slow in its growth while



Summer Hagloe.

young, thick blunt shoots, productive. Young shoots clear light reddish brown.

Fruit large, roundish oblate, whitish yellow, striped and splashed with bright red, and covered with a thin bloom. Stalk short and thick, inserted in a broad, open cavity. Calyx closed, set in a small, round basin. Flesh white, rather coarse, tender, juicy, subacid. Good to very good. An excellent culinary and table variety. August, September.

SUMMER PIPPIN.

Sour Bough.

Walworth.

Haverstraw Pippin.

Paper Apple.

Calkin's Pippin.

Tart Bough.

Champlain.

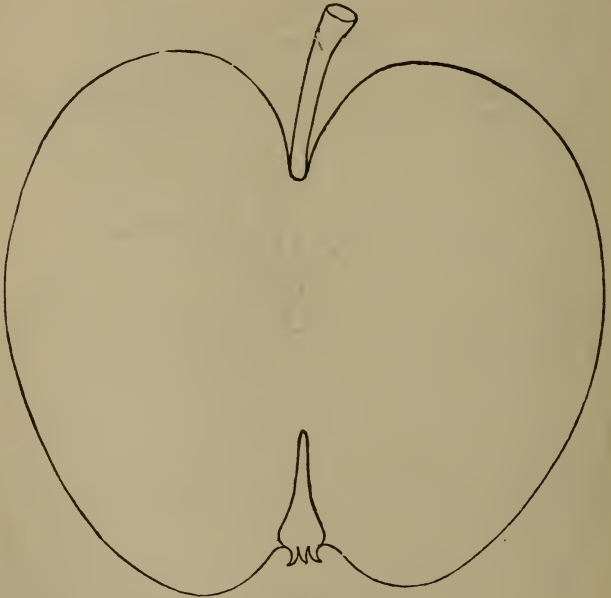
Large Golden Pippin.

Underdunk.

Nyack Pippin.

Geneva Pearmain.

Origin unknown. An old fruit, much cultivated in Rockland and Westchester Counties, N. Y.; a valuable market



Summer Pippin.

fruit. Tree vigorous, forming a beautiful round head, a regular and good bearer. Young shoots dull reddish grayish brown, slightly downy.

Fruit medium to large, variable in form, generally roundish oblong, inclining to conic, pale waxen yellow, shaded with a delicate crimson blush, and sprinkled with green and grayish dots. Stalk varies in length and thickness, inserted in a deep, abrupt cavity. Calyx closed, set in a deep, abrupt, corrugated basin. Flesh white, tender, moderately juicy, pleasant, refreshing, subacid, valuable for culinary uses, and profitable for market. Ripens the middle of August, and continues a month or more.

There is another SUMMER PIPPIN which we have received from Iowa. Tree very vigorous, productive.

The fruit is medium, oblate, inclining to conic, yellowish, shaded, splashed, and striped with crimson in the sun; large light dots. Stalk rather long. Calyx closed. Flesh white, pleasant subacid. August, September.

SUMMER POUND ROYAL.

Pound Royale.

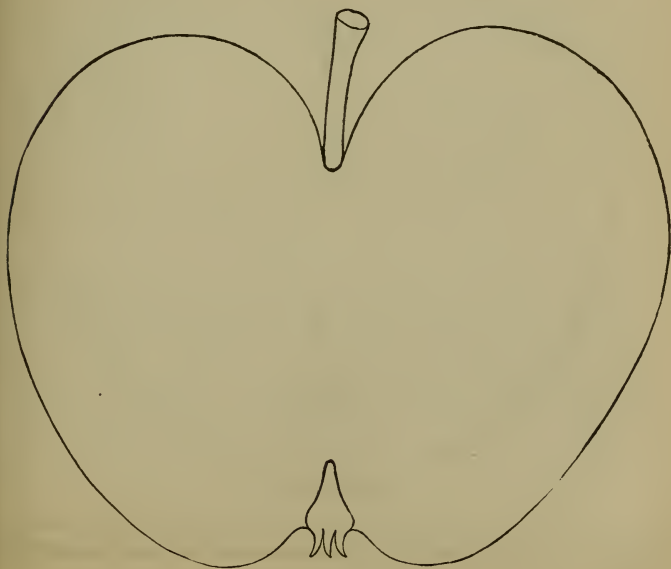
Pound Royal of the Putnam List.

Summer R. I. Greening.

Orange.

Early Pound Royal.

An old variety, the origin of which has not been traced. It is now pretty widely disseminated in some parts of Michi-



Summer Pound Royal.

gan, Ohio, and in the South and West. Tree a strong, vigorous, upright grower, hardy and productive. Young shoots very dark brown.

Fruit large, roundish conical, sometimes roundish oblate conical, greenish white, and moderately sprinkled with green and light dots. Stalk rather short. Cavity large, deep, slightly russeted. Calyx closed. Segments medium, erect. Basin abrupt, rather deep. Flesh white, fine-grained, tender, juicy, mild, sprightly subacid. Good to very good. Core small. Early in September. Does not continue long in use.

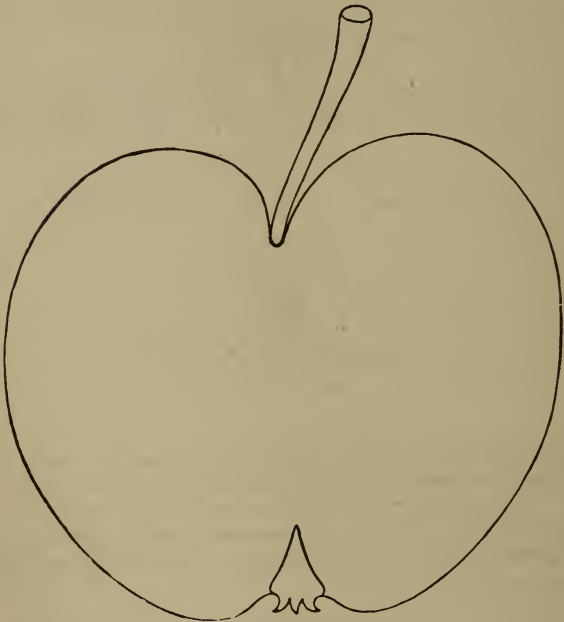
SUMMER QUEEN.

Sharpe's Early.

Lancaster Queen.

Polecat.

This variety forms a large tree with somewhat pendent



Summer Queen.

boughs, and is a profitable sort for orchards and marketing over a large territory.

The fruit is large and broad at the crown, tapering towards the eye. The stalk is rather long, and is planted in a pretty deep cavity, sometimes partially closed. Calyx but little sunk, in a narrow plaited basin. Skin fine deep yellow in its ground, though well striped and clouded with red. Flesh aromatic, yellow, rich, and of good flavor. August and September.

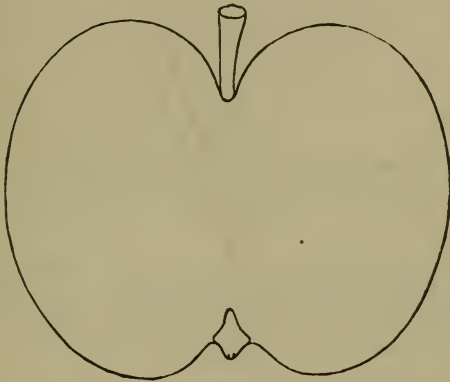
SUMMER ROSE.

Woolman's Harvest.
Lodge's Early.

Lippincott's Early.
Early Rose.

Originated with Aaron Lippincott, Salem, New Jersey.

A very pretty and very excellent Apple, highly esteemed as a dessert fruit. Tree moderately vigorous, round-headed, and moderately productive.



Summer Rose.

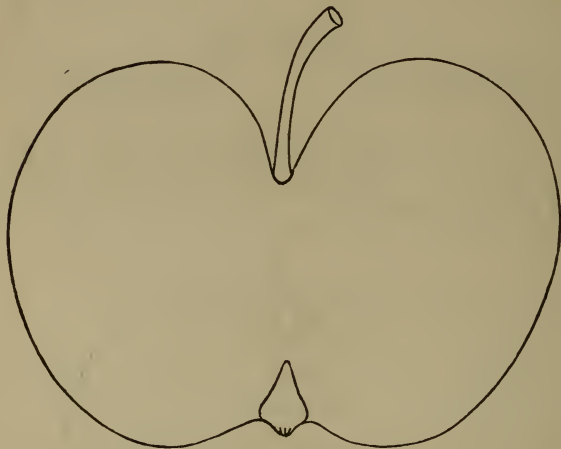
Fruit scarcely of medium size, roundish, smooth, rich waxy yellow, streaked and blotched with a little red on the sunny side. Stalk rather short and slender. Calyx closed, set in an even basin. Flesh tender, abounding with sprightly juice. Very good or best. Ripens early in August, and continues all the month.

SUSAN'S SPICE.

Originated with Miss Susan Isenbarger, Franklin Co., Pa., and is a favorite and popular Apple in that county. Tree

moderately vigorous, or rather a slow grower, upright spreading, an early bearer, very productive every other year.

Fruit nearly of medium size, oblate, regular. Skin smooth, whitish, nearly covered with dark rich red in the sun, and of a lighter color in the shade, and a few light dots. Stalk



Susan's Spice.

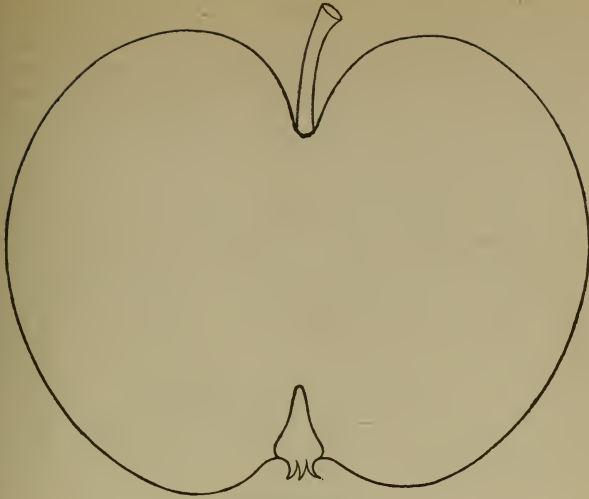
short, small, inserted in a large deep cavity, a little greenish. Calyx closed; basin broad, not very deep, slightly plaited. Flesh whitish, fine, crisp, tender, juicy, mild, pleasant subacid. Very good. Core small. September.

SUTTON BEAUTY.

Beauty.

Origin, Sutton, Mass. Tree upright, thrifty, and very productive alternate years.

Fruit medium, roundish oblate, waxen yellow, shaded, mottled, and obscurely striped with fine crimson, and thinly sprinkled with whitish dots. Stem rather short, inserted in a medium cavity, slightly surrounded by greenish russet. Calyx partially closed, set in a moderate, uneven basin. Flesh yellowish, half fine, crisp, tender, juicy, rich, mild subacid, slightly aromatic. Very good. November, February.

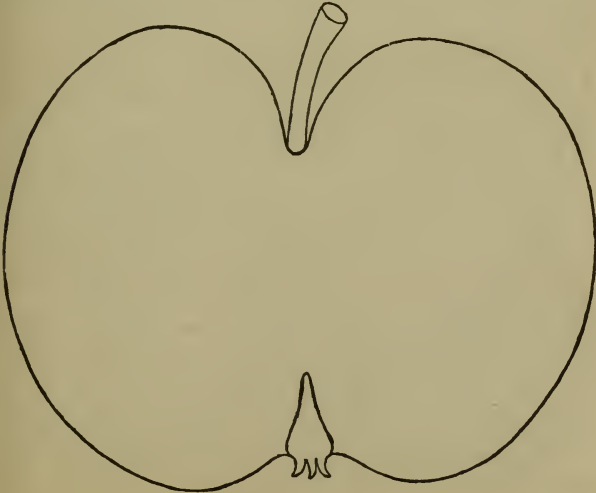


Sutton Beauty.

SWAAR.

Hardwick.

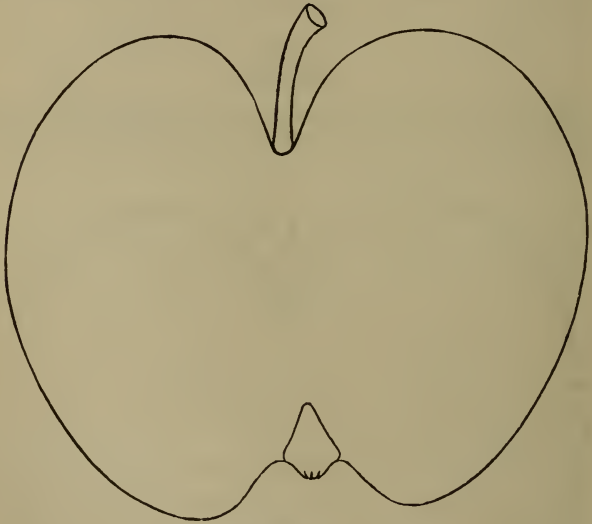
This is a truly noble American fruit, produced by the Dutch settlers on the Hudson, near Esopus, and so termed from its



Swaar.

unusual weight, this word, in the Low Dutch, meaning *heavy*. It requires a deep, rich, sandy loam to bring it to perfection, and, in its native soils, we have seen it twelve inches in circumference, and of a deep golden yellow color. It is one of the finest flavored apples in America, and deserves extensive cultivation in all favorable positions, though it does not succeed well in damp or cold soils. Tree moderately vigorous, spreading.

Fruit large, regularly formed, roundish or roundish oblate. Skin greenish yellow when first gathered, but when entirely ripe, of a fine, dead gold color, dotted with numerous distinct brown specks, and sometimes faintly marbled with gray russet on the side and round the stalk. Stalk slender, three-fourths of an inch long, inserted in a very round cavity. [Sometimes this cavity is partially closed.] Calyx small, greenish, set in a shallow basin, scarcely plaited. Flesh yellowish, fine-grained, tender, with an exceedingly rich aromatic flavor and a spicy smell. Best. Core small. December to March.



Sweet Winesap.

SWEET WINESAP.

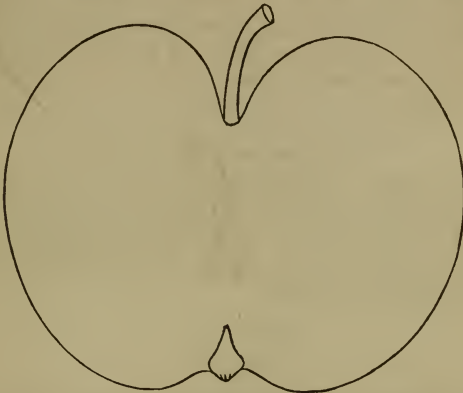
Hendrick Sweet. Henry Sweet. Ladies' Sweet, of some.
Sweet Pearmain, of some. Red Sweet Winesap.

Origin unknown. Tree a vigorous, spreading grower, an early, annual, and abundant bearer.

Fruit medium, oblate or roundish oblate, truncate, slightly conic, regular. Skin yellow shaded, splashed and striped over the whole surface with light and dark red, and moderately sprinkled with large light dots, a portion being areole. Stalk rather short, inserted in a pretty large smooth cavity, sometimes slightly russeted. Calyx half open; basin large, deep, slightly corrugated. Flesh fine, white, tender, juicy, rather rich, mild sweet. Very good. Core small. November to March.

SYLVESTER.

Originated on the farm of Dr. E. W. Sylvester, Lyons, N. Y. Tree vigorous, forming a beautiful open, round, spreading head; a profuse bearer. Excellent for cooking and drying. Young shoots dark reddish brown, slightly grayish or downy.



Sylvester.

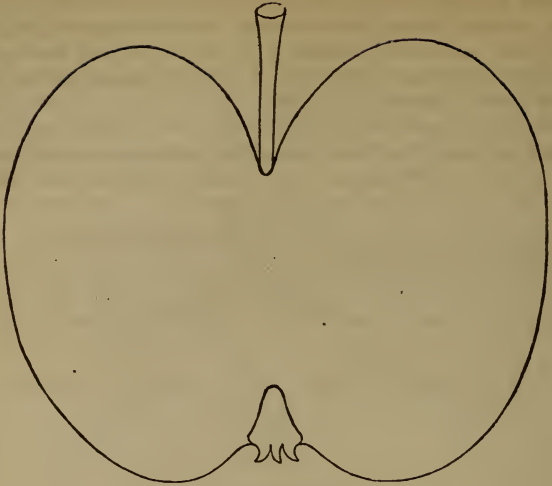
Fruit below medium, roundish oblate, regular, waxen white, beautifully shaded on the sunny side with bright crimson, thinly sprinkled with minute light and brown dots. Stalk small, short. Cavity regular. Calyx closed. Basin rather shallow. Flesh very white, tender, crisp, juicy, brisk subacid. Very good. September, October.

TALMAN'S SWEET.

Tolman's Sweeting. Tallman's Sweeting. Brown's Golden Sweet.

A native of Rhode Island. In quality the fruit is scarcely second rate as a table sort, but it is a very popular and profitable orchard sort, from the hardihood of the trees, their great productiveness, and its value for stock feeding and various culinary uses. Tree vigorous, forming a broad spreading head.

Form nearly globular. When fully ripe, whitish yellow, with a soft blush on one side, and generally a line running



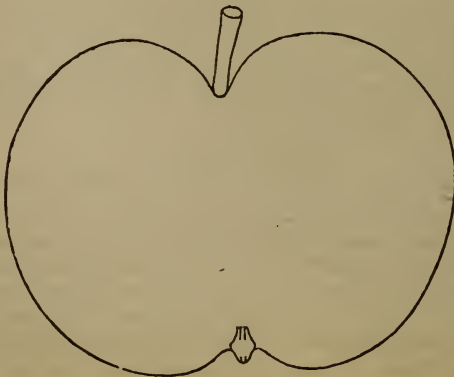
Talman's Sweet.

from stem to calyx. Stalk rather long and slender, inclining to one side, and inserted in a rather wide, shallow, but regular cavity. Calyx set in a small basin, slightly depressed. Flesh quite white, rather firm, fine-grained, with a rich sweet flavor. November to April.

TETOFSKY.

Tetofski.

The Tetofsky is a Russian Summer Apple, which proves



Tetofsky.

profitable for market growing. The tree is an upright spreading grower, forming a round open head, comes early into bearing, and produces annually. It is apt to drop from the tree before fully ripe. Very hardy. Young shoots yellowish reddish brown, leaves very large.

Fruit of medium size, oblate conic, sometimes nearly round, smooth, with a yellow ground handsomely striped with red, and, like most apples of that country, covered with a whitish bloom, under which is a shining skin. The flesh is white and juicy, sprightly acid, fragrant, and agreeable. Good. August. Succeeds at the North.

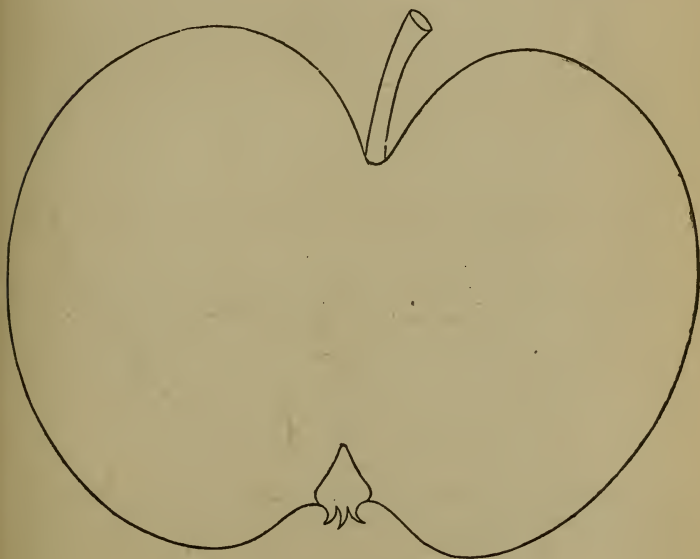
TWENTY OUNCE.

Morgan's Favorite.
Twenty Ounce Apple.
Eighteen Ounce Apple.
Aurora.

Brush's Nonsuch.
Coleman.
Cayuga Red Streak.
Lima.

Wine of Connecticut.

A very large and showy Apple, well known in Cayuga Co., N. Y., but an old fruit from Connecticut. It is a good,



Twenty Ounce.

sprightly fruit, though not very high flavored; but its remarkably handsome appearance and large size render it one of the

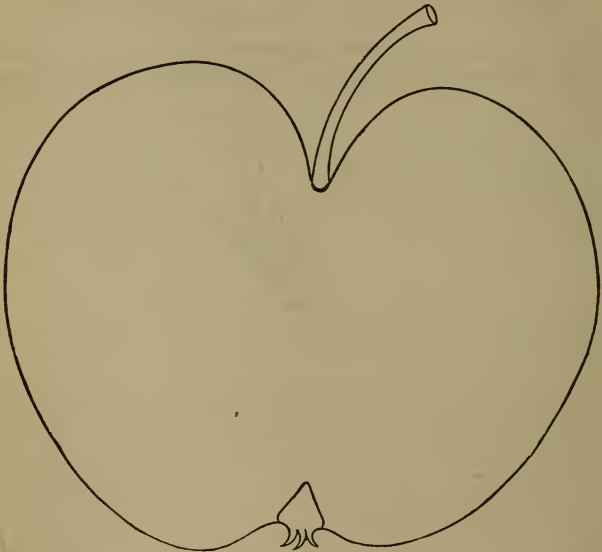
most popular fruits in market. The tree is thrifty, and makes a compact, neat head, bears regular crops, and the fruit is always fair and handsome. Young wood rich brownish red.

Fruit very large, roundish, slightly uneven, greenish yellow, boldly splashed and marbled with stripes of purplish red. Stalk short, set in a wide, deep cavity. Calyx small. Basin moderately deep. Flesh coarse-grained, sprightly, brisk subacid. Good to very good. October to January.

TUTTLE.

Originated on the farm of Lyman Tuttle, of Hamden, Conn. Tree upright, vigorous—an early and abundant bearer every other year of fair fruit, and valued in its locality for market and family use.

Fruit medium, roundish oblate conic, sides sometimes unequal. Skin pale yellow, shaded, striped and splashed with



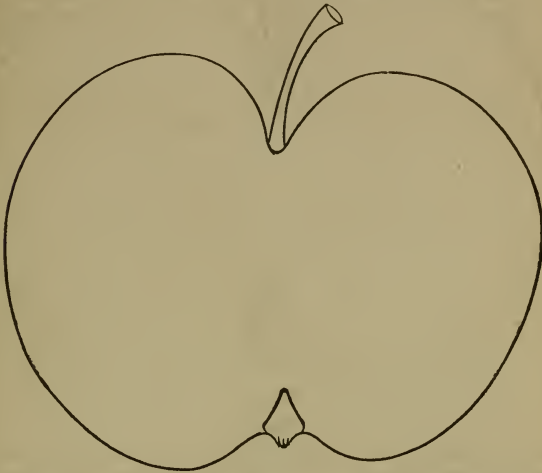
Tuttle.

light and dark red, nearly covering the fruit, and moderately sprinkled with light russet and gray dots. Stalk of medium length, slender, inserted in a medium or rather large cavity, russeted, and sometimes extending in rays on the base. Calyx closed. Basin small, slightly corrugated. Flesh whitish, fine, tender, juicy, mild, pleasant subacid. Good to very good. Core medium. December, March.

VANDEVERE.

White Vandevere	Vandevere of Pa.	Green Vandevere.
Little Vandevere of Indiana.	Stalclubs.	Vandiver.
Vanderveer.	Yellow Vandevere.	Striped Vandevere.
Pennsylvania Vandevere.	Lasting Vandevere?	Fall Vandevere?
	Red Vandevere.	

The Vandevere is an old fruit, a native of Wilmington, Del., and took its name from a family there by name of Vandiver, which should be by right the name of the Apple; but it has so long been known and grown under the spelling Van-



Vandevere.

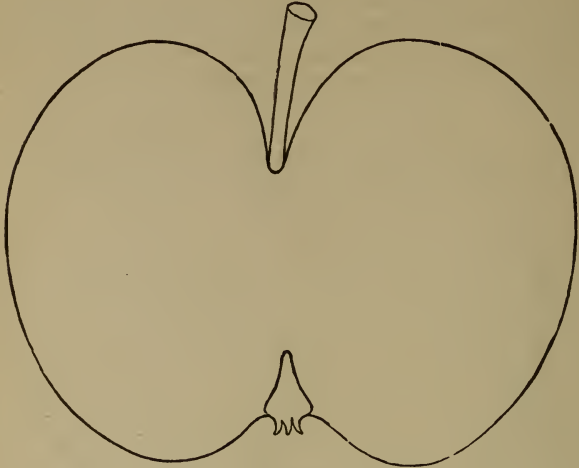
devere, that we deem it best not to change it. There is much confusion existing respecting this Apple and its sub-varieties, which possibly some of those may be, grown under what we give as synonyms. Tree of moderate horizontal growth, not very productive. Young shoots smooth, dark grayish reddish brown, with bold, full, projecting, rounded conical buds.

Fruit of medium size, oblate. Stalk about an inch long, inserted in a deep cavity. Calyx small and closed, set in a round moderate basin. Color waxen yellow, striped with red, and covered with numerous green dots. Flesh yellowish, compact, but tender, with a fine rich, subacid flavor. Good. October to January. Valuable for culinary purposes.

There is a Vandevere which we have received from Virginia, the young wood of which is slender, with very small inconspicuous buds.

WAGENER.

Origin, Penn Yan, Yates Co., N. Y. Tree thrifty, upright, hardy, an early bearer, and very productive; requires thinning to produce good-flavored fruit; when grown in the shade is wanting in flavor. Young wood light reddish brown, slightly downy. Buds prominent.



Wagener.

Fruit medium or above, sometimes with broad ribs, roundish oblate. Skin yellow, mostly shaded with crimson, obscurely splashed and striped, and sprinkled with light dots. Stalk nearly an inch long, rather slender, inserted in a large, broad, irregular cavity. Calyx small and closed, set in a rather abrupt, somewhat corrugated basin. Flesh yellowish, very tender, juicy, excellent, brisk, somewhat vinous. Very good to best. A very delicate apple. Ripe, November to February.

WASHINGTON ROYAL.

Palmer Greening.

Originated on the farm of Joseph P. Hayward, Sterling, Mass. Tree vigorous, making a round head; very productive.

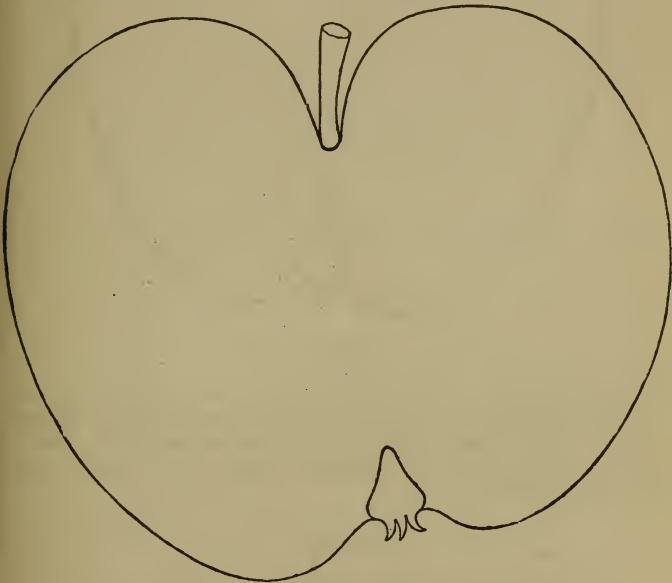
Fruit medium, roundish oblate, inclining to conic, slightly angular, sides sometimes unequal. Skin light yellow, with a shade of pale red where exposed to the sun, and a few grayish

dots. Stalk rather short, small, inserted in a large, deep cavity. Calyx half open. Basin of medium size, slightly corrugated. Flesh whitish, crisp, very tender, juicy, mild subacid, a little aromatic. Very good. Core medium. November, May.

WASHINGTON STRAWBERRY.

Originated on the farm of Job Whipple, Union Springs, Washington Co., N. Y. Tree hardy, vigorous, upright spreading, an early and abundant bearer. Young wood reddish. Buds prominent, rounded.

Fruit large, roundish oblate conical, flattened at base, yellow, shaded, splashed, and mottled with light and dark rich



Washington Strawberry.

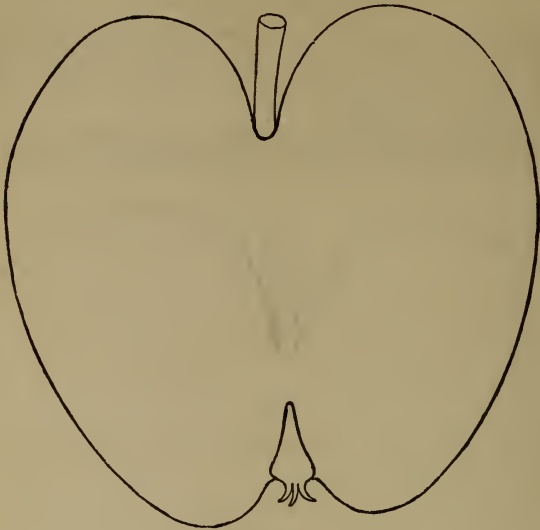
red or crimson. Stalk short. Cavity thinly russeted. Calyx closed. Segments rather long, reflexed. Basin abrupt, deep, furrowed. Flesh yellow, a little coarse, crisp, tender, juicy, brisk subacid. Very good. September, October.

WATER.

Originated in Durham Township, Bucks Co., Pa. Tree moderately vigorous, erect, forming a round, somewhat close

head; blooms nearly two weeks later than other varieties, and produces abundantly every other year. Young wood very dark, blackish brown.

Fruit medium, roundish conical, sometimes oblong conic



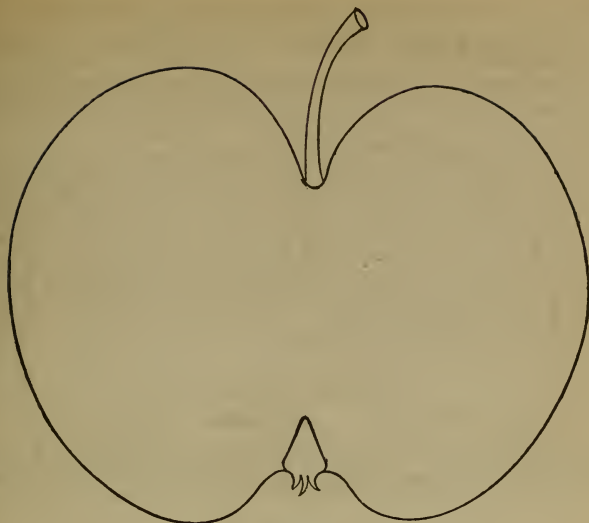
Water.

truncated, whitish yellow, shaded with rich purplish crimson in the sun, few brown dots. Stalk short, slender. Calyx closed. Basin small, abrupt, slightly corrugated. Flesh white, very tender, juicy, pleasant subacid. Very good. October, November.

WEALTHY.

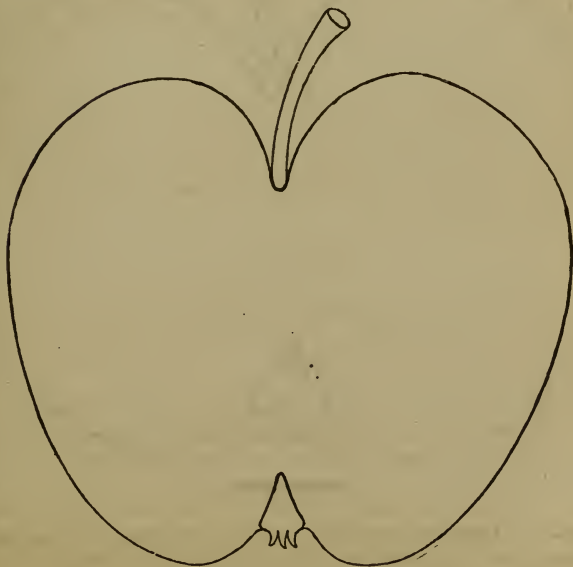
A new variety, originated by Peter M. Gideon, of Excelsior, near St. Paul, Minn. So far the tree has proved hardy, vigorous, spreading and healthy. Very productive. Fruit beautiful and excellent.

Fruit medium, oblate or roundish oblate. Skin smooth, whitish yellow ground, shaded with deep rich crimson in the sun, obscure broken stripes and mottlings in the shade, sometimes entirely covered with crimson, many light dots. Stalk short to medium, slender. Cavity large, green, russet. Calyx partially closed. Basin deep, abrupt, uneven. Flesh white, fine-grained, stained with red, tender, juicy, lively, vinous,



Wealthy.

subacid. Very good. Core small. Season, December, February.



Westfield Seek-no-Further.

WESTFIELD SEEK-NO-FURTHER.

Connecticut Seek-no-Further. Seek-no-Further. Luxury.

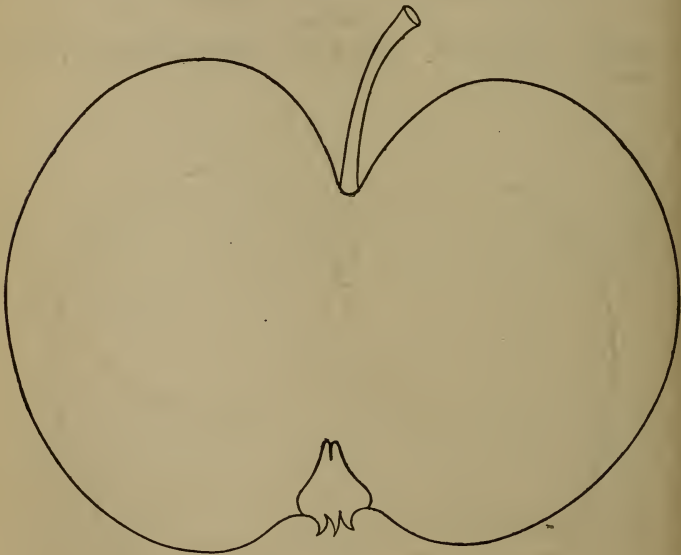
The Westfield Seek-no-Further is the Seek-no-Further of Connecticut, and is an old and highly esteemed variety of that district. It has a pearmain flavor.

Fruit large, pretty regularly round conical, pale or dull red over a pale clouded green ground—the red sprinkled with obscure russeted yellow dots. Stalk very slender, three-fourths of an inch long, inserted in an even cavity. Calyx closed, or with a few reflexed segments, and set in an even basin of moderate depth. Flesh white, fine-grained, tender, with a rich pearmain flavor. Very good or best. A first-rate fruit: October to February.

WESTERN BEAUTY.

Musgrove's Cooper. Big Rambo. Ohio Beauty.

Origin unknown. William F. English, of Rhinehart, Ohio, seems to have brought it into notice, and furnished us speci-



Western Beauty.

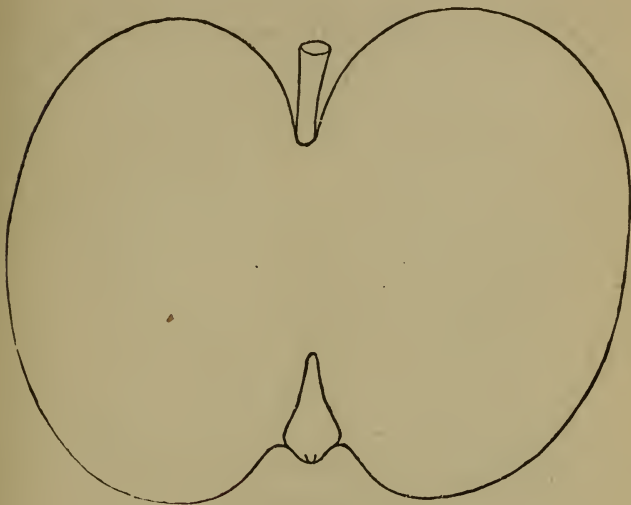
mens. He writes that the tree is very vigorous, making a large spreading open head, an early and good bearer.

Fruit large to very large, roundish oblate, regular. Skin pale yellow, shaded with bright red in the sun, and some rather obscure splashes and stripes of light red in the shade, and thickly sprinkled with large light and gray dots, the light ones being areole. Stalk of medium length, slender. Cavity large, sometimes slight russet. Calyx large, closed. Basin large, deep, slightly corrugated. Flesh whitish yellow, coarse, crisp, tender, juicy, mild pleasant subacid. Very good. Core small.

WHITE PIPPIN.

Canada Pippin.

This Apple is much cultivated at the West, but of unknown origin. It is of the Newtown Pippin class, distinct from Canada Reinette. Tree thrifty, upright, somewhat



White Pippin.

spreading, a regular and good bearer. Young shoots dark clear reddish brown, downy.

Fruit large, form variable, roundish oblate, slightly oblique, greenish white, waxen, sprinkled with green dots, and becoming pale yellow at maturity, sometimes having a dull blush and a few brown dots. Stalk short, inserted in a large cavity, surrounded by green russet. Calyx small, nearly closed,

set in a large deep furrowed basin. Flesh white, tender, crisp, juicy, fine, rich subacid. Very good to best. Core small. January to March.

WHITE SPANISH REINETTE.

D'Espagne.	Reinette Blanche d'Espagne.
Fall Pippin, erroneously.	Reinette d'Espagne.
Large Fall Pippin.	Camnesar.
Cobbett's Fall Pippin.	Elgin Pippin?

A very celebrated old Spanish variety. Tree vigorous, spreading, a good but not prolific bearer.

Fruit very large, roundish oblate, with broad ribs on its sides, terminating in an uneven crown, where it is nearly as broad as at the base. Calyx large, open, very deeply sunk in



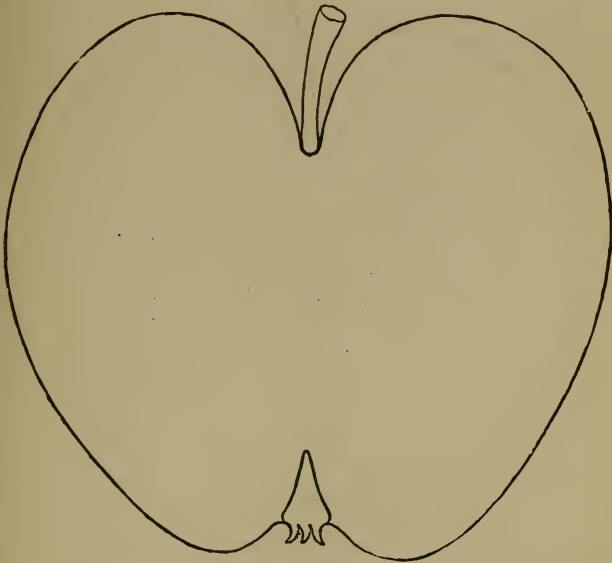
White Spanish Reinette.

a broad-angled, oblique, irregular basin. Stalk half an inch long, set in a rather small, even cavity. Skin smooth, yellowish green on the shaded side, orange, tinged with brownish red next the sun, and sprinkled with grayish dots. Flesh yellowish white, crisp, tender, rich subacid. Very good. The tree has the same wood, foliage, and vigorous habit as our Fall Pippin, and the fruit keeps a month longer. This is quite distinct from Fall Pippin.

WHITE WINTER PEARMAIN.

Campbellite.

Origin unknown, by some thought to be an old Eastern variety, highly esteemed at the West. Tree with a round head, rather irregular, hardy, and thrifty, a regular and good bearer. Young shoots very short-jointed, dull reddish brown, slightly grayish or downy at end.



White Winter Pearmain.

Fruit medium or above, roundish oblate conic, somewhat oblique. Stalk short, in a deep cavity. Calyx nearly closed. Segments long. Basin broad, uneven. Skin pale yellow, with a slight blush or warm cheek, thickly sprinkled with minute brown dots. Flesh yellowish, tender, crisp, juicy, very pleasant subacid. Very good. January to April.

WILLIAMS' FAVORITE.

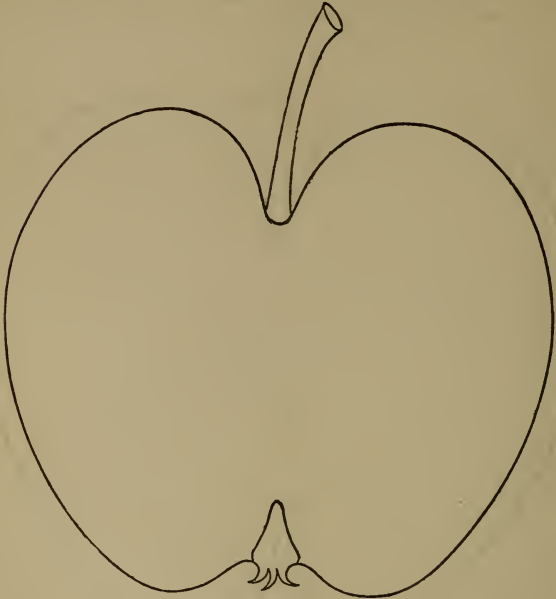
Williams' Early.

Williams' Red.

A large and handsome dessert apple. It originated on the farm of Major Benjamin Williams, of Roxbury, near Boston, Mass. Tree moderately vigorous, spreading irregular, bears

abundantly, and ripens from the last of July to the first of September. An excellent market variety.

Fruit of medium size, roundish oblong conic, and a little one-sided. Stalk an inch long, slender, slightly sunk. Calyx



Williams' Favorite.

closed, in a furrowed basin. Skin very smooth, of a light red ground, but nearly covered with a fine dark red. Flesh yellowish white, and of a very mild and agreeable flavor. Good. Requires a strong, rich soil.

WILLIS SWEET.

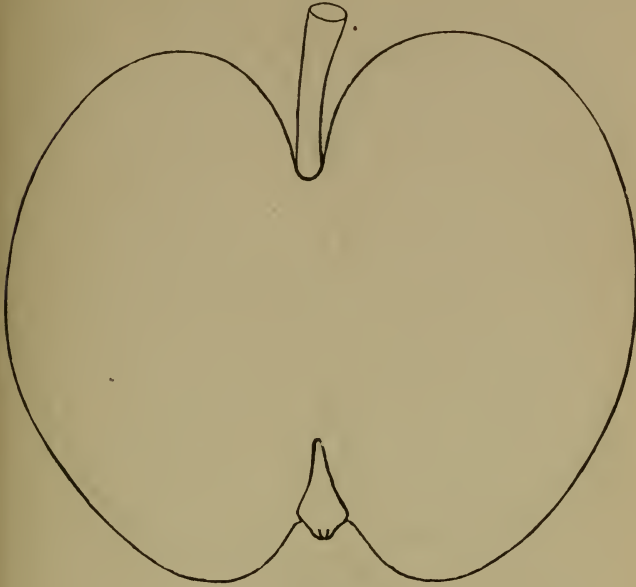
Pear Lot.

Pear-Tree Lot.

Origin on the farm of Edward Willis, Oyster Bay, Long Island. Tree a vigorous, spreading, compact grower, productive, but does not come early into bearing. Young shoots rich warm brown, slightly grayish.

Fruit rather large, roundish, whitish, somewhat shaded

with a thin light red, and blotched with crimson, few brown dots. Stalk short and stout. Calyx small, closed. Basin abrupt, furrowed. Flesh whitish, crisp, juicy, tender, sweet,



Willis Sweet.

and rich. Very good. Core large. August, September. Valuable for table, market, and culinary purposes.

WILLOW TWIG.

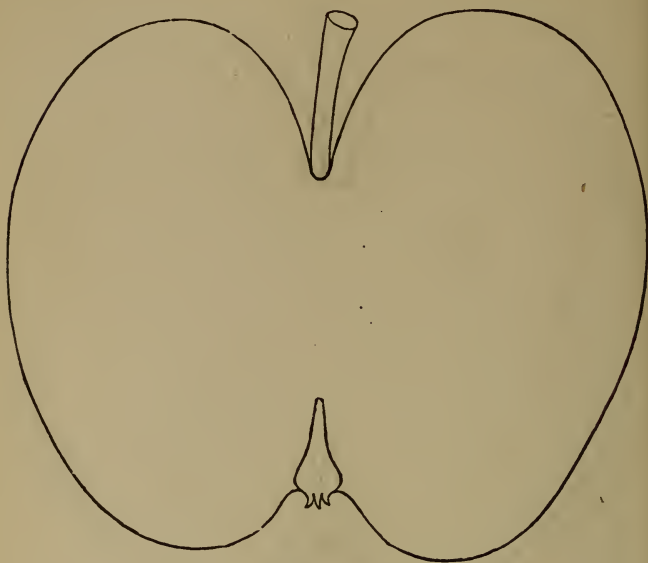
Willow.

James River.

Of unknown origin. The tree is a poor grower in the nursery, but makes a good spreading, somewhat drooping orchard tree, quite hardy, and very productive, and although of only *good* quality, its keeping qualities, productiveness, and hardihood make it a profitable market Apple for rich prairie and bottom lands in the West. Young shoots slender, reddish brown, downy. Buds inconspicuous.

Fruit medium size, roundish, slightly conic, somewhat oblate, light yellow, or pale greenish yellow, shaded and marbled

with dull red, and sprinkled with numerous russet dots. Stalk rather short and slender. Cavity narrow, sometimes partially closed, with a lip. Calyx partially closed, in a some-



Willow Twig.

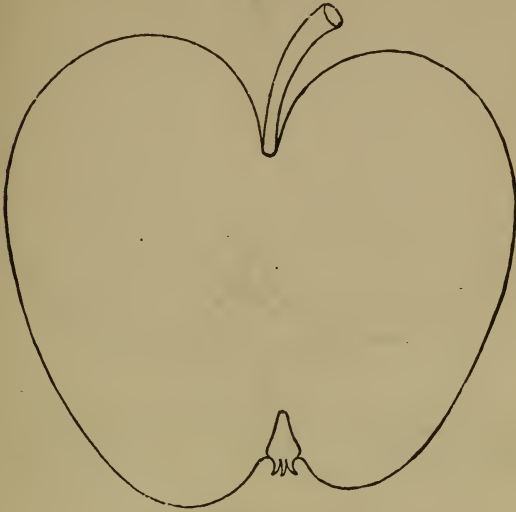
what corrugated abrupt basin. Flesh yellowish green, not very tender, pleasant subacid. Good. Valuable for late keeping.

WINESAP.

Texan Red. Wine Sop? Potpie Apple. Holland Red Winter.

This is not only a good Apple for the table, but it is also one of the very finest cider fruits, and its fruitfulness renders it a great favorite with orchardists. The tree grows rather irregularly, and does not form a handsome head; but it bears early, is productive, and the apples have the good quality of hanging late upon the trees without injury, while the tree thrives well on sandy, light soils. The tree is very hardy, and one of the most profitable orchard varieties wherever grown. Young wood reddish brown, with smooth red buds.

Fruit of medium size, rather roundish conical. Skin smooth, of a fine dark red, with a few streaks, and a little yellow ground, appearing on the shady side. Stalk nearly an inch long, slender, set in an irregular deep cavity, often rus-



Winesap.

seted. Calyx small, closed, placed in a regular basin, with fine plaits. Flesh yellowish white, half fine, firm, crisp, with a rich, high flavor, somewhat vinous. Very good. November to May.

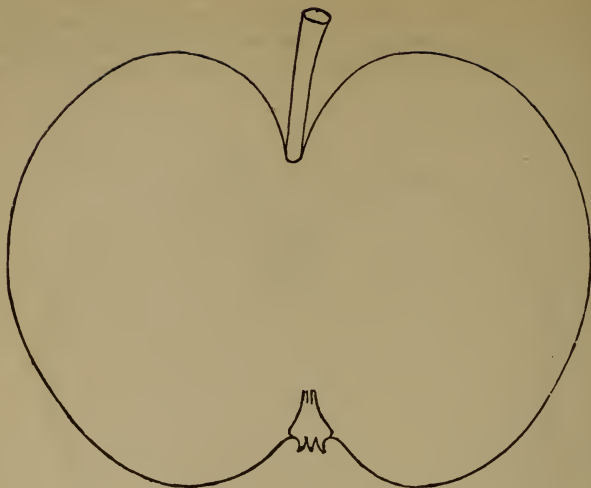
WINTER SWEET PARADISE.

Paradise Winter Sweet.

Grandmother.

From Pennsylvania. The Winter Sweet Paradise is a productive and excellent orchard fruit, always fair, and of fine appearance. Tree hardy, upright, vigorous, not an early bearer. Young shoots rather long, slender, reddish gray.

Fruit rather large, regularly formed, roundish oblate. Color dull green when picked, with a brownish blush, becoming a little paler at maturity. Stalk short, set in a round cavity, often russeted. Calyx closed, small. Basin rather deep, slightly corrugated. Flesh white, fine-grained, tender,



Winter Sweet Paradise.

juicy, sweet, sprightly, and very good. Core rather small. November to March.

YELLOW BELLFLOWER.

Bellefleur Yellow.

Bishop's Pippin of Nova Scotia.

Reinette Musque.

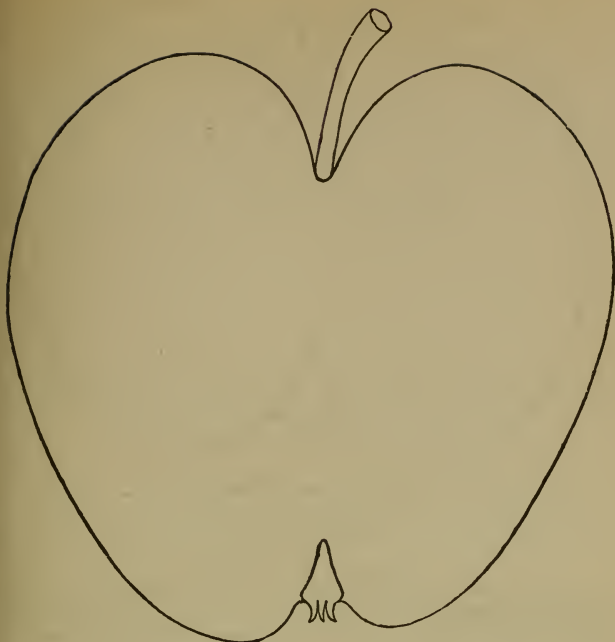
Belle Fleur.

Lady Washington.

Warren Pippin.

The Yellow Belle Fleur is a large, handsome, and excellent winter Apple, everywhere highly esteemed in the United States. It is most abundantly seen in the markets of Philadelphia, as it thrives well in the sandy soils of New Jersey. Coxe first described this fruit, the original tree of which grew in Burlington, N. J. Tree a moderately vigorous grower, forming a spreading, roundish, rather drooping head. Young wood yellowish brown. A regular and excellent bearer.

Fruit very large, oblong, a little irregular, tapering to the eye. Skin smooth, pale lemon yellow, often with a blush next the sun. Stalk long and slender, in a deep cavity. Calyx closed and set in a rather narrow, plaited basin. Seeds in a large hollow capsule or core. Flesh tender, juicy, crisp, with a sprightly subacid flavor; before fully ripe it is considerably acid. Very good. December, February.

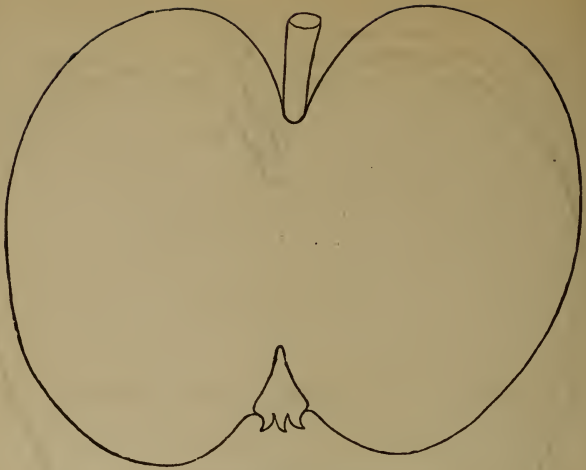


Yellow Bellflower.

YELLOW NEWTOWN PIPPIN.

Albemarle Pippin.

The Yellow Newtown Pippin is handsomer in appearance, and has a higher perfume than the Green or Newtown Pippin, and its flesh is rather firmer, and equally high flavored; while the Green is more juicy, crisp, and tender. The Yellow Newtown Pippin is rather flatter, measuring only about two inches deep, and it is always quite oblique—projecting more on one side of the stalk than the other. When fully ripe it is yellow, sometimes with a rather lively red cheek, and a smooth skin, few or none of the spots on the Green variety, but with the same russet marks at the stalk. It is also more highly fragrant before and after it is cut than the Green. The flesh is firm, crisp, juicy, and with a very rich and high flavor. Both the Newtown Pippins grow alike, and they are both excellent bearers. This variety is rather hardier and succeeds best. February to May.

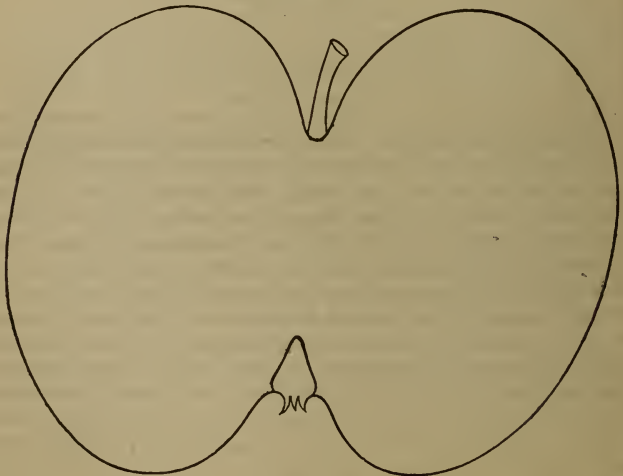


Yellow Newtown Pippin.

YORK IMPERIAL.

Johnson's Fine Winter.

Origin thought to be York Co., Pa. Tree moderately vigorous, spreading, holds its fruit and foliage well and late,



York Imperial.

and is considered a valuable late variety in its locality. Very productive. Young wood rich brown, downy.

Fruit medium, oblate oblique, flattened at the ends. Skin whitish or pale yellow, shaded with crimson in the sun, some rather obscure splashes and stripes, and thinly sprinkled with light and gray dots, a few areole. Stalk short. Calyx closed or partially open. Basin large, deep. Flesh yellowish, firm, crisp, juicy, pleasant, mild subacid. Good to very good. Core compact, small. November, February.

SIBERIAN CRABS AND IMPROVED SIBERIAN APPLES.

THE varieties of Siberian Crab Apples (*Pyrus baccata*) have, heretofore, been mainly valued for their handsome flowers and the beautiful appearance of the tree when loaded with fruit.

Within the past year or two, however, considerable attention has been given to their cultivation by fruit-growers in our Western and Northwestern States, because of the superior hardihood of the trees. Large numbers of seedlings have been grown, some bearing full evidence of the paternity of the *Pyrus baccata*, others possessing more or less of the *Pyrus malus*, apparent more in the flesh and improved quality of the fruit than in the habit of the trees. They are all valuable for cider, preserves, and cooking, and some of the improved varieties, more truly, perhaps, Siberian Apples than Crabs, are quite pleasant and rich for the dessert. The great hardihood of the trees, and their productiveness, make them highly valuable for sections where the better varieties of the *Pyrus malus* do not succeed. In descriptions of these varieties the terms "medium, large, or small," must be considered as applied in comparison with the Siberian Crab.

The common Siberian Crab is a beautiful little fruit, which is produced in rich clusters on the branches, and, at a distance, resembles large and handsome cherries. It is highly esteemed for preserving, and almost every large garden contains a tree of this variety. It forms a vigorous, neat tree, of rather small size, and its blossoms, which are white, are produced in beautiful profusion in spring, and a large crop of fruit regularly follows.

ASTRACHAN.

This is one of the very largest sized of the old varieties.

Fruit medium to large, roundish conical, bright rich clear red, with a fine light bloom. Calyx with long segments, prominent. Flesh whitish, crisp, juicy, sharp, brisk acid, tender. September.

BAILEY'S CRIMSON.

Raised by William H. Bailey, of Plattsburgh, N. Y. Tree upright, vigorous, very productive, large for a Siberian, and very beautiful.

Fruit large, roundish, slightly conical. Skin yellow, almost entirely covered with deep rich red or crimson, with a whitish bloom. Stalk short to long, slender. Cavity small. Calyx closed. Basin rather small. Flesh yellow, firm, juicy, subacid, a little astringent. September, October.

DOUBLE FLOWERING CHINESE CRAB.

Double Flowering Apple.

This very beautiful crab-tree from China, which produces a small green fruit, of no value, is highly admired for its showy blossoms. These are large, tipped with deep red in the bud, but when open are of a pale rose color, semi-double, large, and produced in fine clusters. It is an exceedingly ornamental, small tree, growing from ten to twenty feet in height.

DOUBLE WHITE SIBERIAN CRAB.

Fruit roundish, irregular, swollen on one side. Color red carmine on the sunny side, green on the shaded side, covered with a white bloom. Flowers large double white, very ornamental.

FOXLEY CRAB.

Raised by Thomas Andrew Knight, England, from seed of the Cherry Crab. Tree hardy. Fruit produced in clusters.

Fruit medium, roundish oblate, golden yellow. Stalk long. Flesh yellow, crisp, juicy, subacid.

GENERAL GRANT.

Size large for a crab, round, oblate, warm yellow ground, with broken stripes of dark, becoming, on the sun-exposed side, entirely red, and very dark, almost black red, with a few minute light dots. Stalk slender. Cavity open, moderately deep. Calyx closed. Basin broad, not deep, but conspicu-

ously furrowed. Flesh white, moderately fine-grained, not juicy, very mild subacid. Core large for size of fruit. Late Autumn.

HAMPTON'S SIBERIAN CRAB.

A beautiful variety, originated with Wm. C. Hampton, Hardin Co., O.

Fruit large for a Siberian Crab, ovate conical, deep rich crimson, blotched and indistinctly striped with clear orange and yellowish red. Blossoms large. This is one of the most beautiful of all the crabs, especially when in bloom.

HYSLOP.

This variety has been long and pretty extensively cultivated. The trees are hardy, the growth strong, rather spreading. Wood light colored, a little downy.

Fruit large, produced in clusters, roundish ovate, dark rich red, covered with a thick blue bloom. Stalk long, slender. Calyx closed. Flesh yellowish, subacid, good for culinary uses and for cider.

LADY CRAB.

This is a foreign variety, of great beauty, and the tree a vigorous, upright grower, much resembling the Lady Apple. Very productive. Young wood grayish reddish dark brown, with conspicuous white or gray dots.

Fruit small, roundish oblate, a little oblique, rich dark red, with traces of russet, and many apparently rough russet dots. Stalk medium length for a crab, quite slender. Cavity open, broad, deep russeted. Calyx almost closed, with connected half-recurved segments. Basin broad, shallow, distinctly corrugated next the calyx. Flesh yellowish, moderately juicy, mild subacid. November, December.

LARGE RED SIBERIAN CRAB.

This variety is about twice the size of the common Siberian Crab, roundish ovate, with a large and prominent calyx, and a pale red and yellow skin. It forms a larger tree, with rather coarser foliage than the common variety, and is esteemed for the same purposes. September and October.

LARGE YELLOW SIBERIAN CRAB.

Fruit similar in size to the foregoing, roundish oval, flattened at base and crown, light clear yellow, often inclining to amber, with a warm cheek.

MARENGO.

The discovery of this variety, as well as its identity with the Siberian Crabs, *Pyrus baccata*, as a tree, is attributed to James F. Lester, Marengo, Ill. It is said to be a seedling found in the rows of an old seedling nursery of apple-stocks. The original tree is thought to be about eighteen years old. Young shoots vigorous, reddish brown, with the gray specks, bloom, and scaly cuticle peculiar to the Siberian.

The fruit is large for its class; in form roundish, flattened at blossom end, bright warm red on yellow ground, smooth, with a few scattered gray or light russet dots. Flesh yellowish white, crisp, juicy, a little harsh until fully ripe, when it is a mild and pleasant subacid. Stalk long, slender, set in a narrow cavity. Calyx closed. Basin broad, open, corrugated. Early Winter to late in Spring.

MONTREAL BEAUTY.

This is one of the most beautiful of all Crabs, in appearance.

Fruit large, roundish oblate, bright yellow, mostly covered and shaded with rich red. Flesh yellowish, rich, firm, acid. September, October.

POWERS' LARGE.

Originated with Hiram Powers, Catskill, N. Y. Tree vigorous, hardy, and productive.

Fruit large, roundish oblate, waxen white, shaded and striped with carmine, crimson, and yellow, and covered with a lilac bloom. Flesh sharp, yet mild acid. Fine for cooking. Early October.

TRANSCENDENT.

This is one of the best of the early autumn varieties.

Fruit medium to large for its class, roundish oblong, flattened at its ends, slightly but regularly ribbed, golden yellow, with a rich crimson red cheek in the sun, covered with a delicate white bloom; when fully ripe the red nearly covers the whole surface. Stalk long and slender, set in an open, deep cavity. Calyx closed, with long reflexed segments. Flesh creamy yellow, crisp, subacid, a little astringent until fully mellow, when it is pleasant and agreeable. Early Autumn.

CHAPTER X.

THE ALMOND.

Amygdalus communis, Dec. *Rosaceæ* of botanists.

Amandier of the French; *Mandelbaum*, German; *Mandorlo*, Italian; *Almendro*, Spanish.

THE Almond-tree, which is a native of the north of Africa and the mountains of Asia, has long been cultivated, and is mentioned in Scripture as one of the charms of the fertile land of Canaan. It so strongly resembles the peach-tree that it is difficult to distinguish it by the leaves and wood only; indeed, several botanists are of opinion, from experiments made in raising the almond from seed, that this tree and the peach are originally the same species, and that the rich and luscious peach is the effect of accidental variation, produced by culture on the almond. The chief distinction between the two in our gardens lies in the fruit, which, in the almond, consists of little more than a stone covered with a thick, dry, woolly skin, while the peach has in addition a rich and luscious flesh. The blossoms of the almond resemble those of the peach, but are larger; they are produced in great profusion, early in the season, before the leaves, and are very ornamental.

Uses. The kernel of the sweet almond is highly esteemed as an article of food, and is largely used as an ingredient in confectionery, cookery, and perfumery. It is raised in great quantities in the south of Europe, especially in Portugal, and is an important article of commerce. The bitter almond is used in cookery and confectionery, and in medicine; it furnishes the prussic acid of the shops, one of the most powerful of poisons. From both species an oil is also obtained.

In France the almond is preferred as a stock on which to bud and graft the peach, which in a very dry climate or chalky soil, it is found, renders the latter more healthy and fruitful than its own bottom. The sweet hard-shelled variety (*Douce à coque dure*) is preferred for stocks by French nurserymen.

Cultivation. The almond thrives best in a warm dry soil, and its general cultivation in this country is precisely like that of the peach. The sweet almond is the only one considered of value here, and it is usually propagated by budding it on plum stock, or on the bitter almond seedlings. It is rather more hardy at the North when budded on the former,

and as the buds of the sweet almond are rather slender and small, the plum stocks to be budded should be thrifty seedlings, not more than a fourth of an inch in diameter at the place where the bud is inserted.

The Common Almond, the Hard-shell Sweet Almond, and the Bitter Almond, are hardy in the latitude of New York, and will bear tolerable crops without care. The Soft-shell Sweet Almond, or Ladies' Almond, will not thrive well in the open garden, as a standard, north of Philadelphia; but they succeed well trained to a wall or on espalier rails in a warm situation, the branches being slightly protected in winter.

There is no apparent reason why the culture of the almond should not be pursued to a profitable extent in the warm and favorable climate of some of the Southern States. Especially in the valley of the Ohio and Tennessee it would be likely to succeed admirably.

SOFT-SHELL SWEET ALMOND.

Doux à coque tendre.

Sultan à coque tendre.

Amandier à coque tendre.

————— des Dames.

Amandier des Dames, ou

Amande Princesse.

Ladies' Thin Shell.

The Soft-shell or Ladies' Almond is the finest of all the Almonds. It is the very variety common in the shops of the confectioners, with a shell so thin as to be easily crushed between the fingers, and the kernel of which is so highly esteemed at the dessert. It ripens early in the season, and is also highly esteemed in a young or fresh state, being served on the table for this purpose about the middle of July in Paris. The blossoms of this variety expand at the same time with the leaves, and are more deeply tinged with red than the foregoing. Several varieties are made of this in France, but they are (as quoted above) all essentially the same fruit.

Fruit two inches long, oval, compressed. The nut is more than an inch long, oval, pointed, one-sided, with a light-colored, porous, very tender shell. The kernel sweet and rich.

On the plum stock, in a favorable aspect, this Almond succeeds, with a little care, in the Middle States.

ORNAMENTAL VARIETIES. The *Dwarf Double Flowering Almond* (*Amygdalus pumila*, Lin. *Prunus sinensis* of some) is a beautiful well-known low shrub, extremely ornamental in spring, being covered with a profusion of small pink blossoms, very double. There is also a Double White, similar in habit of growth.

The Large Double Flowering Almond (*A. à grande fleur*, *N. Duk.*) (*A. communis pleno*) is a beautiful French variety, with large nearly white flowers, two inches in diameter. It also bears a good small hard-shell Almond.

CHAPTER XI.

THE APRICOT.

Armeniaca vulgaris, Dec. *Rosaceæ* of botanists.

Abricotier of the French; *Aprikosenbaum*, German; *Albercoco*, Italian; *Albaricoque*, Spanish.

THE Apricot is one of the most beautiful of stone fruit-trees, easily known by its glossy *heart-shaped* foliage, large white blossoms, and smooth-skinned golden or ruddy fruit. In the fruit-garden it is a highly attractive object in early spring, as its charming flowers are the first to expand. It forms a fine spreading tree of about twenty feet in height, and is hardy enough to bear as an open standard south of the 42d degree of latitude in this country.

The native countries of this tree are Armenia, Arabia, and the higher regions of Central Asia. It is largely cultivated in China and Japan; and, indeed, according to the accounts of Grosier, the mountains west of Peking are covered with a natural growth of apricots. The names by which it is known in various European countries all seem to be corruptions of the original Arabic term *Berkoche*.

Uses. A very handsome and delicious dessert fruit, only inferior to the peach, ripening about midsummer, after cherries and before plums, at a season when it is peculiarly acceptable. For preserving in sugar or brandy, for jellies or pastries, it is highly esteemed, and, where it is abundant, an admirable liquor is made from the fruit; and it is also dried for winter use. In some parts of Germany, the free-bearing sorts—the Turkey, Orange, and Breda—are largely cultivated for this purpose.

Cultivation. This tree is almost always budded on the plum stock (on which in July it takes readily), as it is found more hardy and durable than upon its own root. Many nurserymen bud the apricot on the peach, but the trees so produced are of a very inferior quality—short-lived, more liable to diseases, and the fruit of a second-rate flavor. Budded on

the plum they are well adapted to strong soils, in which they always hold their fruit better than in light sandy soils.

Apricots generally grow very thriftily, and soon make fine heads, and produce an abundance of blossoms and young fruit; but the crop of the latter frequently falls off when half grown, from being stung by the plum weevil or curculio, to which the smooth skin of this fruit seems highly attractive. To remedy this the same course must be pursued as is directed for the plum. Seedling apricots are usually more hardy and productive here than the finer grafted sorts.

This is a favorite tree for training on walls or espaliers, and, in town gardens especially, we often see it trained against the sides of brick houses, and yielding most abundantly. As it bears its fruit in the same way as the peach, and requires the same management, we must refer our readers to the latter head for directions as to pruning and training. As the apricot, however, expands its blossoms very early, it should not be placed on an east wall, or in a situation where it is too much exposed to the full morning sun.

Diseases. When budded on the plum, this tree is but little liable to diseases, and may be considered a hardy fruit-tree. In order to render it fruitful, and keep it for a long time in a productive state, we cannot too strongly urge the advantages of the *shortening-in* system of pruning recommended for the peach.

BREDA.

De Hollande.
Hasselnussmandel.

Amande Aveline.
Ananas.

Persique.

This is a very excellent small Apricot, said to be originally from Africa, which bears well with common culture, and deserves a place in all gardens, as it is not only a high-flavored dessert sort, but it makes one of the richest preserves. The blossom buds are tinged with deep red before they expand.

Fruit rather small, about an inch and a half in diameter, roundish, sometimes rather four-sided. Suture well marked. Skin orange, becoming dark orange in the sun. Flesh deep orange, rich, high-flavored, and rather juicy—separating freely from the stone. The kernel, which is sweet, is eaten in France, whence the name *Amande Aveline*. First of August.

EARLY GOLDEN.

Dubois' Early Golden.

Origin unknown. Introduced by Charles Dubois, Fishkill Landing, N. Y. Tree vigorous, with long, rather slender branches.

Fruit small, roundish oval, with the suture well marked, and extending half-way round. Skin smooth, pale orange. Flesh yellow, moderately juicy and sweet, with a very good flavor—separates from the stone. Middle of July.

EARLY MOORPARK.

A variety much resembling the Moorpark, but ripening some weeks earlier.

Fruit roundish, inclining to oval, deep suture on one side, extending from the base to the apex. Skin yellow, mottled and dotted with crimson on the exposed side. Flesh in all respects resembling that of the Moorpark. Stone oblong, with a covered channel along the back, which is pervious. Kernel bitter.

GOLDEN DROP.

This new Apricot is described by Rivers as having been raised from seed of the Musch-Musch, and is about the size of an Orleans Plum, bright orange and crimson. Flesh melting, with a delicious pine flavor. Ripe middle July.

HEMSKIRKE.

A large and beautiful English variety, of the finest quality. It strongly resembles the Moorpark, from which it is known by its stone not being perforated like that variety. It also ripens a little earlier.

Fruit large, roundish, but considerably compressed or flattened on its sides. Skin orange, with a red cheek. Flesh bright orange, tender, rather more juicy and sprightly than the Moorpark, with a rich and luscious plum-like flavor. Stone rather small, and kernel bitter. End of July.

KAISHA.

A variety from Syria, of high reputation abroad, but we have found the tree tender and unhealthy.

Fruit medium, roundish, with a deep suture toward the stalk, pale yellow, mottled and tinged with red in the sun. Flesh tender, juicy, pale yellowish, parting freely from the stone, sugary, high-flavored. Stone small, roundish. Kernel sweet. July and first of August.

LARGE EARLY.

Gros Précoce.	De St. Jean.	Précoce d'Esperin.
Gros d'Alexandrie.	Gros Fruhe.	———— d'Hongrie.
	De St. Jean Rouge.	

A fine large, early variety from France, of vigorous growth, and one of the best of the early sorts.

Fruit of medium size, rather oblong, and compressed. Suture deep. Skin slightly downy, pale orange in the shade, fine bright orange with a few ruddy spots in the sun. Flesh separating readily from the stone; orange-colored, rich, and juicy. Kernel bitter. Middle of July.

MOORPARK.

Anson's.	Oldaker's Moorpark.	Dunmore.
Walton Moorpark.	Dunmore's Breda.	Temple's.
Sudlow's Moorpark.	De Nancy.	Hunt's Moorpark.

This fine variety is the most popular and widely disseminated in this country, except the Breda. It has its name from Moorpark, the seat of Sir William Temple, in England, where it was cultivated more than one hundred and forty years ago. It is only a moderate bearer here, and especially requires the shortening-in mode of pruning, as recommended for the peach.

Fruit large, roundish, about two inches and a quarter in diameter each way, on a standard tree; rather larger on one side of the suture than the other. Skin orange in the shade, but deep orange or brownish red in the sun, marked with numerous dark specks and dots. Flesh quite firm, bright orange, parting free from the stone, quite juicy, with a rich and luscious flavor. Stone peculiarly *perforated* along the back, where a pin may be pushed through nearly from one end to the other. Kernel bitter. Ripe early in August.

MUSCH-MUSCH.

D'Alexandrie.

This delicious little Apricot takes its name from the city of Musch, on the frontiers of Turkey in Asia; but it is also common about Alexandria, and in Northern Egypt it is said to be raised in such abundance that the dried fruit is an article of commerce. The tree is rather delicate, and requires a sheltered position.

Fruit rather small, about an inch and a half in diameter, round. Skin deep yellow, with a little orange red on the sunny side. Flesh yellow, with a *translucent pulp*, tender, melting, and very sweet. Kernel sweet.

PEACH.

Anson's Imperial.	Royal Peach.	Pêche.
Abricot Pêche.	De Nancy.	Du Luxembourg.
Pêche Grosse.	Wurtemberg.	Pfirsiche.

The Peach Apricot, originally from Piedmont, has long been considered the finest variety; and it is with us the largest and most excellent sort cultivated—being often as large as a Peach—of medium size, handsome, and of delicious flavor. It very strongly resembles the Moorpark, but the two are readily distinguished by the eye when standing near each other, and the fruit of the Peach is rather larger and finer, and a few days earlier.

Fruit of the largest size, about two and a half inches in diameter, roundish, rather flattened, and somewhat compressed on its sides, with a well-marked suture. Skin yellow in the shade, but deep orange, mottled with dark brown, on the sunny side. Flesh of a fine yellow saffron color, juicy, rich, and high-flavored. Stone with the same pervious passage as the Moorpark, and with a bitter kernel.

ROMAN.

Apricot Commun.	Germine.
Goose Germine.	Transparent.

This is with us one of the largest growing and hardiest Apricot trees, and produces good crops every year in cold or unfavorable situations, where none of the other sorts except the Masculine succeed. It is therefore, though inferior in flavor, a valuable sort for northern situations. The blossoms will bear quite a severe frost without injury.

Fruit middle-sized, oblong, with the sides slightly compressed, with but little or no suture. Skin entirely pale yellow, or very rarely dotted with a few red spots on one side. Flesh dull yellow, soft, rather dry. When ripened by keeping a few days in the house, the flavor is tolerably good. Stone oblong, with a bitter kernel. Ripe the last of July and first of August.

There is a *BLOTCHED-LEAVED ROMAN* (*commun à feuilles panachés*, of the French), precisely like the foregoing in all respects, except the white or yellow stain in the leaf—but it is quite distinct from the blotched-leaved Turkey, cultivated here.

ROYAL.

A fine large French variety, raised a few years since at the Royal Luxembourg Gardens. It is nearly as large as the

Moorpark, but with larger leaves borne on long footstalks, and without the pervious stone of that sort. It is quite as high flavored, and ripens a week or ten days earlier.

Fruit roundish, large oval, slightly compressed. Skin dull yellow, with an orange cheek, very faintly tinged with red, and a shallow suture. Flesh pale orange, firm and juicy, with a rich vinous flavor. Ripe the latter end of July.

Curious or ornamental varieties. The BRIANÇON APRICOT (*A. brigantiaca*, Dec.), a very distinct species, so much resembling a plum as to be called the Briançon Plum by many authors (*Prune de Briançon*, Poit.), is a small irregular tree or shrub, ten or twelve feet high, a native of the Alps. It bears a great abundance of small, round, yellow, plum-like fruit in clusters, which are scarcely eatable; but in France and Piedmont the kernels of this variety make the "huile de marmotte," which is worth double the price of the olive oil.

THE DOUBLE-FLOWERING APRICOT is a pretty ornamental tree, yet rare with us.

Selection of Apricots for a small garden. Large Early, Breda, Peach, Moorpark.

Selection for a cold or northern climate. Red Masculine, Roman, Breda.

CHAPTER XII.

THE BERBERRY.

Barberis vulgaris, L. *Berberaceæ*, of botanists.
Épine-vinette, of the French; *Berberitzen*, German; *Berbero*, Italian;
Berberis, Spanish.

THE Berberry (or barberry) is a common prickly shrub, from eight to ten feet high, which grows wild in both hemispheres, and is particularly abundant in many parts of New England. The flowers, the roots, and the inner wood are of the brightest yellow color, and the small crimson fruit is borne in clusters. It is a popular but fallacious notion, entertained both here and in England, that the vicinity of this plant, in any quantity, to grain fields, causes the rust.

The barberry is too acid to eat, but it makes an agreeable preserve and jelly, and an ornamental pickle for garnishing some dishes. From the seedless sort is made in Rouen a celebrated sweetmeat, *confiture d'épine-vinette*. The interior bark is used in France for dyeing silk and cotton a bright yellow.

CULTURE. The culture is of the easiest description. A rich light soil gives the largest fruit. It is easily propagated by seed, layers, or suckers. When the fine fruit of the blackberry is desired, it should be kept trained to a single stem—as the suckers which it is liable to produce frequently render it barren, or make the fruit small.

COMMON RED.

This is too well known to need description. In good soils it grows twelve or fifteen feet high, and its numerous clusters of bright oval berries are very ornamental in autumn. There is a Large Red variety of this, which is only a variation produced by cultivation in rich soil. There are also varieties of this in Europe with pale yellow, white, and purple fruit, which are not yet introduced into this country, and which scarcely differ in any other respect than the color. And there is a so-called *sweet* variety of the common Blackberry from Austria (*B. v. dulcis*), but it is scarcely less acid than the common.

A variety with purple foliage differs but little in the fruit, which is perhaps not quite as fleshy, but the foliage is extremely ornamental.

THE BLACKBERRY.

THERE are several species of the Bramble indigenous to this country, which produce eatable fruit, but the best for the table, or for cooking, are the Low Blackberry, a trailing shrub, and the following varieties of the High Blackberry.

The fruit is larger than that of the Raspberry, with fewer and larger grains, and a brisker flavor. It ripens about the last of July or early in August, after the former is past, and is much used by all classes in this country. There is no doubt that varieties of much larger size, and greatly superior flavor, might be produced by sowing the seeds in rich garden soil, especially if repeated for two or three successive generations.

USES.—The Blackberry is more generally cultivated of late years than formerly, and is considerably grown in the garden for family use, for the dessert, and for culinary purposes, such as canning, making tarts, preserves, jellies, jams, and wines for home uses. It is also quite largely cultivated in some localities for the market.

PROPAGATION.—The Blackberry is usually propagated by

suckers or offsets, springing up from the main roots. It may also be grown from pieces of the roots, from two to three inches long, and planted in a light sandy soil early in the spring, covered about one inch deep, and a slight coat of light mulch added to prevent the earth from drying or baking. In the fall, when the plants have done growing and well ripened, the pieces of roots should be put into a box of sufficient size to hold as many as are wanted for planting, and a few holes bored in the bottom for drainage; an inch of light moist (not wet) soil put on over this, then a layer of roots, and so on alternately until the box is filled. Then a hole dug in a dry part of the garden, the box sunk level with the surface, and covered sufficiently deep to keep out the frost, rounding up the earth to carry off the water.

SOIL AND CULTURE.—The Blackberry does not require so rich a soil as the Strawberry and Raspberry, but rather dry than very moist or wet, because they are large, coarse-growing plants; and if the soil is too rich the canes will grow large and succulent, and will not be so hardy nor productive as those of a moderate growth. The suckers or canes should be planted in rows eight feet apart, and from three to four feet in the rows—a single plant at each place is sufficient; and as the canes grow they should be tied to stout stakes, or trained to a trellis made with posts and wire. It is also a good plan, and perhaps the best one, especially for field culture, when the young growing plants have attained the height of four or five feet, to pinch out the terminal bud, which causes side shoots to be thrown out, and makes the plants more stocky and hardier; these lateral shoots should be shortened in the coming spring to within eighteen inches of the main stalk. If more suckers spring up than are needed for the coming season, they should be dug up as soon as they appear. All the old bearing canes should be cut out annually, and soon after they have done bearing.

DORCHESTER.

Introduced to notice by the late Capt. Lovett, of Beverly, Mass. Nearly equal in size to New Rochelle, of a more elongated form, earlier grains rather smaller, somewhat sweeter, and producing large crops of high-flavored fruit, a vigorous grower.

Fruit large, oblong conic, sometimes measuring an inch and a quarter in length, of a deep shining black. The berries should be fully matured before they are gathered; it bears carriage well. Ripens about the first of August.

KITTATINNY.

A native wilding from the Kittatinny Mountains, Warren Co., N. J. It has within a few years become widely disseminated, and everywhere proves of the highest value. Canes quite hardy, and very productive; ripening early, and continuing a long time.

Fruit large to very large, roundish conical, rich glossy black, moderately firm, juicy, rich, sweet, excellent.

LOW BLACKBERRY.

Trailing Blackberry. Dewberry. *Rubus Canadensis*.

A low, trailing, prickly shrub, producing large white blossoms in May, and very large roundish oblong black fruit in midsummer. Leaflets from three to five in number. The fruit, when in good soil and fully exposed to the sun, is high-flavored, sweet, and excellent.

NEW ROCHELLE.

Seacor's Mammoth.

Lawton.

This remarkable variety was found by Lewis A. Seacor, in its native wildness by the roadside, in the town of New Rochelle, Westchester Co., N. Y. It is of very vigorous growth, with strong spines which belong to the bramble, is hardy and exceedingly productive.

Fruit very large, oval, and, when fully ripe, intensely black. When mature the fruit is very juicy, rather soft and tender, with a sweet, excellent flavor; when gathered too early it is acid and insipid. The granules are larger, consequently the fruit is less seedy than any other variety. Ripens about the first of August, and continues in use five or six weeks.

CHAPTER XIII.

THE CHERRY.

Cerasus sylvestris, and *C. vulgaris*, Arb. Brit.

Rosaceæ, of botanists. *Cerisier*, of the French; *Kirschenbaum*, German; *Ciriego*, Italian; *Cerezo*, Spanish.

THE Cherry is a fine, luxuriant fruit-tree, with smooth, light-colored bark, and generally of rapid growth. The varieties of the black and heart-shaped cherries are always vig-

orous, and form fine large spreading heads, forty or fifty feet in height; but those of the acid or red cherry are of lower, more bushy, and tardy growth. In the spring the cherry-tree is profusely covered with clusters of snow-white blossoms, and earlier in summer than upon any other tree; these are followed by abundant crops of juicy, sweet, or acid fruit, hanging upon long stalks, and enclosing a smooth stone.

The Cherry comes originally from Asia, and the Roman general, Lucullus, after a victorious expedition into Pontus, has the reputation of having brought it to Italy from *Cerasus*, a town in that province, in the year 69 B.C. According to Pliny, the Romans, 100 years after this, had eight varieties in cultivation, and they were soon afterwards carried to all parts of Europe. The seeds of the cultivated cherry were brought to this country very early after its settlement, both from England and Holland.

USES. As a pleasant and refreshing dessert fruit, the cherry is everywhere highly esteemed. The early season at which it ripens, its juiciness, delicacy, and richness, render it always acceptable. While the large and fleshy varieties are exceedingly sweet and luscious, others which are more tender, and more or less acid, are very valuable for pies, tarts, and various kinds of cookery. The fruit of the Kentish or Early Richmond is excellent when stoned and dried, and the Mazzard, and our wild Virginia cherries, are used to give a flavor to brandy. When canned they retain their character and are very delicious. The Dukes or Morellos are best for the purpose.

The celebrated German *Kirschwasser* is made by distilling the liquor of the common black mazzard or gean (in which the stones are ground and broken, and fermented with the pulp), and the delicious *Ratafia* cordial of Grenoble is also made from this fruit. *Maraschino*, the most celebrated liqueur of Italy, is distilled from a small gean or mazzard, with which, in fermenting, honey and the leaves and kernels of the fruit are mixed.

The gum of the Cherry is nearly identical with gum arabic, and there are some marvellous stories told of its nutritive properties. The wood of the cherry is hard and durable, and is therefore valuable for many purposes; but the best wood is afforded by our common wild or Virginia cherry, which is a very good substitute for mahogany, taking a fine polish.

The larger growing sorts of black cherry are the finest of all fruit-trees for shade, and are, therefore, generally chosen by farmers, who are always desirous of combining the useful and the ornamental. Indeed, the Cherry, from its symmetrical form, its rapid growth, its fine shade, and beautiful blos-

soms, is exceedingly well suited for a roadside tree in agricultural districts. We wish we could induce the planting of avenues of this and other fine-growing fruit-trees in our country neighborhoods, as is the beautiful custom in Germany, affording ornament and a grateful shade and refreshment to the traveller at the same moment. Mr. Loudon, in his *Arboretum*, gives the following account of the cherry avenues in Germany, which we gladly lay before our readers:—

“On the Continent, and more especially in Germany and Switzerland, the cherry is much used as a roadside tree; particularly in the northern parts of Germany, where the apple and pear will not thrive. In some countries the road passes for many miles together through an avenue of cherry-trees. In Moravia, the road from Brunn to Olmutz passes through such an avenue, extending upwards of sixty miles in length; and in the autumn of 1828 we travelled for several days through almost one continuous avenue of cherry-trees, from Strasburg by a circuitous route to Munich. These avenues, in Germany, are planted by the desire of the respective governments not only for shading the traveller, but in order that the poor pedestrian may obtain refreshment on his journey. All persons are allowed to partake of the cherries, on condition of not injuring the trees; but the main crop of the cherries, when ripe, is gathered by the respective proprietors of the land on which it grows; and when these are anxious to preserve the fruit of any particular tree, it is, as it were, tabooed; that is, a wisp of straw is tied in a conspicuous part to one of the branches, as vines by the roadsides in France, when the grapes are ripe, are protected by sprinkling a plant here and there with a mixture of lime and water, which marks the leaves with conspicuous white blotches. Every one who has travelled on the Continent in the fruit season, must have observed the respect that is paid to these appropriating marks; and there is something highly gratifying in this, and in the humane feeling displayed by the princes of the different countries in causing the trees to be planted. It would indeed be lamentable if kind treatment did not produce a corresponding return.”

SOIL AND SITUATION. A *dry* soil for the cherry is the universal maxim, and although it is so hardy a tree that it will thrive in a great variety of soils, yet a good sandy or gravelly loam is its favorite place. It will indeed grow in much thinner and dryer soils than most other fruit-trees, but to obtain the finest fruit a deep and mellow soil, of good quality, is desirable. When it is forced to grow in wet places, or where the roots are constantly damp, it soon

decays and is very short-lived. And we have seen this tree, when forced into too luxuriant a growth in our over-rich Western soils, become so gross in its wood as to bear little or no fruit, and split open in its trunk, and soon perish. It is a very hardy tree, and will bear a great variety of exposures without injury. In deep warm valleys, liable to spring frosts, it is, however, well to plant it on the north sides of hills, in order to retard it in the spring.

PROPAGATION. The finer sorts are nearly always propagated by budding on seedlings of the common black mazzard, which is a very common kind, producing a great abundance of fruit, and very healthy, free-growing stocks. To raise these stocks, the cherries should be gathered when fully ripe, and allowed to lie two or three days together, so that they may be partially or wholly freed from the pulp by washing them in water. They should then be planted immediately in drills in the seed-plot, covering them about an inch deep. They will then vegetate in the following spring, and in good soil will be fit for planting out in the nursery rows in the autumn or following spring, at a distance of ten or twelve inches apart in the row. Many persons preserve their cherry-stones in sand, either in the cellar or in the open air, until spring, but we have found this a more precarious mode; the cherry being one of the most delicate of seeds when it commences to vegetate, its vitality is frequently destroyed by leaving it in the sand twenty-four hours too long, or after it has commenced sprouting.

After planting in the nursery rows, the seedlings are generally fit for budding in the month of August following. And in order not to have weak stocks overpowered by vigorous ones, they should always be assorted before they are planted, placing those of the same size in rows together. Nearly all the cherries are grown with us as standards. The English nurserymen usually bud their standard cherries as high as they wish them to form heads, but we always prefer to bud them on quite young stocks, as near the ground as possible, as they then shoot up clean, straight, smooth stems, showing no clumsy joint where the bud and the stock are united. In good soils the buds will frequently make shoots, six or eight feet high, the first season after the stock is headed back. Grafting of the cherry may be performed the same as with the apple and pear, but the work, to be successful, should always be performed early in the season, before the frost is well out of the ground. If omitted until the buds begin to swell strongly, the chances for success are less than those of failure.

When dwarf trees are required, the *Morello* seedlings are

used as stocks, or the Perfumed Cherry (*Cerasus Mahaleb*) is employed; but as standards are almost universally preferred, these are seldom seen here. Dwarfs in the nursery must be headed back the second year, in order to form lateral shoots near the ground.

CULTIVATION. The cherry, as a standard tree, may be said to require little or no cultivation in the Middle States, further than occasionally supplying old trees with a little manure to keep up their vigor, pruning out a dead or crossing branch, and washing the stem with soft soap should it become hard and bark-bound. Pruning, the cherry very little needs, and as it is always likely to produce gum (and thus decay), it should be avoided, except when really required. It should then be done in *midsummer*, as that is the only season when the gum is not more or less exuded. The cherry is not a very long-lived tree, but in favorable soil the finest varieties generally endure about thirty or forty years. In the County of Perry, Ohio, there is a tree of the Black Mazzard variety which is eighty feet in height, and four feet one inch in diameter of main trunk, while the length of the largest limb or branch is forty-two feet.

A large cherry-tree at Walworth, N. Y., is recorded as measuring fourteen feet six inches in circumference, sixty feet in height, and having a spread of over four rods. It has produced forty bushels of fruit in one season.

Twenty feet apart for the strong, and eighteen feet for the slow-growing kinds, is the proper distance for this tree.

TRAINING THE CHERRY is very little practised in the United States. The Heart and Bigarreau Cherries are usually trained in the horizontal manner, explained in *pages 44, 45*. When the wall or espalier is once filled, as there directed, with lateral branches, it is only necessary to cut off, twice every season—in the months of May and July—all additional shoots to within an inch or so of the branch from which they grew. As the trees grow older, these fruit-spurs will advance in length, but by cutting them out whenever they exceed four or five inches, new ones will be produced, and the tree will continue to keep its proper shape and yield excellent fruit. The Morello Cherries, being weaker growing sorts, are trained in the fan manner (*pages 42, 43*).

GATHERING THE FRUIT. This tender and juicy fruit is best when freshly gathered from the tree, and it should always be picked with the stalks attached. For the dessert, the flavor of many sorts in our climate is rendered more delicious by placing the fruit, for an hour or two previous, in an ice-house or refrigerator, and bringing them upon the table cool, with dew-drops standing upon them. For market

or transportation long distances, they should be gathered only when perfectly dry.

VARIETIES. Since the first publication of this work was written, the number of varieties has greatly increased, and become so hybridized that no distinct line can now be drawn separating many of the Heart Cherries (tender and half tender) from the firm-fleshed or Bigarreau varieties, each class insensibly approaching and intermingling with the other. We have therefore made but one class of these, whose main characteristic is the large, vigorous growth of the trees. The Duke and Morello Cherries, also wanting a natural division, we make to constitute another class, and in these two have comprised all the cherries.

CLASS I.

BIGARREAU AND HEART CHERRIES.

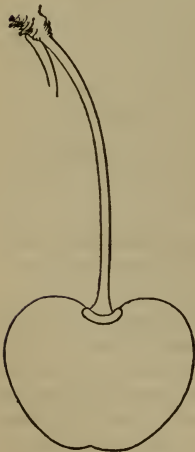
BAUMANN'S MAY.

Bigarreau de Mai.

Wilder's Bigarreau de Mai.

Of foreign origin. A very productive, early variety, of vigorous growth, of good quality, but not equal to E. P. Guigne.

Fruit rather small, oval heart-shaped, and rather angular in outline. Skin deep rich red, becoming rather dark when fully ripe. Stalk an inch and three-fourths long, pretty stout at either end, and set in a very narrow and rather irregular cavity. Flesh purplish, tender, juicy, and when fully ripe, tolerably sweet and good. Ripens here the 20th of May.



Belle d'Orleans.

BELLE D'ORLEANS.

A foreign variety, ripening just after the Early Purple Guigne. Tree a vigorous grower, spreading habit, productive, and a valuable addition to the early kinds.

Fruit above medium size, roundish heart-shaped. Color whitish yellow, half covered with pale red. Flesh tender, very juicy, sweet, and excellent. Ripens early in June

BIGARREAU.

Graffion.
 White Bigarreau.
 Turkey Bigarreau?
 Italian Heart.
 West's White Heart.
 Groote Princess.
 Prinzessin Kirsche.

Yellow Spanish.
 Amber, or Imperial.
 Bigarreau Royal.
 Bigarreau Gros?
 Bigarreau Tardif.
 Hollandische Grosse.
 Cerise Ambrée.

This noble fruit is unquestionably one of the largest, most beautiful, and delicious of Cherries. It was introduced into this country about the year 1800, by the late William Prince, of Flushing, and has been very extensively disseminated under the names of Yellow Spanish, Graffion, and Bigarreau. The tree is short, but thrifty in growth, making strong lateral shoots, and forming a large and handsome head with spreading branches.

Fruit very large, and of a beautiful waxen appearance, regularly formed, obtuse heart-shaped, the base a good deal flattened. Stalk stout, nearly two inches long, inserted in a wide hollow. Skin pale whitish yellow on the shaded side, bordered with minute carmine dots, and deepening into bright red, finely marbled on the sunny side. Flesh pale yellow, quite firm, juicy, with a rich, sweet, and delicious flavor if allowed fully to ripen. In perfection the last of June.



Bigarreau.

BIGARREAU GROS CŒURET.

Large Heart-shaped Bigarreau.	Bigarreau Gros Monstrueux.
Bigarreau Cœur de Pigeon.	Bigarreau Marcellin.
Gros Cœuret.	

This, the true Large Heart-shaped Bigarreau, is a French variety, only rarely seen in the fruit gardens of this country. Fruit large, roundish heart-shaped, with a suture line frequently raised, instead of being depressed. Skin at first yellowish red, marked with deeper red streaks, but becoming, when fully ripe, a dark shining red, almost black. Stalk inserted in a shallow hollow. Stone oval and rather large. Flesh firm, purplish, a little bitter at first, but of a sweet flavor when fully matured. Ripe first week in July.

BIGARREAU OF MEZEL.

Great Bigarreau?
Great Bigarreau of Mezel.
Bigarreau Gaubalais.

Large Red Prool?
Monstrous de Mezel.

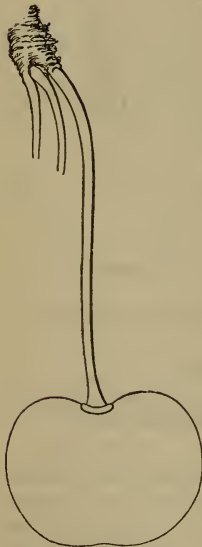
A foreign variety of the largest size, and, so far as we can judge, identical with Great Bigarreau and Large Red Prool. This is however doubted by some. The tree is a very vigorous grower, forming a wide-spreading open head, bearing its fruit on spurs along the limbs or branches.

Fruit very large, obtuse heart-shaped. Surface uneven, dark red, or quite black at maturity. Stalk long and slender. Flesh firm and juicy, but not high-flavored. Ripe last of June and beginning of July.

BLACK EAGLE.

A very excellent English variety, raised by the daughter of Mr. Knight, at Downton Castle, in 1806, from the seed of the Bigarreau fertilized by the Mayduke. It ripens at the beginning of July, or a few days later than the Black Tartarian.

Fruit rather above medium size, borne in pairs and threes, obtuse heart-shaped. Skin deep purple, or nearly black. Stalk of medium length, and rather slender. Flesh deep purple, tender, with a rich, high-flavored juice, superior to the Black Heart. Branches strong, with large leaves. Moderate bearer.



Black Eagle.

BLACK HAWK.

Originated with Dr. J. P. Kirtland, Cleveland, Ohio. The tree is of healthy, vigorous, spreading habit, with much of the general character of Yellow Spanish. As a table fruit, its high flavor will always commend it; while as a market fruit, its size and productive habit of tree place it among the very best.

Fruit large, heart-shape, often obtuse. Sides compressed. Surface uneven. Color dark purplish black, glossy. Flesh dark purple, half tender, almost firm, juicy, rich, sweet, fine flavor. Season from 20th June to 1st July.

BLACK TARTARIAN.

Tartarian.	Fraser's Black Heart.
Black Circassian.	Schwarze Herz Kirsche.
Ronald's Heart.	Circassian.
Fraser's Tartarische.	Ronald's Large Black Heart.
Bishop's Large.	Fraser's Black.
Fraser's Black Tartarian.	Black Russian.
Superb Circassian.	Double Heart.

This superb fruit has become a general favorite in all our gardens; and in size, flavor, and productiveness it has no superior among black cherries. It is a Russian and West Asian variety, introduced into England about 1796, and brought thence to this country. It is remarkable for its rapid, vigorous growth, large leaves, and the erect habit of its head. The fruit ripens about the middle of June, a few days after the Mayduke.

Fruit of the largest size, heart-shaped (sometimes rather obtuse), irregular and uneven on the surface. Skin glossy, bright purplish black. Flesh purplish, thick (the stone being quite small), half-tender, and juicy. Flesh very rich and delicious.

CAROLINE.

One of Prof. J. P. Kirtland's originating. Tree a vigorous, somewhat upright spreading habit, very productive, and an exceedingly delicious fruit for the dessert.

Fruit above medium, round oblong, one side compressed slightly. Color pale amber, mottled with clear light red, and when fully exposed to the sun becomes rich red. Flesh very tender, juicy, sweet, and delicate. Very good or best. Season last of June.

CHAMPAGNE.

Originated at Newburgh, N. Y. Tree of moderate growth, and forms a round head.

Fruit of medium size, roundish heart-shaped. Color lively brick red, inclining to pink, a little paler on the shaded side. Stalk of moderate length and size, inserted in a rather flat



Black Tartarian.

shallow depression. Flesh amber-colored, of a lively rich flavor, a mingling of sugar and acid, something between Downer's Late and a Duke cherry, a good bearer, and ripens uniformly and hangs some time on the tree. Very good. Season last of June.

COCKLIN'S FAVORITE.

Late Amber.

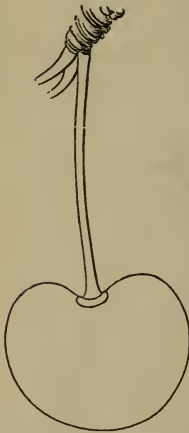
Origin unknown. Introduced by E. H. Cocklin, Shepherdstown, Pa. Tree upright, conical, vigorous, and exceedingly productive.

Fruit large, roundish, regular, a little compressed, somewhat flattened at base, almost without suture. Apex sunk. Skin yellowish shaded, and somewhat mottled in the sun with light crimson. Stalk long and slender, in a deep smooth cavity. Flesh tender, juicy, sweet, vinous. Very good. Stone very small. Ripens a little later than Downer's Red.

COE'S TRANSPARENT.

Originated with Curtis Coe, of Middletown, Conn. A productive and valuable addition to the amateur's collection, but rather too tender for carriage to market. Tree vigorous and hardy, with a round and somewhat spreading head.

Fruit of medium size, remarkably round and regular in form. Skin thin, wax-like, of a very delicate pale amber, nearly covered with pale cornelian red in the sun, and marked with delicate pale spots or blotches, which give it a unique appearance. Stalk set in a deep depression of moderate depth. Flesh very tender, melting, and juicy, with a delicate but sweet and excellent flavor. Best. Ripens just before Black Tartarian.



Coe's Transparent.

DELICATE.

Raised by Prof. J. P. Kirtland, Cleveland, O. Tree thrifty, rather spreading habit, productive, and its beautiful appearance and delicate flavor will make it a favorite for family use.

Fruit rather above medium size, roundish, slightly depressed. Stem medium length, in a rather broad deep cavity.

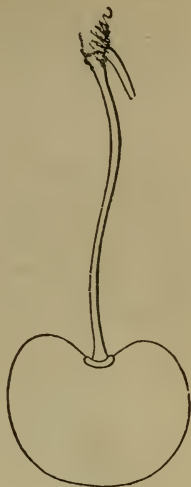
Color fine amber yellow in the shade, with a rich bright red on the sunny side. Flesh tender, juicy, sweet, with a delicate rich flavor. Best. Ripens the last of June.

DOCTOR.

The Doctor.

Tree a free grower, somewhat spreading, very productive, apt to be small unless well cultivated.

Fruit of medium size, roundish heart-shaped. Stalk of medium length, in a round regular cavity. Color light yellow, mostly shaded with bright red. Flesh tender, juicy, and pleasant. Very good. Ripens early in June.



Delicate.

DOWNER'S LATE.

Downer. 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.

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. Fruit borne thickly, in clusters. Flesh tender, melting, with a sweet and luscious flavor. Ripens from the 4th to the 10th of July.



Downer's Late.

DOWNTON.

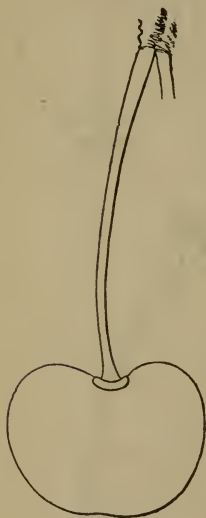
A variety raised by T. A. Knight, Esq., of Downton Castle, from the seed, it is believed, of the Elton. Tree having a round spreading head, moderately productive.

Fruit large, very blunt heart-shaped, nearly roundish. Stalk one and a half to two inches long, slender, set in a pretty deep, broad hollow. Skin pale cream color, semi-transparent, delicately stained on one side with red, and marbled with red dots. Flesh yellowish, without any red, tender, adhering slightly to the stone, with a delicious rich flavor. Very good. Last of June.

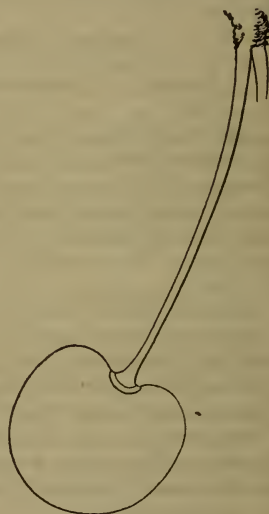
EARLY PURPLE GUIGNE.

German Mayduke. Early Purple Griotte. Trempe Précoce.

Origin unknown. An exceedingly early variety, ripening the last of May in favorable seasons. Tree hardy, free grower, spreading, somewhat pendent, and the leaves have longer petioles than most other sorts; a good bearer, and indispensable among the early varieties.



Downton.



Early Purple Guigne.

Fruit medium size, roundish heart-shaped. Stem long, inserted in a rather shallow cavity. Suture indistinct. Skin smooth, dark red, becoming purple at maturity. Flesh purple, tender, juicy, with a rich and sweet flavor. Good to very good.

Has proved hardy at the West, and well adapted to that climate.

ELTON.

Bigarreau Couleur de Chair.	Bigarreau de Rocmont.
Flesh-colored Bigarreau.	Cœur de Pigeon.
Gros Bigarreau Couleur de Chair.	Belle de Rocmont?
Gros Bigarreau Blanc.	Elton Kirsche.
Bigarreau à Gros Fruit Blanc.	Elton's Bunte Knorpelkirsche.
Large Heart-shaped Bigarreau.	

The Elton, a seedling raised in 1806, by Mr. Knight, the late President of the London Horticultural Society, is certainly one of the first of Cherries in all respects. The trees grow very vigorously, and are readily known, when in foliage, by the unusually dark red color of the foot-stalks of the leaves.

Fruit large, rather pointed heart-shaped. Skin thin, shining, pale yellow on the shaded side, but with a cheek next the sun delicately mottled and streaked with bright red. Stalk long and slender. Flesh somewhat firm at first, but becoming nearly tender, juicy, with a very rich and luscious flavor, not surpassed by any large Cherry known. Ripens about the middle of June, or directly after the Mayduke.



Elton.

GOVERNOR WOOD.

Raised by Professor Kirtland, Cleveland, O. It deserves a place in every good collection. Tree vigorous, forming a round, regular head, very productive.

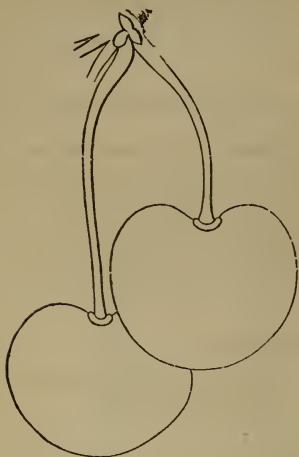
Fruit large, roundish heart-shaped. Skin light yellow, shaded and marbled with bright red. Suture half round. Stem an inch and a half long, in a broad cavity. Flesh nearly tender, juicy, sweet, rich, and delicious. Very good to best. Ripe about the middle of June.

HOVEY.

Originated with C. M. Hovey, Boston, Mass. Tree vigorous, upright spreading, productive.

Fruit large, heart-shaped, compressed on one side with a distinct line from apex to stalk. Stalk medium. Cavity

deep. Skin whitish yellow, shaded and mottled with rich shades of red. Flesh rather firm, juicy, sweet, pleasant. Very good. Middle of July.



Governor Wood.

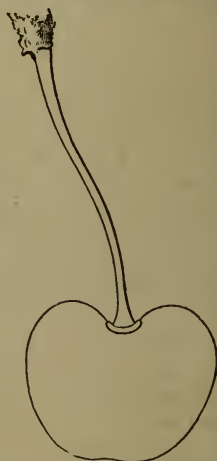


Hovey.

KIRTLAND'S MARY.

Raised by Prof. Kirtland. Tree a strong, upright grower, said to be one of the best of his seedlings, and desirable either for the dessert or market purposes.

Fruit large, roundish heart-shape, very regular. Color light and dark rich red, deeply marbled and mottled on a yellow ground; grown fully in the sun, is mostly a rich, dark glossy red. Flesh light yellow, quite firm, rich, juicy, sweet, and very high flavored. Very good or best. Season, last of June and first of July.



Knight's Early Black.

KNIGHT'S EARLY BLACK.

A most admirable early Cherry, resembling the Black Tartarian, though much more obtuse in form, but ripening nearly a week earlier. Tree spreading. Moderately productive.

Fruit large, a little irregular in outline obtuse, heart-shaped. Stalk of moderate length, rather stout, and inserted in a deep open cavity. Skin dark purple, becoming black. Flesh purple, tender, juicy, with a rich and sweet juice of high flavor.

LAURA.

Originated with Charles Pease, Sen., Cleveland, O. Tree spreading upright, productive.

Fruit medium to large, heart-shaped, globular, sometimes one-sided. Color pale yellow ground, mostly overspread with rich, bright red, without suture. Stem medium or short, in a shallow depression. Flesh peach-blow white, radiating lines wavy, juicy, sweet, very rich, and high flavor, excellent, half or nearly tender. Pit medium to small. Season early in June, but hangs well.

NAPOLEON BIGARREAU.

Bigarreau Laueremann.

Laueremann's Kirsche.

Laueremann's Grosse Kirsche.

Clarke's Bigarreau.

Laueremann's Herz Kirsche.

Holland Bigarreau ?

Clarke's Superb.

The Napoleon Bigarreau is large, well-flavored, handsome, and productive.

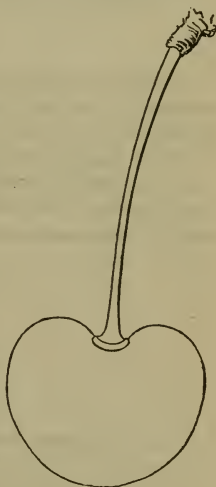
Fruit of the largest size, very regularly heart-shaped, a little inclining to oblong. Skin pale yellow, becoming amber in the shade, richly dotted and spotted with very deep red, and with a fine marbled dark crimson cheek. Flesh very firm (too much so), juicy, with an excellent flavor. Stalk very stout, short, and set in a narrow cavity. Ripens a few days after the Bigarreau, about the first of July, and is a good and constant bearer. Good. The fruit is not so obtuse as the Bigarreau.

Holland Bigarreau is so much like the above that we think it identical.

OHIO BEAUTY.

Originated by Prof. Kirtland. Tree a vigorous grower, with a rather spreading head, and has proved so far a productive, valuable kind.

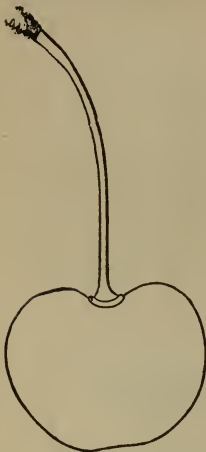
Fruit large, obtuse heart-shaped. Light ground, mostly covered with red. Flesh tender, brisk, juicy. Very good. Ripe about the middle of June.



Ohio Beauty.

OSCEOLA.

Originated with Prof. Kirtland. Moderate bearer and medium growth.



Osceola.

Fruit above medium, heart-shaped. Color fine dark red, approaching to black. Flesh juicy, tender, sweet, and excellent. Very good. Ripe last of June.

PONTIAC.

Originated with Prof. Kirtland. Tree vigorous, round headed, upright spreading. Very productive. Valuable either for table or market purposes.

Fruit large, obtuse heart-shaped. Sides compressed. Color dark purplish red, approaching to black when fully ripe. Flesh half tender, juicy, sweet, and agreeable. Very good. Season, last of June.

RED JACKET.

One of Prof. Kirtland's seedlings. A free-growing, rather spreading, late, and productive variety. Very profitable for market.

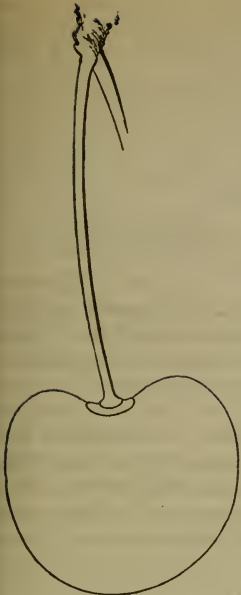
Fruit large, regular, obtuse heart-shaped. Color amber, mostly covered with light red. Flesh half tender, juicy, good but not rich flavor. Stalk long, slender, in a moderate basin. Ripe about the time of Downer's Red.

ROCKPORT.

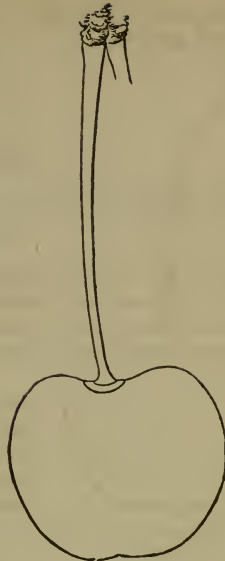
Rockport Bigarreau.

Raised by Dr. Kirtland, Cleveland, O. Tree vigorous, healthy, upright, forming a beautiful pyramidal head; a good bearer, and worthy of a place in every good collection.

Fruit large, roundish obtuse heart-shaped. Color, when fully ripe, a beautiful bright red, shaded with pale amber. Flesh rather firm, juicy, sweet, rich, with an excellent flavor. Very good or best. Ripens early in June, or just before Mayduke.



Red Jacket.



Rockport.

TOWNSEND.

Tree a strong, vigorous grower, productive, and promises well. Raised by W. P. Townsend, Lockport, N. Y.

Fruit large, obtuse heart-shaped, high-shouldered, compressed. Suture distinct. Apex depressed. Stem long, somewhat slender, set in a broad, rather deep depression. Color light amber, mottled and shaded with carmine. Flesh almost tender, juicy, rich, sprightly, refreshing flavor. Pit small. Very good. Ripe last of June.

TRADESCANT'S BLACK HEART.

Elkhorn.

Large Black Bigarreau.

Bigarreau Gros Noir.

Gross Schwarze Knoopel.

Elkhorn of Maryland.

Tradescant's.

Guigne Noir Tardive.

Kirsche mit Säftigem Fleisch.

It is a European variety, but a tree, growing about forty years since in the garden of an inn in Maryland, attracted the notice of the late Wm. Prince, who propagated it under the name of Elkhorn, by which it was there known. The bark is of a peculiarly gray color, and the growth quite vigorous.

Fruit large, heart-shaped, with a very irregular or uneven surface. Skin deep black, glossy (before fully ripe, deep purple, mottled with black). Stalk rather short, set in a pretty deep hollow. Flesh very solid and firm, dark purple, moderately juicy. Good. Ripe first and second week in July.

WHITE BIGARREAU.

White Ox-Heart.	Ox-Heart.	White Bigarreau.
Harrison Heart?	Large White Bigarreau.	Turkey Bigarreau.
	Bigarreau blanc?	

The White Bigarreau is inferior to the Bigarreau or Grafion in hardness, and in the circumstance that it is a very poor bearer while the tree is young, though it bears fine crops when it has arrived at from twelve to fifteen years' growth. Growth upright.

Fruit of the largest size, heart-shaped, with a rather irregular outline, and a pretty distinct suture line on one side. Skin yellowish white, overspread with marbling of red. Flesh firm, but scarcely so much so as that of the Bigarreau, and when fully ripe half tender, and more luscious than the latter Cherry. Good to very good. It is very liable to crack after rain. Middle and last of June.

CLASS II.

DUKE AND MORELLO CHERRIES.

ARCH DUKE.

Griotte de Portugal.	Late Arch Duke.
Portugal Duke.	Late Duke of some.

Tree rather more vigorous and upright than the Mayduke, hardy and prolific.

Fruit large, obtuse heart-shaped. Suture distinct on one side. Skin at first bright red, but becoming very dark when mature. Stalk an inch and a half long, slender, inserted in a rather deep open cavity. Flesh light red, melting, juicy, rich subacid flavor. Very good. Ripe the first and second weeks in July.

BELLE DE CHOISY.

Cerise Doucette.	Cerise de la Palembre.	Ambrée à Gros Fruit.
Ambrée de Choisy.	Schöne von Choisy.	Cerise à Noyau Tendre.

In our estimation, there is no Cherry for the dessert more delicious than the Belle de Choisy. It comes from the village of Choisy, near Paris, where it was raised in 1760. The habit of the tree is nearly that of the Mayduke, the leaves dark, and the head upright. It is hardy, a moderate bearer.

Fruit round or slightly depressed. Skin very thin and translucent, showing a net-like texture of flesh beneath; in color, pale amber in the shade, but in the sun finely mottled with yellowish red—the fruit fully exposed becoming a bright cornelian red. Flesh amber-colored, very tender and melting, of a delicate sweet flavor. Stalk rather short, swollen at the upper end. Best. Middle of June, or directly after the Mayduke.

BELLE MAGNIFIQUE.

Belle et Magnifique.	Magnifique de Sceaux.
Belle de Sceaux.	Belle de Chatenay.
	Planchoury?

Tree hardy, moderately vigorous, productive, a beautiful and excellent late variety. Useful for culinary purposes, and good table fruit when pretty ripe.

Fruit large, roundish, inclining to heart-shape. Stalk long, slender, in an open medium cavity. Skin a fine bright red. Flesh juicy, tender, with a sprightly subacid flavor, one of the best of its class. Ripe middle of July till the middle of August.



Belle Magnifique.

IMPÉRATRICE EUGÉNIE.

Empress Eugénie.

A French Cherry of the Duke family, rather dwarf in habit, shoots pretty stout, very productive.

Fruit large, roundish flattened. Skin rich dark red. Suture broad, shallow. Stalk rather short, in a deep cavity. Flesh reddish, tender, rich, juicy subacid. Very good. Stone small. Middle of June.

KENTISH.

Virginian May ?
 Early Richmond.
 Kentish Red.
 Commune.
 Muscat de Prague.
 Cherry Cluster } of Virginia.
 May Cluster }

Common Red.
 Pie Cherry.
 Montmorency.
 Montmorency à longue queue.
 Sussex.
 De Kalb.



Early Richmond.

The true Kentish Cherry, an old European sort, better known here as the Early Richmond, is one of the most valuable of the acid Cherries. It begins to color about the 20th of May, and may then be used for tarts, while it will hang upon the tree, gradually growing larger, and losing its acidity, until the last of June, or in dry seasons even until July, when it becomes of a rich, sprightly, and excellent acid flavor. The tree grows about eighteen feet high, with a roundish spreading head, is exceedingly productive, and is from its early maturity a very profitable market fruit, being largely planted for this purpose. This kind is remarkable for the tenacity with which the stone adheres to the stalk. Advantage is taken of this to draw out the stones. The fruit is then exposed to the sun, and becomes one of the most excellent of all dried fruits.

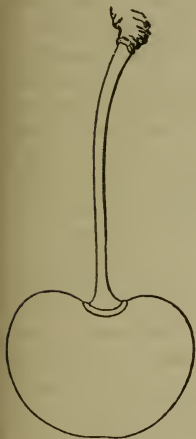
Fruit when it first reddens rather small, but when fully ripe, of medium size, round, or a little flattened; borne in pairs. Skin of a fine bright red, growing somewhat dark when fully ripe. Stalk an inch and a quarter long, rather stout, set in a pretty deep hollow. Flesh melting, juicy, and, at maturity, of a sprightly rather rich acid flavor. Very good.

LATE DUKE.

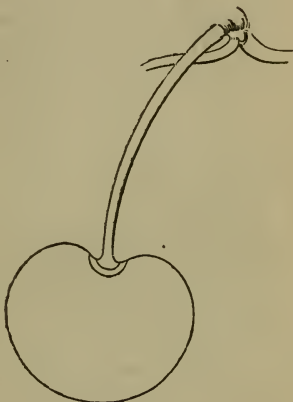
Anglaise Tardive.

A very large and fine Duke Cherry, ripening later than the Mayduke, and therefore a very valuable sort for the dessert or for cooking. The tree is of vigorous growth for its class.

Fruit large, flattened or obtuse heart-shaped. Color, when fully ripe, rich dark red (but at first white, mottled with bright red). Stalk rather slender, inserted in a shallow hollow. Flesh yellowish, tender, juicy, with a sprightly subacid flavor, not quite so sweet and rich as the Mayduke. Ripens gradually, and hangs on the tree from the middle of July till the 10th of August.



Late Duke.



Louis Philippe.

LOUIS PHILIPPE.

From France. Tree upright spreading, habit between the Dukes and Morellos. Vigorous and very productive.

Fruit large, roundish regular. Stalk rather short, stout, set in a broad, even, regular cavity, usually grows in clusters. Skin rich dark, almost purplish black red. Flesh red, tender, juicy, sprightly, mild acid. Stone small. Very good or best. Middle to last of July.

MAYDUKE.

Royale Hâtive.	Early Duke.
Cherry Duke of some.	Large Mayduke.
Cerise Guigne.	Morris Duke.
Coularde.	Morris's Early Duke.
De Hollande.	Benham's Fine Early Duke.
D'Espagne.	Thompson's Duke.
Griotte Grosse Noire.	Portugal Duke.
Griotte d'Espagne of some.	Buchanan's Early Duke.
Griotte Précoce of some.	Millet's Late Heart Duke.

This invaluable early Cherry is one of the most popular sorts in all countries, thriving almost equally well in cold or warm climates.



Mayduke.

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. Before it is fit for table use, it is admirably adapted for cooking, and when fully ripe it is, perhaps, the richest of the subacid Cherries. In the gardens here we have noticed a peculiar habit of this tree of producing very frequently some branches which ripen much later than the others, thus protracting for a long time the period in which its fruit is in use. The Mayduke is remarkable for its upright, or, as it is called, *fastigiata* head, especially while the tree is young, in distinction to other sorts, which produce many lateral branches.

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 flavor. This fruit is most frequently picked while it is yet red, and partially acid, and before it attains its proper color or flavor. It begins to color, about New York, in favorable seasons, the last of May, and ripens during the first half of June.

Mayduke is said to be a corruption of *Médoc*, the province in France where this variety (the type of all the class now called Dukes) is believed to have originated.

MORELLO.

Milan.	English Morello.
Cerise du Nord.	Large Morello.
Griotte Ordinaire du Nord.	Dutch Morello.
September Weichsel Grosse.	Ronald's Large Morello.

The Morello is a fine fruit. Its name is said to be derived

from the dark purple color of its juice, which resembles that of the *Morus* or Mulberry. It is highly valuable for all kinds of preserves, and is an agreeable addition to a dessert.

Fruit of pretty large size, round or slightly obtuse heart-shaped. Skin dark red, becoming nearly black when fully ripe. Flesh dark purplish red, tender, juicy, and of a pleasant subacid flavor when quite mature. Ripe 20th of July.

The Common Morello of this country is a smaller variety of the foregoing, and a little darker in color. Little esteemed.

REINE HORTENSE.

Monstrueuse de Bavay.
Lemercier.

Belle de Bavay.
Seize à la Livre.

French origin, of Duke habit. Tree a healthy and handsome grower, productive, and a very desirable variety.

Fruit very large, roundish elongated. Skin a bright lively red, somewhat marbled and mottled. Suture distinctly marked by a line without any depression. Flesh tender, juicy, very slightly subacid and delicious, best of its season. Ripe from the middle to the last of July.

VAIL'S AUGUST DUKE.

A very late Cherry, of the Duke class. Originated with Henry Vail, Esq., Troy, N. Y. Tree very productive, and of vigorous growth.

Fruit large, obtuse heart-shaped. Stalk medium, in rather deep but narrow cavity. Skin rich bright red on the shaded side, and of a lively cornealian red in the sun. Flesh tender, subacid, much like the Mayduke in flavor. Very good. Ripe the last week in July, and the first week or two in August.



Reine Hortense.

CHAPTER XIV.

THE CURRANT.

Ribes rubrum, Lin. *Grossulaceæ*, of botanists.
Groseillier commun, of the French; *Die Johannisbeere*, German;
Albesseboom, Dutch; *Ribes rosso*, Italian; and *Grosella*, Spanish.

THE name Currant is said to be derived from the resemblance in the fruit to the little *Corinth* grapes or raisins, which, under the name of *Currants*, are sold in a dried state in such quantities by grocers; the latter word being only a corruption of *Corinth*, and the fruit of this little grape being familiarly known as such, long before the common currants were cultivated.

The Currant is a native of Britain and the north of Europe, and is, therefore, an exceedingly hardy fruit-bearing shrub, seldom growing more than three or four feet high. The fruit of the original wild species is small and very sour, but the large garden sorts produced by cultivation, and for which we are chiefly indebted to the Dutch gardeners, are large, and of a more agreeable subacid flavor.

The Black Currant (*Ribes nigrum*) is a distinct species, with larger leaves, and coarser growth, and which, in the whole plant, has a strong odor, disagreeable, at first, to many persons.

USES. The cooling acid flavor of the Currant is relished by most people, in moderate quantities, and the larger varieties make also a pretty appearance on the table. Before fully ripe, currants are stewed for tarts, like green gooseberries, and are frequently employed along with cherries or other fruits in the same way; but the chief value of this fruit is for making *currant jelly*, an indispensable accompaniment to many dishes. *Currant shrub*, made from the fruit in the same manner as lemonade, is a popular summer drink in many parts of the country, and corresponds to the well-known Paris beverage, *eau de groseilles*. A sweet wine of very pleasant taste is made from their expressed juice, which is very popular among farmers, but which we hope to see displaced by that afforded by grapes,—which every one may make with less cost and trouble, and which is infinitely more wholesome, because it requires less additions, of any kind, to the pure juice.

The fruit of the Black Currant is liked by some persons in

tarts, but it is chiefly used for making a jam, or jelly, much valued as a domestic remedy for sore throats.

The season when Currants are in perfection is midsummer, but it may be prolonged until October by covering the bushes with mats, or sheltering them otherwise from the sun.

PROPAGATION AND CULTURE. Nothing is easier of culture than the Currant, as it grows and bears well in any tolerable garden soil. To propagate it, it is only necessary to plant in the autumn, or early in the spring, slips or cuttings, a foot long, in the open garden, where they will root with the greatest facility. The Currant should never be allowed to produce suckers, and, in order to insure against this, the superfluous eyes or buds should be taken out before planting it, as has been directed under the head of Cuttings. When the plants are placed where they are finally to remain, they should always be kept in the form of trees—that is to say, with single stems, and heads branching out a few inches from the ground. The after treatment is of the simplest kind; thinning out the superfluous wood every spring is all that is required here. Those who desire berries of an extra large size *stop*, or pinch out, the ends of all the strong growing shoots about the middle of June, when the fruit is two-thirds grown. This forces the plant to expend all its strength in enlarging and maturing the fruit. And we may add to this, that it is better not to continue the cultivation of currant-trees after they have borne more than six or eight years, as finer fruit will be obtained, with less trouble, from young plants, which are so easily raised.

For field culture many prefer to grow them from suckers, but when this mode is adopted, care should be taken to thin out the oldest branches annually, and dig in old manure about the roots.

INSECTS AND DISEASES. Within a few years the Currant and Gooseberry have been affected by the ravages of an insect described by Dr. Asa Fitch, in his reports to the New York State Agricultural Society, under the name of *Abraxis ribearia*. The moths are of a dull nankeen yellow, and make their appearance in June—depositing their eggs upon the leaves. These soon change to small worms, and rapidly eat up the foliage. The best remedy yet known is, to dust thoroughly with powdered white hellebore.

The Currant-borer, *Prenocerus supernatatus*, is another insect that sometimes creates damage by boring its way through the centre of young shoots and thus destroying them. By examining the young shoots in winter, such as are injured or contain the worm will be found of a brown color or shrivelled. Cutting away soon checks them.

There are, nominally, many sorts of Currants, but the following sorts comprise all at present known worthy of cultivation.

CLASS I.

RED AND WHITE CURRANTS.

CHERRY.

A strong-growing variety, with stout, erect, short-jointed shoots. Leaves large, thick, and dark green. Not any more productive than other Currants, but a valuable one for market on account of its size.

Fruit of the very largest size. Bunches short. Berries deep red, and rather more acid than Red Dutch.

LA HÂTIVE.

Hâtive de Bertin.

A variety from France. Plant vigorous, foliage not as large as the cherry.

Fruit large, dark red. Bunches medium length, tapering. In quality about equal to Red Dutch.

LA VERSAILLAISE.

Macrocarpa.

Caucase.

Fertile d'Angers.

Imperial Red.

A variety from France. A very vigorous grower, with large, coarse foliage, productive.

Fruit of the largest size, dark red. Bunches resembling Cherry Currant, but occasionally longer.

We have received this Currant under the various names above given, but have been unable to discover any difference. There may be distinct sorts under these names, but we have failed to obtain them.

RED DUTCH.

Large Red Dutch.

Large-Bunched Red.

New Red Dutch.

Morgan's Red.

Groseillier Rouge à Gros Fruit.

An old, well-known sort, thrifty, upright growth, very productive.

Fruit large, deep red, rich acid flavor, with clusters two or three inches long.

VICTORIA.

May's Victoria.	Baby Castle.	Houghton Castle.
Goliath.	Red Grape.	Wilmot's Red Grape.

A very excellent, rather late sort, with very long bunches of bright red fruit, and is an acquisition to this class of fruits. Berries as large as Red Dutch. Bunches rather longer, of a brighter red, growth more slow, spreading, and very productive. Will hang on the bushes some two weeks longer than most Currants.

WHITE DUTCH.

New White Dutch.	Reeve's White.	Dana's New White ?
White Crystal.	Morgan's White.	White Leghorn.
White Clinton.	White Antwerp.	

This is precisely similar to the Red Dutch in habit, but the fruit is larger, with rather shorter bunches, of a fine yellowish white color, with a very transparent skin. It is considerably less acid than the Red Currants, and is therefore much preferred for the table. It is also a few days earlier. Very productive.

WHITE GRAPE.

Imperial White.	Imperial Blanc.
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Bunches moderately long. Berries very large, whitish yellow, sweet and good. Very productive. Branches more horizontal than White Dutch, and less vigorous.

WHITE PROVENCE.

A strong, upright growing variety, leaves often silvery edged.

Fruit yellowish white. Bunch short, tapering. Not as productive or profitable as White Grape.

CLASS II.

BLACK CURRANTS.

BLACK NAPLES.

The Black Naples is a beautiful fruit, the finest and largest of all black Currants, its berries often measuring nearly three-fourths of an inch in diameter. Its leaves and blossoms appear earlier than those of the Common Black, but the fruit is later, and the clusters, as well as the berries, are larger and more numerous.

COMMON BLACK.

Black English.

Casis.

The common Black English Currant is well known. The berries are quite black, less than half an inch in diameter, and borne in clusters of four or five berries.

ORNAMENTAL VARIETIES. There are several very ornamental species of Currant, among which we may here allude to the MISSOURI CURRANT (*Ribes Aureum*), brought by Lewis and Clarke from the Rocky Mountains, which is now very common in our gardens, and generally admired for its very fragrant yellow blossoms. Its oval blue berries, which are produced in great abundance, are relished by some persons. But there is a *Large-Fruited* Missouri Currant, a variety of this, which bears berries of the size of the Black Naples, and also some with yellow fruit of large size, almost equalling small cherries.

The RED FLOWERING CURRANT (*R. sanguineum*) is a very beautiful shrub from the western coast of America, with foliage somewhat like that of the Common Black, but which bears very charming clusters of large light crimson blossoms in April.

There are several other varieties, as *R. sanguineum*, fl. pl., *R. sanguineum atro-purpurea*, and *R. Gordoni*. They are not quite hardy enough to stand our winters without protection, but at the South will make a valuable addition to their shrubbery.

CHAPTER XV.

THE CRANBERRY.

Oryccoccus, Arb. Brit. *Ericaceæ*, of botanists.

Airelle, of the French; *Die Moosebeere*, German; *Veen bessen*, Dutch; *Ossicocco*, Italian.

THE Cranberry is a familiar trailing shrub, growing wild in swampy, sandy meadows and mossy bogs in the northern portions of both hemispheres, and produces a round, red, acid fruit. Our native species (*O. macrocarpus*), so common in the swamps of New England, and on the borders of our inland lakes, as to form quite an article of commerce, is much the largest and finest species; the European Cranberry (*O. palustris*) being much smaller in its growth, and producing

fruit inferior in size and quality. Also the Russian (*O. viridis*), a medium-sized variety.

Of the *O. macrocarpus* there are three varieties:—The “Bell-shaped,” which is the largest and most valued, of a very dark, bright red color. The “Cherry,” two kinds, large and small; the large one the best, of a round form, a fine dark red berry, nearly or quite equal to the Bell-shaped; and the Bugle, Oval, or Egg-shaped, two kinds, large and small, not so high-colored as the Bell and Cherry—not so much prized, but still a fine variety.

The value of the common Cranberry for tarts, preserves, and other culinary uses, is well known, and in portions of the country where it does not naturally grow, or is not abundantly produced, it is quite worth while to attempt its culture. Although, naturally, it grows mostly in mossy wet land, yet it may be easily cultivated in beds of peat soil, made in any rather moist situation; and if a third of old thoroughly decayed manure is added to the peat, the berries will be much larger and of more agreeable flavor than the wild ones. A square of the size of twenty feet, planted in this way, will yield three or four bushels annually—quite sufficient for a family. The plants are easily procured, and are generally taken up like squares of sod or turf, and planted two or three feet apart, when they quickly cover the whole beds.

In some parts of New England, low and coarse meadows, of no value, have been drained and turned to very profitable account by planting them with this fruit. In New Jersey, on Long Island, and elsewhere, large tracts of light sandy soils have been planted to Cranberries, and grown with profit and success. The Cranberry grows freely in light soils, but it is necessary to cover the surface, after ploughing, a depth of several inches, with clean sand. The average product is from eighty to one hundred bushels of cranberries, and the care they require after the land is once prepared and planted is scarcely any at all, except in gathering. Some of the farms in Massachusetts yield large crops, partly from natural growth, and partly from cultivated plantations. The Cranberry grows wild in the greatest abundance on the sandy low necks near Barnstable, and an annual Cranberry festival is made of the gathering of the fruit, which is done by the mass of the population, who turn out on the day appointed by the authorities, and make a general gathering with their cranberry rakes, a certain portion of the crop belonging, and being delivered, to the town.

A laborer will gather about thirty bushels of the fruit in a day with a cranberry rake.

CHAPTER XVI.

THE FIG.

Ficus Carica, L. Arb. Brit. *Urticaceæ*, of botanists; *Figuier*, of the French; *Feigenbaum*, German; *Fico*, Italian; *Higuera*, Spanish.

THIS celebrated fruit-tree, whose history is as ancient as that of the world, belongs properly to a warm climate, though it may be raised in the open air in the Middle States, with proper care.

In its native countries, Asia and Africa, near the seacoast it forms a low tree, twenty feet in height, with spreading branches, and large, deeply lobed, rough leaves. It is completely naturalized in the South of Europe, where its cultivation is one of the most important occupations of the fruit-grower.

The fruit of the Fig-tree is remarkable for making its appearance, growing, and ripening, without being preceded by any apparent blossom. The latter, however, is concealed in the *interior* of a fleshy receptacle which is called, and finally becomes, the fruit. The flavor of the fig is exceedingly sweet and luscious, so much so as not to be agreeable to many persons when tasted for the first time; but, like most fruits of this kind, it becomes a great favorite with all after a short trial, and is really one of the most agreeable, wholesome, and nutritious kinds of food. It has always, indeed, been the favorite fruit of warm countries, and the ideal of earthly happiness and content, as typified in the Bible, consists in sitting under one's own fig-tree.

Its cultivation was carried to great perfection among the ancient Romans, who had more than twenty varieties in their gardens. But the Athenians seem to have prided themselves most on their figs, and even made a law forbidding any to be exported from Attica. Smuggling, however, seems to have been carried on in those days, and a curious little piece of etymological history is connected with the fig. The informers against those who broke this law were called *sukophantai*, from two words in the Greek, meaning the "discoverers of figs." And as their power appears also to have been used for malicious purposes, thence arose our word *sycophant*. The fig was first introduced from Italy about 1548, by Cardinal Poole, and to this country about 1790, by Wm. Hamilton, Esq.

PROPAGATION. This tree is very readily increased by cuttings taken off in the month of March, and planted in a light

soil in a hot-bed, when they will make very strong plants the same season. Or they may be planted in a shady border in the open air, quite early in April, with tolerable success. In either case the cuttings should be made eight or ten inches long, of the last year's shoots, with about half an inch of the old or previous year's wood left at the base of each.

SOIL AND CULTURE. The best soil for the fig is one moderately deep, and neither too moist nor dry, as in the former case the plant is but too apt to run to coarse wood, and in the latter, to drop its fruit before it is fully ripe. A mellow calcareous loam is the best soil in this climate—and marl, or mild lime in compost, the most suitable manure.

As in the Middle States this tree is not hardy enough to be allowed to grow as a standard, it is the policy of the cultivator to keep it in a low and shrub-like form, near the ground, that it may be easily covered in winter. The great difficulty of this mode of training, with us, has been that the coarse and over-luxuriant growth of the branches, when kept down, is so great as to render the tree unfruitful, or to rob the fruit of its due share of nourishment. Happily, the system of *root-pruning*, recently found so beneficial with some other trees, is in this climate most perfectly adapted to the fig. Short-jointed wood, and only moderate vigor of growth, are well-known accompaniments of fruitfulness in this tree; and there is no means by which firm, well-ripened, short-jointed wood is so easily obtained as by an annual pruning of the roots—cutting off all that project more than half the length of the branches. In this way the fig-tree may be kept in that rich and somewhat strong soil necessary to enable it to hold its fruit, and ripen it of the largest size, without that coarseness of growth which usually happens in such soil, and but too frequently renders the tree barren. The mode of performing root-pruning we have already described, but we may add here that the operation should be performed on the fig early in November. When this mode is adopted but little pruning will be necessary, beyond that of keeping the plant in a somewhat low and regular shape, shortening-in the branches occasionally, and taking out old and decaying wood.

In winter the branches of the fig must be bent down to the ground, and fastened with hooked pegs, and covered with three or four inches of soil, as in protecting the foreign grape. This covering should be removed as soon as the spring is well settled. Below Philadelphia, a covering of straw or branches of ever-greens is sufficient—and south of Virginia the fig is easy of culture as a hardy standard tree.

Two crops are usually produced in a year by this tree: the

first, which ripens here in midsummer, and is borne on the previous season's shoots; and the second, which is yielded by the young shoots of this summer, and which rarely ripens well in the Middle States. It is, therefore, a highly advantageous practice to rub off all the young figs of this second crop after midsummer, as soon as they are formed. The consequence of this is to retain all the organizable matter in the tree, and to form new embryo figs where these are rubbed off, which then ripen the next season as the first crop.

RIPENING THE FRUIT. In an unfavorable soil or climate, the ripening of the fig is undoubtedly rendered more certain and speedy by touching the eye of the fruit with a little oil. This is very commonly practised in many districts of France. "At Argenteuil," says Loudon, "the maturity of the latest figs is hastened by putting a single drop of oil into the eye of each fruit. This is done by a woman, who has a vial of oil suspended from her waist, and a piece of hollow rye straw in her hand. This she dips into the oil, and afterwards into the eye of the fig."

We have ourselves frequently tried the experiment of touching the end of the fig with the finger dipped in oil, and have always found the fruits so treated to ripen much more certainly and speedily, and swell to a larger size than those left untouched.

There are forty-two varieties enumerated in the last edition of the London Horticultural Society's Catalogue. Few of these have, however, been introduced into this country, and a very few sorts will comprise all that is most desirable and excellent in this fruit. The following selection includes those most suitable for our soil and climate.

Fruit nearly all ripen in August.

CLASS I.

RED, BROWN, OR PURPLE.

BLACK GENOA.

The fruit of this Fig is long obovate, that portion next the stalk being very slender. Skin dark purple, becoming nearly black, and covered with a purple bloom. Pulp bright red, flavor excellent. Habit of the tree moderately strong.

BLACK ISCHIA.

Early Forcing.

Blue Ischia.

One of the most fruitful sorts, and pretty hardy.

Fruit of medium size, roundish, a little flattened at the apex. Skin dark violet, becoming almost black when fully ripe. Flesh deep red, and of very sweet, luscious flavor.

BROWN ISCHIA.

Chestnut. Chestnut-colored Ischia.

A good variety, with, however, a rather thin skin, rendering it liable to crack or burst open when fully ripe. It is hardy, of good habit, and a very excellent bearer.

Fruit of medium size, roundish obovate. Skin light or chestnut brown. Pulp purple, very sweet and excellent.

BROWN TURKEY.

Brown Italian.	Large Blue.	Italian.
Brown Naples.	Murrey.	Lee's Perpetual.

This is undoubtedly one of the very best for this country, and for open air culture, as it is perhaps the very hardiest, and one of the most regular and abundant bearers.

Fruit large, oblong or pyriform. Skin dark brown, covered with a thick blue bloom. Flesh red, and of very delicious flavor.

BRUNSWICK.

Madonna.	Hanover.	Brown Hamburg.	Black Naples.
Clementine.	Bayswater.	Red.	

One of the largest and finest purple Figs, well adapted for hardy culture.

Fruit of the largest size, pyriform in shape, with an oblique apex. Eye considerably sunk. Stalk short and thick, of a fine violet brown in the sun, dotted with small pale brown specks, and, on the shaded side, pale greenish yellow. Flesh reddish brown, slightly pink near the centre, and somewhat transparent. Flavor rich and excellent. The only fault of this variety for open air culture is, that it is rather too strong in its growth, not being so easily protected in winter as more dwarfish sorts."

MALTA.

Small Brown.

A small, but very rich Fig, which will often hang on the tree until it begins to shrivel, and becomes "a fine sweet-meat."

Fruit much compressed at the apex, and very much nar-

rowed in towards the stalk. Skin light brown. Pulp pale brown, and of a sweet, rich flavor. Ripens later than the foregoing, about the last of August.

SMALL BROWN ISCHIA.

A very hardy sort, which, in tolerably warm places south of Philadelphia, will make a small standard tree in the open air, bearing pretty good crops, that ripen about the first of September.

Fruit small, pyriform, with a very short footstalk. Skin light brown. Pulp pale purple, of high flavor. Leaves more entire than those of the common Fig.

CLASS II.

FRUIT WHITE, GREEN, OR YELLOW.

MARSEILLES.

White Marseilles.	Ford's Seedling.
White Naples.	White Standard.
Pocock.	Figue Blanche.

A very favorite sort for forcing and raising under glass, but which does not succeed so well as the Brown Turkey and the Ischias for open culture.

Fruit small, roundish obovate, slightly ribbed. Skin nearly white, with a little yellowish green remaining. Flesh white, rather dry, but sweet and rich.

NERII.

A fruit rather smaller and longer than the Marseilles, and which, from a mingling of slight acid, is one of the most exquisite in its flavor.

Fruit small, roundish obovate. Skin pale greenish yellow. Pulp red. Flavor at once delicate and rich. This is a very favorite variety, according to Loudon, "the richest fig known in Britain."

PREGUSSATA.

A sort lately introduced from the Ionian Isles into England. It is tolerably hardy, quite productive, and succeeds admirably under glass.

Fruit of medium size, roundish, a good deal flattened. Skin purplish brown in the shade, dark brown in the sun. Pulp deep red, with a luscious, high flavor. Seeds unusually small. Ripens gradually, in succession.

WHITE ISCHIA.

Green Ischia.

A very small Fig, but one of the hardiest of the light-colored ones.

Fruit about an inch in diameter, roundish obovate. Skin pale yellowish green, very thin, and, when fully ripe, the darker-colored pulp appears through it. Pulp purplish, and high flavored. A moderate grower and good bearer.

CHAPTER XVII.

THE GOOSEBERRY.

Ribes Grossularia, Arb. Brit. *Grossulaceæ*, of botanists.
Groseillier, of the French; *Stachelbeerstrauch*, German; *Uva Spino*, Italian; *Grosella*, Spanish.

THE Gooseberry of our gardens is a native of the north of Europe, our native species not having much improved by garden culture. This low prickly shrub, which in its wild state bears small round or oval fruit, about half an inch in diameter, and weighing one-fourth of an ounce, has been so greatly improved by the system of successive reproduction from the seed, and high culture by British gardeners, that it now bears fruit nearly or quite two inches in diameter, and weighing an ounce and a half. Lancashire, in England, is the meridian of the gooseberry, and to the Lancashire weavers, who seem to have taken it as a hobby, we are indebted for nearly all the surprisingly large sorts of modern date. Their annual shows exhibit this fruit in its greatest perfection, and a GOOSEBERRY BOOK is published at Manchester every year, giving a list of all the prize sorts, etc. Indeed the climate of England seems, from its moistness and coolness, more perfectly fitted than any other to the growth of this fruit. Under our more clear and hot suns, however, the best varieties of English sorts do not succeed well, suffering from mildew of the fruit and foliage in nearly every location. A few varieties of the English sorts, and some few sorts of American origin, succeed, and their growth near large cities is considered quite profitable.

USES. This fruit is, in the first place, a very important one in its green state, being in high estimation for pies, tarts, and puddings, coming into use earlier than any other. The

earliest use made of it appears to have been as a sauce with green goose, whence the name goose-berry. In its ripe state it is a very agreeable table fruit, and in this country, following the season of cherries, it is always most acceptable. Un-ripe gooseberries are bottled in water for winter use (placing the bottles, nearly filled, a few moments in boiling water, afterwards corking and sealing them, and burying them in a cool cellar, with their necks downward). They are also canned, the same as with cherries, peaches, and other fruits.

As a luxury for the poor, Mr. Loudon considers this the most valuable of all fruits, "since it can be grown in less space, in more unfavorable circumstances, and brought sooner into bearing than any other."

PROPAGATION. Gooseberry plants should only be raised from cuttings. New varieties are of course raised from seed, and the production of new American varieties of large size and fine quality affords a field of occupation which we should rejoice to see abundantly filled.

In preparing cuttings select the strongest and straightest young shoots of the current year, at the end of October (or very early in the ensuing spring); cut out all the buds that you intend to go below the ground (to prevent future suckers), and plant the cuttings in a deep rich soil, on the north side of a fence, or in some shaded border. The cuttings should be inserted six inches deep, and from three to six or eight inches should remain above the ground. The soil should be pressed very firmly about the cuttings, and, in the case of autumn planting, the cuttings should be inserted into the ground level with the upper buds, and then covered with a mulch of coarse manure, to be taken away in the following spring, when they should be examined, and the earth pressed to render it firm again, should the cutting have been raised by severe frost. After they have become well rooted—generally in a year's time—they may be transplanted to the borders, where they are finally to remain.

CULTIVATION. The Gooseberry in our climate is very impatient of drought, and we have uniformly found that the best soil for it is a deep strong loam; or at least whatever may be the soil, and it will grow in a great variety, it should always be *deep*—if not naturally so, it should be made deep by trenching and manuring. It is the most common error to plant this fruit shrub under the branches of other trees for the sake of their shade—as it always render the fruit inferior in size and flavor, and more likely to become mouldy. On the contrary, we would always advise planting in an open border, as, if the soil is sufficiently deep, the plants will not suffer from

dryness, and should it unfortunately be of a dry nature, it may be rendered less injurious by covering the ground under the plants with straw or litter. In any case a *rich* soil is necessary, and as the Gooseberry is fond of manure, a pretty heavy top-dressing should be dug in every year around bearing plants. For a later crop a few bushes may be set on the north side of a fence or wall.

For the Gooseberry, regular and pretty liberal pruning is absolutely necessary. Of course no suckers should be allowed to grow. In November the winter pruning should be performed. The leaves now being off, it is easy to see what portion of the new as well as old wood may be taken away; and we will here remark that it is quite impossible to obtain fine gooseberries here, or anywhere, without a very thorough thinning out of the branches. As a general rule, it may safely be said that one-half of the head, including old and young branches (more especially the former, as the best fruit is borne on the young wood), should now be taken out, leaving a proper distribution of shoots throughout the bush, the head being sufficiently thinned to admit freely the light and air. An additional pruning is, in England, performed in June, which consists in stopping the growth of long shoots by pinching out the extremities and thinning out superfluous branches; but if the annual pruning is properly performed this will not be found necessary, except to obtain fruit of extraordinary size.

We do not think that this fruit shrub can be said to bear well for more than half a dozen years successively, when grown in the single stem or tree form. In large plantations of acres, and where cultivation is given by means of the horse and plough, the system of growing in the bush form is by many considered most profitable; and when so done, all that is requisite, from year to year, for many years, is to cut away dead wood, head back vigorous shoots, and keep the form open.

A succession of young plants should be kept up by striking some cuttings every season.

VARIETIES. The number of these is almost endless, new ones being produced by the prize-growers every year. The last edition of the London Horticultural Society's Catalogue enumerates 149 sorts considered worthy of notice, and Lindley's Guide to the Orchard gives a list of more than seven hundred prize sorts. It is almost needless to say that many of these very closely resemble each other, and that a small number of them will comprise all the most valuable.

The sorts bearing fruit of medium size are generally more highly flavored than the very large ones. We have selected

a sufficient number of the most valuable for all practical purposes.

I. Red Gooseberries.

BOARDMAN'S BRITISH CROWN. Fruit very large, roundish, hairy, handsome and good; branches spreading.

CHAMPAGNE. A fine old variety, of very rich flavor. Fruit small, roundish oblong, surface hairy, pulp clear; branches of very upright growth.

CAPPER'S TOP SAWYER. Fruit large, roundish, pale red, hairy; rather late; flavor very good; branches drooping.

FARROW'S ROARING LION. An immense berry, and hangs late. Fruit oblong, smooth; flavor excellent; branches drooping.

HARTSHORN'S LANCASHIRE LAD. Fruit large, roundish, dark red, hairy; flavor very good; branches erect.

KEEN'S SEEDLING. Fruit of medium size, oblong, hairy; flavor first-rate; branches drooping. Early and productive.

LEIGH'S RIFLEMAN. Fruit large, roundish, hairy; flavor first-rate; branches erect.

MELLING'S CROWN BOB. Fruit large, oblong, hairy; flavor first-rate; branches spreading.

MISS BOLD. Fruit of medium size, roundish, surface downy; flavor excellent; branches spreading.

RED WARRINGTON. Fruit large, roundish oblong, hairy; flavor first-rate; branches drooping.

II. Yellow Gooseberries.

BUERDSILL'S DUCKWING. Fruit large and late, obovate, smooth; flavor good; branches erect.

CAPPER'S BUNKER HILL. Fruit large, roundish, smooth; flavor good; branches spreading.

GORTON'S VIPER. Fruit large, obovate, smooth; flavor good; branches drooping.

HILL'S GOLDEN GOURD. Fruit large, oblong, hairy; flavor good; branches drooping.

PART'S GOLDEN FLEECE. Fruit large, oval, hairy; flavor first-rate; branches spreading.

PROPHET'S ROCKWOOD. Fruit large and early, roundish, hairy; flavor good; branches erect.

YELLOW CHAMPAGNE. Fruit small, roundish, hairy; flavor first-rate; branches erect.

YELLOW BALL. Fruit of middle size, roundish, smooth; flavor first-rate; branches erect.

III. Green Gooseberries.

COLLIER'S JOLLY ANGLER. Fruit large and late, oblong, downy; flavor first-rate; branches erect.

BERRY'S GREENWOOD. Fruit large, oblong, smooth; flavor good; branches drooping.

EARLY GREEN HAIRY (or *Green Gascoigne*). Fruit small and early, round, hairy; flavor excellent; branches spreading.

EDWARD'S JOLLY TAR. Fruit large, obovate, smooth; flavor first-rate; branches drooping.

GLENTON GREEN. Fruit of middle size, oblong, hairy; flavor excellent; branches drooping.

GREEN WALNUT. Fruit middle size, obovate, smooth; flavor first-rate; branches spreading.

HEPBURN GREEN PROLIFIC. Fruit of middle size, roundish, hairy; flavor first-rate; branches erect.

MASSEY'S HEART OF OAK. Fruit large, oblong, smooth; flavor first-rate; branches drooping.

PARKINSON'S LAUREL. Fruit large, obovate, downy; flavor first-rate; branches erect.

PITMASTON GREEN GAGE. Fruit small, and hangs long, obovate, smooth; flavor rich and excellent; branches erect.

WAINMAN'S GREEN OCEAN. Fruit very large, oblong, smooth; flavor tolerably good; branches drooping.

IV. White Gooseberries.

CLEWORTH'S WHITE LION. Fruit large, and hangs late, obovate, downy; flavor first-rate; branches drooping.

CROMPTON SHEBA QUEEN. Fruit large, obovate, downy; flavor first-rate; branches erect.

COOK'S WHITE EAGLE. Fruit large, obovate, smooth. Flavor first-rate. Branches erect.

CAPPER'S BONNY LASS. Fruit large, oblong, hairy. Flavor good. Branches spreading.

HAPLEY'S LADY OF THE MANOR. Fruit large, roundish, oblong, hairy. Flavor good. Branches erect.

SAUNDERS' CHESHIRE LASS. Fruit large and very early, oblong, downy. Flavor excellent. Branches erect.

WOODWARD'S WHITESMITH. Fruit large, roundish oblong, downy. Flavor first-rate. Branches erect.

WELLINGTON'S GLORY. Fruit large, rather oval. Very downy. Skin quite thin. Flavor excellent. Branches erect.

WHITE HONEY. Fruit of middle size, roundish oblong, smooth. Flavor excellent. Branches erect.

TAYLOR'S BRIGHT VENUS. Fruit of middle size, hangs a long time, obovate, hairy. Flavor first-rate. Branches erect.

The following list of selected sorts, from one hundred varieties, is prepared by Thomas Rivers, Sawbridgeworth, England:—

RED GOOSEBERRIES.

Atlas, late.	Huntsman, early.	Prince Albert, early.
Echo, late.	Hopley's Companion.	Prince Regent, early.
Guido, very large.	Overall, late.	Young Wonderful.

WHITE GOOSEBERRIES.

Freedom.	Ostrich, early.	Smiling Beauty.
Lady Delamere.	Queen Caroline.	Riley's Tallyho.

GREEN GOOSEBERRIES.

Conquering Hero, late.	Elijah, early.	Favorite.
Husbandman, late.	Green River, late.	Independent.
Jolly Cutler, late.	Keepsake.	Profit, late.
Riley's.	Thumper, very late.	Wistastoa Hero, early.

YELLOW GOOSEBERRIES.

Banks Dublin.	Husbandman, late.	Scorpion, early.
Broom Girl.	Marigold, early.	Sovereign, early.
Britton.	Pilot, early.	Teazer, late.

AMERICAN VARIETIES.

DOWNING.

A seedling of Houghton, originated at Newburgh, N. Y. Upright vigorous growing plant, very productive.

Fruit somewhat larger than Houghton, roundish oval, whitish green with the rib veins distinct. Skin smooth. Flesh rather soft, juicy, very good. Excellent for family use.

HOBBS' SEEDLING.

A variety claimed to have originated by O. J. Hobbs, of Randolph, Pa. It is light pale green, roundish, slightly oval, smooth. Flesh medium firmness. A good keeper, and nearly one-half larger than Houghton's.

HOUGHTON'S SEEDLING.

Originated with Abel Houghton, Lynn, Mass. A vigorous grower. Branches rather drooping, slender, very productive, generally free from mildew. A desirable sort.

Fruit medium or below, roundish, inclining to oval. Skin smooth, pale red. Flesh tender, sweet, and very good.

MOUNTAIN SEEDLING.

Originated with the Shakers at Lebanon, N. Y. Plant a strong straggling grower. An abundant bearer.

Fruit large, the largest of any known American sort, long oval, dark brownish red, with long stalk. Skin smooth, thick. Flesh sweet. A good market sort.

PALE RED.

American Red.

Robert's Sweet Water.

Ohio Seedling.

Dutch Joe.

American Seedling.

Ohio Prolific.

St. Clair.

Cluster.

A variety of unknown origin. Bush more upright than Houghton. Slender wood. Very productive.

Fruit small or medium, or size of the Houghton; darker in color when fully ripe. Hangs a long time upon the bush. Flesh tender, sweet, very good.

SMITH'S IMPROVED.

Smith's Seedling.

A new variety recently introduced. Grown from seed of the Houghton, by Dr. Smith, of Vermont, and in growth of plant more upright and vigorous than its parent; the fruit is larger and somewhat oval in form, light green, with a bloom. Flesh moderately firm, sweet and good.

CHAPTER XVIII.

THE GRAPE.

Vitis vinifera, L. *Vitaceæ*, of botanists.

Vigne, of the French; *Weintrauben*, German; *Vigna*, Italian; *Vid*, or *Vina*, Spanish.

THE history of the Grape is almost as old as that of man. Growing in its highest perfection in Syria and Persia, its luscious fruit, and the unrivalled beverage which its fermented juice affords, recommended it to the especial care of the patriarchal tillers of the soil, and vineyards were extensively planted long before orchards or collections of other fruit-trees were at all common.

The grapes of the old world are all varieties of the wine

grape (*Vitis vinifera*), which, though so long and so universally cultivated and naturalized in all the middle and southern portions of Europe, is not a native of that continent, but came originally from Persia. From the latter country, as civilization advanced westward, this plant accompanied it—first to Egypt, then to Greece and Sicily, and gradually to Italy, Spain, France, and Britain, to which latter country the Romans carried it about two hundred years after Christ. To America the seeds and plants of the European varieties were brought by numerous emigrants and colonists within the first fifty years after its settlement.

The wild grapes of our own country are quite distinct species from the wine grape of Europe—are usually stronger in their growth, with larger and more entire foliage, and, in their native state, with a peculiar foxy odor or flavor, and more or less hardness of pulp. These traits, however, disappear in process of cultivation, and we have reason to hope that we shall soon obtain from the wild type new varieties of high quality, and of superior hardiness and productiveness in this climate.

The grape-vine is in all cases a trailing or climbing deciduous shrub, living to a great age, and, in its native forests, clambering over the tops of the tallest trees. In the deep rich alluvial soils of western America it is often seen attaining a truly prodigious size, and several have been measured on the banks of the Ohio the stems of which were three feet in circumference, and the branches two hundred feet long, entwining and festooning the tops of huge poplars and sycamores. In a cultivated state, however, it is found that fine flavor and uniform productiveness require the plants to be kept pruned within a small compass.

USES. The grape in its finest varieties, as the *Hamburgh* and the *Muscat*, is in flavor hardly surpassed by any other fruit in delicacy and richness, and few or none are more beautiful in the dessert. Dried, it forms the raisin of commerce, the most excellent of all dried fruits, everywhere esteemed. And wine, the fermented juice, has always been the first of all exhilarating liquors. Some idea of the past consumption of this product may be formed from the fact that more than 500,000,000 imperial gallons have been made in France in a single year; and as a datum to judge of its value we may add that, while a great proportion of the *vin ordinaire*, or common wine, is sold at 10 or 12 cents a bottle, on the other hand, particular old and rare vintages of *Madeiras* or *Sherries* will not unfrequently command twenty or thirty dollars a gallon.

SOIL. The universal experience in all countries has estab-

lished the fact that a dry and warm soil is the very best for the vine. Where vineyards are cultivated, a limestone soil, or one composed of decaying calcareous rocks, is by far the best; but where, as in most gardens, the vine is raised solely for its fruit, the soil should be highly enriched. The foreign grape will scarcely thrive well here on a heavy soil, though our native varieties grow and bear well on any strong land; but the essence of all that can be said in grape culture respecting soil is, that it be dry and light, deep and rich. Frequent top-dressings of well-rotted manure should be applied to vines in open borders, and this should every third or fourth year be alternated with a dressing of slaked lime.

PROPAGATION. The grape-vine makes roots very freely, and is, therefore, easy of propagation. Branches of the previous or current year's wood, bent down at any time before midsummer, and covered with earth, as layers, root very freely, and make bearing plants in a couple of years, or very frequently indeed bear the next season.

But the finer varieties of the vine are almost universally propagated by cuttings, as that is a very simple mode, and an abundance of the cuttings being afforded by the annual trimming of the vines.

When cuttings are to be planted in the open border, a somewhat moist and shaded place should be chosen for this purpose. The cuttings should then be made of the young wood of the previous year's growth, cut into lengths about a foot long, and having two or three buds—one near the top, one at the bottom, and the third in the middle. Before planting the cutting, pare off its lower end smoothly, close below the buds, and finally plant it in mellow soil, in a slit made by the spade, pressing the earth firmly about it with the foot.*

The rarer kinds of foreign grapes are usually grown by cuttings of shorter length, consisting only of two buds; and the most successful mode is to plant each cutting in a small pot, and plunge the pots in a slight hot-bed, or place the cuttings at once in the mould of the bed itself. In either case they will make strong plants in the same season.

But the most approved way of raising vine plants in pots

* In sandy or dry soils, to insure greater success, cover the upper end of the cutting with grafting-wax, or something of the kind, to prevent evaporation. The practice of growing grapes from single eyes, by making cuttings of one eye each, and callusing them in sand, in the cellar or pit, has been recently renewed. The cuttings are made of one eye each, placed in sand, in a cool cellar or shed, free from frost, and in spring planted out, covering the bud half an inch or so with soil, and over the whole spreading a mulch of tan-bark or sawdust one or two inches deep.

is that of propagation by *eyes*, which we have fully explained in the first part of this work. This, as it retains the least portion of the old wood, is manifestly the nearest approach to raising a plant from the seed, that most perfect of all modes with respect to the constitution of a plant. In the case of new or rare sorts, it offers us the means of multiplying them with the greatest possible rapidity. As the grape usually receives its annual pruning in autumn or winter, the cuttings may be reduced to nearly their proper length, and kept in earth, in the cellar, until the ensuing spring. The hardier sorts may be buried in the open ground.

The foreign and the native grapes are very different in their habits in this climate, and therefore must be treated differently. The native sorts are cultivated with scarcely any further care than training up the branches to poles or a trellis, and are, on this account, highly valuable to the farmer; while the European varieties are of little value in this climate except with especial care, and are therefore confined to the garden.

1. *Culture of the Foreign Grape.*

The climate of the temperate portion of this country, so favorable to all other fruits, is, unfortunately, not so for the foreign Grape. This results, perhaps, from its *variability*, the great obstacle being the *mildew*, which, seizing upon the young fruit, prevents its further growth, causes it to crack, and renders it worthless. Unwilling to believe that this was not the fault of bad culture, many intelligent cultivators, and among them men of capital and much practical skill, have attempted vineyard culture with the foreign sorts in various sections of the country, under the most favorable circumstances, and have uniformly failed. On the other hand, the very finest grapes are produced under glass, in great quantities, in our first-rate gardens. In the small yards or gardens of our cities, owing to the more uniform state of the atmosphere, the foreign Grape thrives pretty well; and finally, in all gardens of the Middle States the hardier kinds may, under certain modes of culture, be made to bear good fruit.

Without entering into any inquiries respecting the particular way in which the mildew (which is undoubtedly a parasitical plant) is caused, we will endeavor to state concisely some practical truths, to which our own observation and experience have led us, respecting the hardy culture of the foreign Grape.

In the first place, it is well known to gardeners here that young and thrifty vines generally bear one or two fair crops

of fruit; second, that as the vine becomes older, if it is pruned in the common mode (that is to say, the *spurring-in* mode of shortening the side branches, and getting fresh bearing shoots from main branches every year), it soon bears only mildewed and imperfect fruit; and, finally, that the older and larger the vine, the less likely is it to produce a good crop.

This being the case, it is not difficult to see that as the vine, like all other trees, is able to resist the attacks of disease or unfavorable climate just in proportion as it is kept in a young and highly vigorous state, it follows, if we allow a plant to retain only young and vigorous wood, it must necessarily preserve much of the necessary vigor of constitution. And this is only to be done, so far as regards training, by what is called the *renewal* system.

The renewal system of training consists in annually providing a fresh supply of young branches, from which the bearing shoots are produced, cutting out all the branches that have borne the previous year. Fig. 37 represents a bearing vine treated in this manner, as it would appear in the spring of the year after having been pruned. In this figure *a* represents the two branches of last year's growth, trained up for bearing the present year; *b*, the places occupied by the last year's wood, which, having borne, has been cut down to within an inch of the main arm, *c*. The present year, therefore, the two branches, *a*, will throw out side shoots, and bear a good crop, while the young branches will be trained up in the places of *b*, to bear the next year, when *a* are in like manner cut down.



Renewal Training.

This renewal training will usually produce fair fruit, chiefly, as it appears to us, because the ascent and circulation of the sap, being mainly carried on through young wood, is vigorous, and the plant is healthful and able to resist the mildew; while, on the contrary, the circulation of the sap is more feeble and tardy through the more compact and rigid sap-vessels of a vine full of old wood.*

The above mode of training is very easily understood, but we may add here, for the benefit of the novice: 1st, that vines, in order that they may bear regularly and well, should always be kept within small bounds; 2d, that they should always be trained to a wall, building, or *upright trellis*; † and, 3d, that the leaves should never be pulled off to

* See *Hoare on the Grape-Vine*.

† And never on an arbor, except for the purposes of shade.

promote the ripening of the fruit. The ends of the bearing shoots may be *stopped* (pinched off) when the fruit is nearly half grown, and this is usually all the summer pruning that, under our bright sun, the grape-vine properly treated requires.

Following out this hint, that here the vine only bears well when it is young, or composed mainly of young wood, an intelligent cultivator near us secures every year abundant crops of the Chasselas by a system of renewal by *layers*. Every year, from his bearing vines, he lays down two or more long and clean shoots of the previous year's growth. These root freely, are allowed to make another season's growth, and then are made to take the place of the old plants, which are taken out; and by this continual system of providing young plants by layers he always succeeds in obtaining from the same piece of ground fair and excellent grapes.

CULTURE UNDER GLASS WITHOUT ARTIFICIAL HEAT. The great superiority of this fruit when raised under glass, renders a vinery an indispensable feature in every extensive garden. Even without fire-heat, grapes may, under our bright sun, be grown admirably; the sudden changes of the weather being guarded against, and the warmth and uniformity of the atmosphere surrounding the vines being secured. Cheap structures of this kind are now very common, and even the Muscat of Alexandria, and other sorts which are usually thought to require fire-heat, ripen regularly and well with moderate attention.

A vinery of this kind may be erected so as to cost very little, nearly after the following manner: Its length may be thirty feet; its width sixteen feet; height at the front two feet; at the back, twelve feet. This part of the structure may all be built of wood, taking for the frame cedar or locust posts, setting them three and a half feet in the ground, the portion rising above the ground being squared to four or five inches. On the posts (which are placed six feet apart) nail, on both sides, matched and grooved planks, one and a quarter inches thick. The space between these planks not occupied by the post, fill in with dry tan, which should be well rammed down. The rafters should be fixed, and from three to four feet apart. The sashes forming the roof (which are all the glass that will be necessary) should be stationary, ventilation being given by small windows at the top of the back wall, fitted with hinges, to be opened or shut at pleasure by means of a pulley cord. The building will, of course, front the south, and the door may be at either end.

The border for the grapes should be made partly on the inside and partly on the outside of the front wall, so that the roots of the vines may extend through to the open border.

A trellis of wire should be fixed to the rafters, about sixteen inches from the glass, on which the vines are to be trained. Early in the spring the vines, which should be two-year-old roots, may be planted in the inside border, about a foot from the front wall, one vine below each rafter.

SOIL. The border should be thoroughly prepared and pulverized before planting the grapes. Two-thirds of mellow sandy loam, mixed with one-third of a compost formed of well-fermented manure, bits of broken charcoal, and a little lime rubbish, forms an excellent soil for the grape in this climate. If the soil of the garden is old, or is not of a proper quality for the basis of the border, it is best to prepare some for this purpose by rotting and reducing beforehand a quantity of loamy turf from the road-sides. The depth of the border need not exceed two feet, but if the subsoil is not dry at all seasons it should be well drained, and filled up half a foot below the border with small stones or brick-bats.

PRUNING. Decidedly the best mode of pruning for a cold house, or vinery without fire-heat, is what is called the long or renewal mode, which we have already partially explained. Supposing the house to be planted with good young plants, something like the following mode of training and pruning may be adopted. The first season one shoot only is allowed to proceed from each plant, and this, at the end of the first season, is cut down to the second or third eye or bud. The year following two leading shoots are encouraged, the strongest of which is headed or stopped when it has extended a few joints beyond the middle of the house or rafter, and the weaker about half that length. In November these shoots are reduced, the strong one having four or five joints cut from its extremity, and the weaker one to the third eye from its lower end or place of origin. In the third season one leading shoot is laid in from each of these, the stronger one throwing out side shoots on which the fruit is produced, which side shoots are allowed to mature one bunch of grapes each, and are topped at one or two joints above the fruit. No side shoots are allowed to proceed from the weaker shoot, but it is laid in to produce fruit the ensuing season, so that, by the third season after planting, the lower part of the house or rafters is furnished with a crop of fruit proceeding from wood of the preceding year. At next autumn pruning the longest of these main shoots is shortened about eighteen inches from the top of the rafter, and the next in strength to about the middle of the rafter, and all the spurs which had borne fruit are removed. Each vine is now furnished with two shoots of bearing wood, a part of old barren wood which has already produced fruit, and a spur near the bottom for producing a

young shoot for the following year. In the fourth summer a full crop is produced, both in the lower and upper part of the house, the longer or oldest shoot producing fruit on the upper part of its length, and the shorter on its whole length; from this last a leading shoot is laid in, and another to succeed it is produced from the spur near the bottom. At the next autumn pruning the oldest or longest shoot which has now reached the top of the house, is entirely cut out and removed, and replaced by that which was next in succession to it, and this in its turn is also cut out and replaced by that immediately behind it, a succession of a yearly shoot being obtained from the lower part of the old stem. (*McIntosh.*) This is decidedly the most successful mode for a vinery without heat, producing abundant and fair crops of fruit. Hoare, who is one of the most experienced and ingenious writers on the grape, strongly recommends it, and suggests that "the old wood of a vine, or that which has previously produced fruit, is not only of no further use, but is a positive injury to the fertility of the plant. The truth of this remark depends on the fact that every branch of a vine which produces little or no foliage appropriates for its own support a portion of the juices of the plant that is generated by those branches that do produce foliage."

ROUTINE OF CULTURE. In a vinery without heat this is comparatively simple. As soon as the vines commence swelling their buds in the spring they should be carefully washed with mild soap-suds, to free them from any insects, soften the wood, and assist the buds to swell regularly. At least three or four times every week they should be well syringed with water, which, when the weather is cool, should always be done in the morning. And every day the vine border should be duly supplied with water. During the time when the vines are in blossom, and while the fruit is setting, all sprinkling or syringing over the leaves must be suspended, and the house should be kept a little more closed and warm than usual, and should any indications of mildew appear on any of the branches it may at once be checked by dusting them with flower of sulphur. Air must be given liberally every day when the temperature rises in the house, beginning by opening the rear windows a little in the morning, more at mid-day, and then gradually closing them in the same manner. To guard against the sudden changes of temperature out of doors, and at the same time to keep up as moist and warm a state of the atmosphere within the vinery as is consistent with pretty free admission of the air during sunshine, is the great object of culture in a vinery of this kind.

Thinning the fruit is a very necessary practice in all vine-

ries, and on it depends greatly the flavor as well as the fine appearance and size of the berries and bunches. The first thinning usually consists in taking off all superfluous blossom-buds, leaving only one bunch in the large sorts, or two in the small ones, to each bearing shoot. The next thinning takes place when the berries are set and well formed, and is performed with a pair of scissors, taking care not to touch the berries that are left to grow. All this time one-third of the berries should be taken off with the point of the scissors, especially those in the centre of the cluster. This allows the remainder to swell to double the size, and also to form larger bunches than would otherwise be produced. Where the bunches are large, the shoulders should be suspended from the trellis by threads, in order to take off part of the weight from the stem of the vine. The last thinning, which is done chiefly to regulate the form of the bunch, is done by many gardeners just before the fruit begins to color—but it is scarcely needed if the previous thinning of the berries has been thoroughly done.

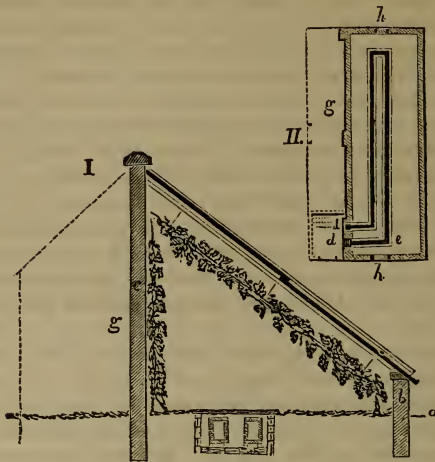
The regular autumnal pruning is best performed about the middle of November. The vines should then be taken down, laid down on the border, and covered for the winter with a thick layer of straw or a slight covering of earth.

CULTURE UNDER GLASS WITH FIRE-HEAT. As the foreign Grape is almost the only fruit of temperate climates which cannot be raised in perfection in the open air in this climate, we shall give some concise directions for its culture in vineries with artificial heat. Those who only know this fruit as the Chasselas or Sweetwater appears, when grown in the open air, have little idea of the exceeding lusciousness, high flavor, size, and beauty of such varieties as the Black Hamburgh or Muscat of Alexandria, when well grown in a first-rate vinery. By the aid of artificial heat, which in this climate is, after all, chiefly required in the spring and autumn, and to counteract any sudden cold changes of atmosphere, this most admirable fruit may easily be produced for the dessert from May till December. Indeed, by vineries constructed in divisions, in some of which vines are forced and in others retarded, some have Grapes nearly every month in the year.

Construction of the Vinery. The vinery with fire-heat may be built of wood, and in the same simple manner as just described, with the addition of a flue above the surface of the ground, running close along the end, two feet from the front wall, and about a foot from the back wall, and returning into a chimney in the back wall over the furnace.*

* Heating by hot water is considered more successful in its results,

For the sake of permanence, however, a vinery of this kind is usually built of brick; the ends and front wall eight inches thick; the back wall a foot thick—or eight inches, with occa-



Plan and Section of a Vinery, with Fire-heat.

sional abutments to increase its strength. In fig. 38 (I) is shown a simple plan of a vinery of this kind. In this the surface of the ground is shown at *a*, below which the foundation walls are sunk three feet. Above the surface the front wall, *b*, rises two feet, the back wall, *c*, twelve feet, and the width of the house is fourteen feet. On these walls are placed the rafters, from three to four feet distant.

In the present example the flues are kept out of the way, and the space clear, by placing them in a square walled space directly under the walk; the walk itself being formed by an open grating or lattice, through which the heat rises freely. The arrangement of the flue will be better understood by referring to the ground plan (II). In this the furnace is indicated at *d*, in the back wall;* from this the flue rises gradually

because of enabling a more even and steady temperature to be maintained. The expense is somewhat greater at first—but in the end, perhaps, most economical.

† This furnace should be placed two feet below the level of the flue at *e*, in order to secure a draught, after which it may be carried quite level till it enters the chimney. An air-chamber may be formed round it, with a register to admit heated air to the house when necessary. A furnace fourteen inches square and deep, with an ash-pit below, in which anthracite coal is burned will be found a very easy and perfect mode of heating a house of this width, and thirty feet long.

to *e*, whence it continues nearly the length of the house, and returning enters the chimney at *f*. For the convenience of shelter, firing, etc., it is usual to have a *back shed*, *g*, behind the back wall. In this shed may be a bin for wood or coals, and a sunk area (shown in the dotted lines around *d*, *f*), with steps to descend to the furnace and ash-pit. There are two doors, *h*, in the vinery at either end of the walk.

The border should be thoroughly prepared previously to planting the vines, by excavating it two feet deep and filling it up with suitable compost. This is best formed of one-half loamy turf, well rotted by having been previously laid up in heaps (or fresh and pure loamy soil from an old pasture or common); one-third thoroughly fermented horse or cow manure, which has lain in a turf-covered heap for three months; and one-third broken pieces of charcoal and old lime rubbish: the whole to be thoroughly mixed together before planting the vines.

The vines themselves should always be planted in a border prepared inside of the house; and in order to give the vines that extent of soil which is necessary for them, the best cultivators make an additional border, twelve or fourteen feet wide outside, in front of the vinery. By building the foundation of the front wall on piers, within a couple of inches of the surface, and supporting the wall above the surface on slabs of stone reaching from pier to pier, the roots of the vines easily penetrate to the border on the outside.

The vines should be planted early in the spring. Two-year-old plants are preferable, and they may be set eighteen inches from the front wall—one below each rafter, or, if the latter are over three feet apart, one also in the intermediate space.

The pruning and training of the vines we have already described. The *renewal* system of pruning we consider the best in all cases. The *spur* system is, however, practised by many gardeners, with more or less success. This, as most of our readers are aware, consists in allowing a single shoot to extend from each root to the length of the rafters; from the sides of this stem are produced the bearing shoots every year; and every autumn these spurs are shortened back, leaving only one bud at the bottom of each, which in its turn becomes the bearing shoot, and is again cut back the next season. The fruit is abundantly produced, and of good flavor, but the bunches are neither so large nor fair, nor do the vines continue so long in a productive and healthy state, as when the wood is annually renewed.

The essential points in pruning and training the vine, whatever mode be adopted, according to Loudon, "are to

shorten the wood to such an extent that no more leaves shall be produced than can be fully exposed to the light; to stop all shoots produced in the summer that are not likely to be required in the winter pruning, at two or three joints, or at the first large healthy leaf from the stem where they originate; and to stop all shoots bearing bunches at one joint, or at most two, beyond the bunch. As shoots which are stopped generally push a second time from the terminal bud, the secondary shoots thus produced should be stopped at one joint. And if at that joint they push also, then a third stopping must take place at one joint, and so on as long as the last terminal bud continues to break. Bearing these points in mind, nothing can be more simple than the pruning and training of the vine."

When early forcing of the vines is commenced, the heat should be applied very gently for the first few days, and afterwards very gradually increased. Sixty degrees of Fahrenheit's thermometer may be the maximum till the buds are all nearly expanded. When the leaves are expanded, sixty-five may be the maximum and fifty-five the minimum temperature. When the vines are in blossom, seventy-five or eighty in mid-day, with the solar heat, should be allowed, with an abundance of air, and somewhat about this should be the average of mid-day temperature.

To insure a good crop of Grapes, we are satisfied that they must have—*plenty of heat—plenty of air—plenty of moisture—severe thinning of bunches—and severe thinning of berries.* The vines, also, must be pruned often, and kept free; the wood *never* crowded. Great attention must be paid to the airing of the house, which must be done gradually, that there may be at no time a *sudden* change in the temperature.

With such attention, and the prerequisite of a rich border, on a dry subsoil, good crops of fine Grapes are always to be obtained. The vines require much moisture until they have completed their last swell, when the moisture should be withdrawn.

INSECTS AND DISEASES. When properly grown under glass the Grape is a very vigorous plant, liable to few diseases. The bleeding which often happens at the commencement of growth, usually ceases without doing harm when the foliage begins to expand. If excessive, it may be stopped by a mixture of three parts of cheese-parings and one part lime applied to the wound. The red spider, which sometimes infests vine-ries kept at a high temperature, is usually destroyed by coating over the flues with a wash of quick-lime and sulphur, after which the house must be kept closed for half a day. The smaller insects which occasionally prey upon the young

shoots are easily kept down by syringing the parts affected with a solution of whale-oil soap.

VARIETIES. There are in the catalogue a vast number of names of Grapes, many of which belong to the same fruit. But there are really only twenty or thirty varieties which are at all worthy of cultivation in gardens. Indeed, the most experienced gardeners are satisfied with a dozen of the best sorts for their vineries.

We will describe some of the finest foreign Grapes that have been introduced.

FOREIGN GRAPES.

ALICANTE.

Black Lisbon.	Black St. Peters.	Black Portugal.
Black Palestine.	Black Spanish.	Black Valentia.
Meredith's Alicante.	St. Peters.	Espagnin Noir.
Alicantenivein.	Blauer von Alicante.	Sanct Peter's Traube.
	Schwarzer Spanischer.	

An excellent late variety, which is large and showy, and hangs well.

Bunches large, sometimes shouldered. Berries large, oval. Skin tough, rather thick, jet black, with a blue bloom. Flesh tender, juicy.

BLACK HAMBURGH.

Warner's Black Hamburgh.	Frankenthaler.
Purple Hamburgh.	Frankenthaler Gros Noir.
Red Hamburgh.	Trollinger.
Brown Hamburgh.	Blue Trollinger.
Dutch Hamburgh.	Troller.
Victoria.	Welscher.
Salisbury Violet.	Fleisch Traube.
Hampton Court Vine.	Hudler.
Valentine's.	Languedoc.
Gibraltar.	Mohrendutte.
Frankendale.	Weissholziger Trollinger.
Black Frankenthal.	

The Black Hamburgh has long been considered the first of black Grapes for the vinery, but it will very rarely perfect its fruit out of doors. Its very large size and most luscious flavor render it universally esteemed.

Bunches large (about nine inches deep), and mostly with two shoulders, making it broad at the top. Berries very large, roundish, slightly inclining to oval. Skin rather thick, deep brownish purple, becoming nearly black at full maturity. Flavor very sugary and rich. A good and regular bearer.

BLACK MUSCAT OF ALEXANDRIA.

Red Muscat of Alexandria. Red Frontignac of Jerusalem.
Muscat Hamburg.

Bunches large and shouldered. Berries large, oval. Skin thick, of a reddish color, becoming black at maturity. Flesh quite firm, with a rich musky flavor. Requires a vinery with fire-heat.

BLACK PRINCE.

Boston. Sir A. Pyches' Black.
Pocock's Damascus. Steward's Black Prince.

The Black Prince is very highly esteemed. It is hardier than the Black Hamburg, bearing profusely, with the easiest culture, in the vinery.

Bunches long and not generally shouldered. Berries large, rather thinly set, oval. Skin thick, black, covered with a thick blue bloom. Flesh tender, juicy, rich sugary, sprightly.

BOWOOD MUSCAT.

Tynningham Muscat.

A new variety, claimed as a seedling from the Muscat of Alexandria, which it closely resembles, but has rather shorter-jointed wood, and sets its fruit and bears well.

CHASSELAS MUSQUÉ.

Musk Chasselas. Le Cour. St. Albans.

A very delicious Grape, the highest flavored Chasselas, having much of the flavor of the Muscat of Alexandria.

Bunches of medium size, long and rather loose. Berries middle size, round. Skin thin, yellowish white. Flesh tender, with an abundant juice, of a rich musky flavor. Leaves smaller and deeper green than those of the Sweetwater or Muscadine. Requires heat.

DUCHESS OF BUCCLEUGH.

A grape of recent introduction, and highly praised. It is said to be a cross between the Muscat and Chasselas Musqué.

Bunches large, long, tapering, slightly shouldered. Berries medium, roundish. Early, and an abundant bearer. Suited for a hot or cold vinery.

EARLY GOLDEN FRONTIGNAN.

A variety adapted to hot or cold vineries.

Bunch long, medium, not shouldered. Berries medium

round, yellow, with minute dark dots. Flesh juicy, sprightly, melting, sweet.

EARLY SAUMUR FRONTIGNAN.

Muscat de Saumur.	Muscat Hâtif de Saumur.
Madeleine Musquée de Courtiller.	Précoce Musqué.

A very early variety, ripening well in a cold vinery.

Bunches small, compact, shouldered. Berries medium, roundish flattened. Skin thin, translucent amber color at maturity. Flesh juicy, with a pleasant, slight Muscat flavor.

EARLY SILVER FRONTIGNAN.

Bunch medium to large, shouldered. Berries large, roundish oval, whitish yellow, with a silver bloom. Flesh very tender, melting, rich, very juicy, and agreeable. An early and productive sort, suited to hot or cold vinery.

EARLY SMYRNA FRONTIGNAN.

Muscat de Smyrne.	Isaker Daisiko.
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One of the earliest sorts, well suited for a cold vinery.

Bunches medium, well set, not shouldered. Berries medium, round, bright amber. Flesh melting, rich, juicy, delicious.

FINTINDO.

This Grape is of Italian origin, brought to notice by M. De Bavay, of Vilvorde, who received it of Major Esperen, and is said to have been discovered by the French army in Naples. Its growth is vigorous. Peduncle very stout.

Bunch large, compact, and shouldered. Berries of the largest size, nearly round, slightly oval. Skin dark violet. Flesh abounds in a sugary juice, and has a peculiarly pleasant aroma. It has a resemblance to the Black Hamburgh, but is considerably earlier.

FOSTER'S WHITE SEEDLING.

A new variety, described as superior to the Royal Muscadine, and ripening at the same time.

Bunches large, sets well. Berries above medium, roundish oval, yellowish amber. Flesh tender, melting, sweet, and rich flavored. Said to have the character of hanging without shrivelling.

GOLDEN CHAMPION.

A new variety but just introduced. It is described in the Gardener's Magazine as remarkably free and robust in growth, and of as easy culture as Black Hamburg.

Bunches large, of a slightly-tapering form, and heavily shouldered. Berries extra large, obovate or ovate, slightly pointed—in some instances almost round. Flesh firm, yet remarkably juicy, tender, and rich flavor.

GOLDEN HAMBURGH.

Busby's Golden Hamburg. Stockwood Park Golden Hamburg.

A new white Grape of excellent quality. Requires careful cultivation, as it soon decays after ripening.

Bunches large, somewhat loose, shouldered. Berries large, roundish oval, rich yellow. Skin thin. Flesh tender, juicy, rich, melting, sweet.

GREEN'S PROLIFIC.

A new variety, originated by W. R. Green, Newburgh, N. Y. Vine a strong grower, very productive, and sets well.

Bunch large, long, shouldered, very compact. Berry medium, round, deep black, blue bloom, raised a little at apex. Flesh juicy, melting, sweet, vinous.

GRIZZLY FRONTIGNAN.

Red Frontignan.	Muscat Gris.	Grizzly Frontignan.
Muscado Rosso.	Red Constantia.	Kümmel Traube.
Muscat Rouge.	Grauer Muscateller.	

This delicious Grape requires to be grown in a vinery, when it is, to our taste, scarcely surpassed.

Bunches rather long, with narrow shoulders. Berries round, of medium size, and growing closer upon the bunches than those of the White Frontignan. Skin thick, pale brown, blended with pink and yellow. Flesh very juicy, rich, musky, and high flavored.

JURA MUSCAT.

Muscat Noir de Jura.

A valuable Grape. Vine very prolific.

Bunches long, tapering, slightly shouldered. Berries above medium, oval, and well set. Skin purplish black or dark chocolate, with a thin blue bloom. Flesh solid, tender, juicy, richly flavored, with a fine Muscat aroma.

LADY DOWNE'S.

Lady Downe's Seedling.

This variety was grown from seed of the Black Morocco crossed by the Chasselas or Sweetwater. It is among the most valuable, ripening its fruit and hanging a long time—Hogg says, from August until March.

Bunches large, rather loose, shouldered. Berries above medium, roundish oval. Skin rather thick, reddish purple, becoming quite black, with a delicate bloom. Flesh dull white, firm, sweet, and richly flavored.

MUSCAT OF ALEXANDRIA.

Alexandrian Frontignan.	Moscatel Gordo Blanco.
Charlesworth Tokay Malaga.	Panse Musquée.
Muscat Escholata.	Passe Musquée.
Muscat Grec.	Tottenham Park Muscat.
Muscat of Jerusalem.	Uva Salamana.
Muscat of Lunel.	White Muscat of Alexandria.
Muscat Romain.	Muscat Esculata?

A well-known Grape which furnishes the Muscatel Raisins, from Spain. It requires a high temperature to ripen it thoroughly.

Bunches very large, long, loose, shouldered. Berries large, oval, unequal in size. Skin thick, pale amber, thin white bloom. Flesh firm, moderately juicy, sweet and rich, fine Muscat flavor.

PRIMAVIS FRONTIGNAN.

An early ripening variety that sets well and is productive.

Bunches large, long, shouldered, berries medium to large, round, amber. Flesh rather solid, tender, juicy, sweet, and rich. One of the finest of the Muscat Chasselas family. Early.

ROYAL MUSCADINE.

Amber Muscadine.	Chasselas de Fontainebleau.
Early White Teneriffe.	D'Arbois.
Golden Chasselas.	Raisin de Champagne.
White Chasselas.	Amiens.
Chasselas doré.	Campanella Bianca.
Chasselas blanc.	White Nice, or Xeres.

A truly excellent Grape in all respects—one of the very best for hardy culture in this climate, or for the vinery. It

is everywhere highly esteemed, and is the Chasselas *par excellence* of the French.

Bunches large and shouldered. Berries larger than those of the Sweetwater, round. Skin thin, at first greenish white but turning to an amber color when fully ripe. Flesh tender, with a rich and delicious flavor. Ripens here about the 20th of September. Wood and foliage stronger than those of the Sweetwater.

SYRIAN.

Jews.

Palestine.

Terra de la Promise.

This is believed to be the Grape mentioned in the Scriptures as found by the Israelites on the brook of Eshcol, the bunches of which were so large as to be borne on a staff by two men. It is a very superb-looking fruit, and has been grown in this country to very large size. In England bunches of it have been produced weighing 19½ lbs.

Bunches enormously large, and regularly formed, with broad shoulders. Berries large, oval. Skin thick, white at first, but becoming a tawny yellow or amber when at full maturity. Flesh firm and solid, moderately juicy and sweet though not rich. Will hang till Christmas in a vinery. The wood and foliage are very large.

TRENTHAM BLACK.

Long Noir d'Espagne.

A fine variety, well suited to the cold vinery. It ripens with Black Hamburg, but will hang plump and fresh long after that variety has shrivelled.

Bunches large, tapering, and shouldered. Berries above medium, oval. Skin tough, jet black, covered with a thin bloom. Flesh melting, juicy, rich, sugary, vinous.

TROVEREN FRONTIGNAN.

Troveren.

Muscat Troveren.

Muscat Troveren Blanc.

This, says Rivers, is one of, if not the finest of all the Frontignans. A great bearer, and with a rich Muscat flavor in the fruit.

Bunches large. Berries very large, roundish oval, greenish, changing to pale amber. Flesh firm and crackling, juicy sweet, and acid. Requires fire heat.

TYNINGHAM MUSCAT.

A late variety that sets well and is very productive.

Bunches very large, double-shouldered. Berries large, oval, amber yellow, slight bloom. Flesh solid, juicy, sweet, and of a rich Muscat flavor.

WHITE FRONTIGNAN.

White Constantia.	Moscado Bianco.
Muscat Blanc.	Weisser Muscateller.
Moschata Bianca.	Nepean's Constantia.
Muscateller.	Muscat Blanc de Jura.
White Frontniac.	Moscatel Commun.
Raisin de Frontignan.	Weisse Muscaten Traube.

The White Frontignan is a very favorite Grape, as the many names quoted above, by which it is known in various parts of Europe, sufficiently prove. Its hardy habit, uniform productiveness in the vineyard, and most luscious flavor, make it everywhere esteemed.

Bunches of medium size, or pretty long, and without shoulders. Berries middle-sized, round, rather thickly set. Skin thin, dull white or yellow, covered with a thin bloom. Flesh tender, with a rich, perfumed, musky flavor.

WHITE NICE.

A very large and showy fruit, and, in a vineyard with fire-heat, a very excellent sort. M'Intosh, an English gardener of reputation, has grown bunches of this the White Nice to the enormous weight of eighteen pounds, and considers it "one of the noblest of grapes."

Bunches very large, with loose shoulders. Berries roundish, medium size, thinly distributed over the shoulders and sides of the bunch. Skin thin, rather tough, greenish white, becoming, finally, a little yellowish. Flesh crisp, sweet, and of very good flavor. Leaves and wood very strong, the latter remarkably downy beneath.

WHITE TOKAY.

Genuine Tokay.	Gray Tokay.	Tokai blanc.
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This is the fruit from which the delicious Tokay wine of Hungary is made. Its flavor is good, and its aroma peculiarly agreeable.

Bunches of medium size, compact. Berries rounded oval, closely set. Skin thin, of a dull white. Flesh very delicate, sweet, and perfumed.

AMERICAN GRAPES.

The better varieties of the native Grapes are among the most valuable of fruits in the Middle States. Hardy, vigorous, and productive, with a moderate amount of care they yield the farmer and the common gardener, to whom the finer foreign sorts, requiring much attention and considerable expense in culture, are denied; the enjoyment of an abundance of very good fruit.

The grape region has been lately greatly extended by the addition of new varieties, which, in consequence of ripening their fruit much earlier than the Isabella and Catawba, are suited to two or three degrees of latitude farther north than the limit of the cultivation of these varieties.

The garden culture of the hardy native grapes, although not very difficult, cannot be accomplished, so as to give the fruit in perfection, without some attention to their habits and wants. The soil should be dry, deeply worked, and well enriched, always bearing in mind that it is an essential point to secure a perfectly open, sunny exposure, as it may always be assumed that with us no atmosphere can be too warm or bright for the grape; for although it will make the most vigorous shoots in the shade of trees or buildings, yet the crops will be small, the fruit poor and uncertain, and the vines likely to fall a prey to mildew.

In the second place, the vines should be *kept within moderate bounds*, and trained to an *upright trellis*. The Isabella and Concord are so rampant in their growth when young, that the indulgent and gratified cultivator is but too apt to allow them to overbear; the border should always be given to the exclusive occupancy of the vines, and the roots should be allowed space proportional to the branches they are to carry. By observing these directions, and not suffering the vines to overbear, they may be continued a long time in full vigor and productiveness.

The system of pruning and training these grapes generally pursued is the upright mode, with the spur mode of training. The first season's growth of a newly planted vine is cut back to two buds the ensuing fall or spring. These two buds are allowed to form two upright shoots the next summer, which at the end of the season are brought down to a horizontal position, and fastened each way to the lower horizontal rail of the trellis, being shortened at the distance of three or four feet from the root—or as far each side as the plant is wished to extend. The next season, upright shoots are allowed to grow one foot apart, and these, as soon as they reach the top

of the trellis, are also stopped. The next year, the trellis being filled with the vines, a set of lateral shoots will be produced from the upright leaders, with from one to three bunches upon each, which will be the first crop. The vine is now perfect, and, in the spur mode of pruning, it is only necessary at the close of every season, that is, at the autumnal or winter pruning, to cut back these lateral shoots or fruit-spurs to within an inch of the upright shoot from which they sprang, and a new lateral producing fruit will annually supply its place, to be again cut out at the winter pruning.

After several years' bearing, if it is found that the grapes fail in size or flavor, the vines should be cut down to the main horizontal shoots at the bottom of the trellis. They will then speedily make a new set of upright shoots which will produce very abundantly, as at first.

It cannot be denied that the *renewal* system of training (507) is certain of yielding always the largest and finest fruit, though not so large a crop—as half the surface of the vine is every year occupied with young wood, to take the place of that annually cut out.

What we have already stated (509) respecting pruning will apply equally well here. If the vine is *fully exposed to the sun* it will require very little summer pruning; in fact, none, except stopping the young shoots three joints beyond the farthest bunch of grapes, at mid-summer—for the leaves being intended by nature to elaborate the sap, the more we can retain of them (without robbing the fruit unduly of fluids expended in making new growth) the larger and higher flavored will be the fruit; careful experiments having proved that there is no more successful mode of impoverishing the crop of fruit than that of pulling off the leaves.

In the axils of the leaves by the side of the buds which are to send forth shoots for next season's crops, branches called *laterals* push forth, which should be pinched off at the first leaf, and at the next leaf where they start again; generally the second stopping will be sufficient.

The annual pruning of the hardy grapes is usually performed during mild days in February or March—at least a month before vegetation is likely to commence. Many cultivators prefer to prune their vines in November, and, except for cold latitudes or exposures, this is undoubtedly the better season.

VINEYARD CULTURE. The vineyard culture of the native grape is very simple. Strong, loamy, or gravelly soils are preferable—limestone and clay shale being usually the best—and a *warm, open, sunny exposure* being indispensable.

In preparing the soil, if it is loamy or gravelly, a simple

deep ploughing is all that is requisite; but if it is clay, or underlaid with a clay hard-pan, the subsoil should be thoroughly broken to a depth of not less than sixteen inches. This, on most lands, can be done by means of a plough and team. Steep side-hills or slopes must of course be prepared by hand labor, digging and trenching the ground thoroughly with the spade.

The vines are planted in rows, the distance from plant to plant varying according as it is a strong and vigorous grower like Concord, or a moderate short-jointed grower like Delaware. The first are generally planted eight by eight feet or eight by ten feet apart, and the latter four by six feet; while varieties of intermediate vigor are placed at six by eight feet. The renewal system of pruning is generally practised, and the vines are trained both on stakes and wire trellis, the latter being most generally considered as the best and most economical.

The ordinary culture is as simple as that of a field of Indian corn—one man and horse with a plough, and the horse cultivator, being able to keep a pretty large surface in good order. The annual pruning is performed in autumn or winter, top-dressing the vines when it is necessary in the spring; and the summer work, thinning, tying, and gathering being chiefly done by women and children.

The summer work is one requiring some care and watchfulness, although attendant with light labor, and, as we have said, may be performed by women and children. In vineyard culture the long renewal system is most practised; by it the vine the first year is permitted to make but one leading shoot, all the buds likely to form other shoots being rubbed off early in spring, or as soon as they have fully developed. The second year this one cane, or the first year's growth, is cut down to two buds, and these are grown to two long canes, all others, as the first year, being rubbed off. The third year one of these canes of the second year's growth is cut down to two buds, and the other to four buds—the former again permitted to make two good long stout canes, and the latter allowed to produce about four or six clusters of fruit, all the ground shoots being rubbed away. When the buds break in spring, as soon as they are about one inch long the bearing canes are to be examined, and all but one shoot at each axil be rubbed out, otherwise there will be a mass of small shoots and clusters without any perfect fruit. It is also in some varieties deemed advisable to rub out entire all the buds of each alternate joint, leaving only one-half the natural quantity to fruit. When this is done the winter pruning of the bearing cane should be somewhat longer than when each bud is allowed to fruit.

The two buds or canes for the next year's fruiting are allowed to grow as long as they will, and are trained upright; the other, on which the fruit is grown, is carried off at an angle of about forty-five degrees, and when it has made its shoots, set its fruit, and grown so that there are three or four leaves or joints beyond the fruit, they are stopped by pinching, as we have advised in the training of foreign grapes, the only point of difference being in permitting our native sorts more liberty and foliage. The following season, or fourth year, the cane which has this year borne fruit is cut down to two buds, and the two canes of this year's growth are cut to four or more buds for fruit-bearing, and trained at an angle of forty-five degrees each way, while the two buds on the bearing cane of last year make canes for the succeeding year's bearing.

DISEASES AND INSECTS. The mildew and rot are diseases which most affect the success of grape culture in this country. Many theories and suggestions as to their origin, cause, etc., have been promulgated and printed, but we feel that as yet no clear and full explanation or cause has been adduced,—sudden changes of temperature, a cold night or two in the month of August, a few days of foggy warm rain, followed by clear sunshine, often producing the disease, with serious results, without regard to the most thorough practices of prevention as advised by theorists.

The beetles which sometimes infest the grape-vines in summer, especially the large brownish yellow vine beetle (*Pelidnota punctata*), and the grape-vine flea-beetle (*Haltica chalybea*), are very destructive to the foliage and buds, and the most effectual remedy is hand-picking when taken in time.

GRAFTING the grape may be performed, and often quite successfully. Operators differ in their opinion as to the best season, some preferring the autumn, some early spring, and some quite late spring. But, whatever time is taken, it must be remembered that the union of the graft and stock should always be covered with earth, leaving the top or upper bud of the graft level with the ground.

KEEPING. Grapes may be kept into mid-winter or even spring. They should be gathered in a dry day, laid in tiers of two bunches deep on shelves for a couple of days, then aired, and each bunch carefully wrapped in soft paper and packed in boxes, not over five or six inches deep, and laid away in a cool dry room. Another plan is to pack them in layers with fine soft hay, cut by a cutting machine into about inch-long bits, laying a layer of hay, then grapes, and then hay again. If grapes are gathered before they are fully matured, they do not have as good flavor, nor are they as rich

and sweet as when fully ripe. In handling, be careful to take them always by the stem.

VARIETIES.

ADIRONDAC.

The original vine of this Grape was discovered in the grounds of J. G. Witherbee, Port Henry, Essex Co., N. Y., and was introduced to notice by J. W. Bailey, of Plattsburgh, N. Y. The growth and foliage is much like Isabella, but not as vigorous. It succeeds well in its locality, and many north, but not as well south.

Bunches large, compact, sometimes shouldered. Berries large, round. Skin thin, dark purplish black, covered with a delicate white bloom. Flesh very tender, juicy, mild, pleasant, sweet, one of the earliest to ripen.

ALLEN'S HYBRID.

Originated with J. Fisk Allen, of Salem, Mass. It is a hybrid between the native and foreign, and is one of the best in quality, and has peculiar crumpled leaves. The vine is not hardy and requires winter protection, but is vigorous and productive, ripening quite early, and in sheltered situations is a most desirable variety.

Bunch medium to large, shouldered, compact. Berry medium to large, round, sometimes depressed. Skin thin, white, changing to pale yellow when fully ripe. Flesh tender, juicy, sweet, rich, slightly vinous, and one of the best in quality.

BARRY.

Rogers' No. 43.

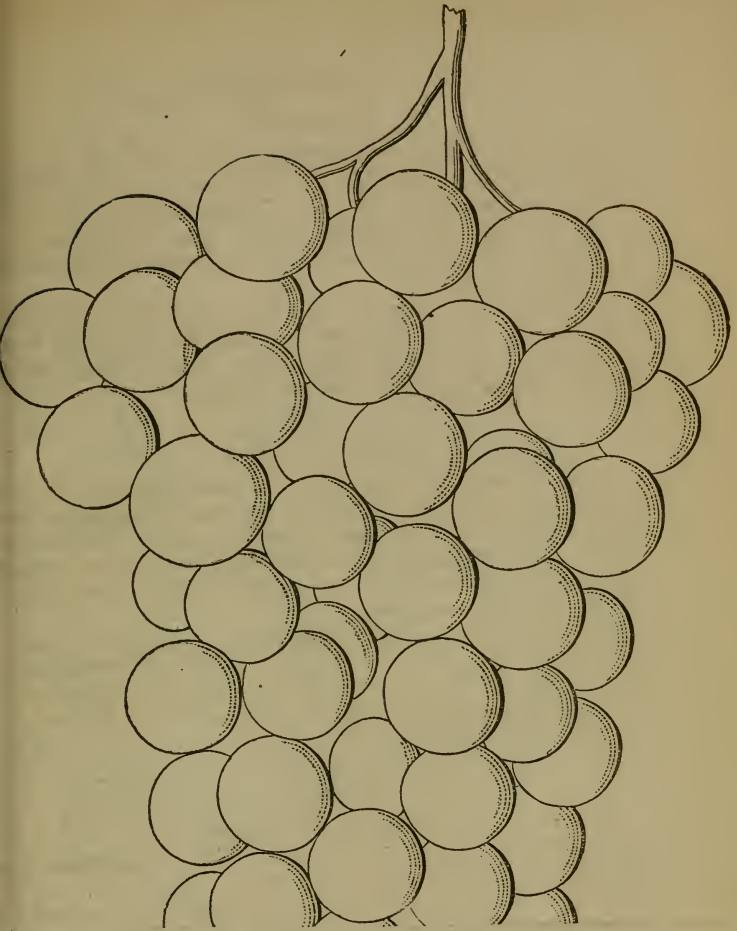
Raised by E. S. Rogers, of Salem, Mass. Vine vigorous, productive; one of the best of the blacks.

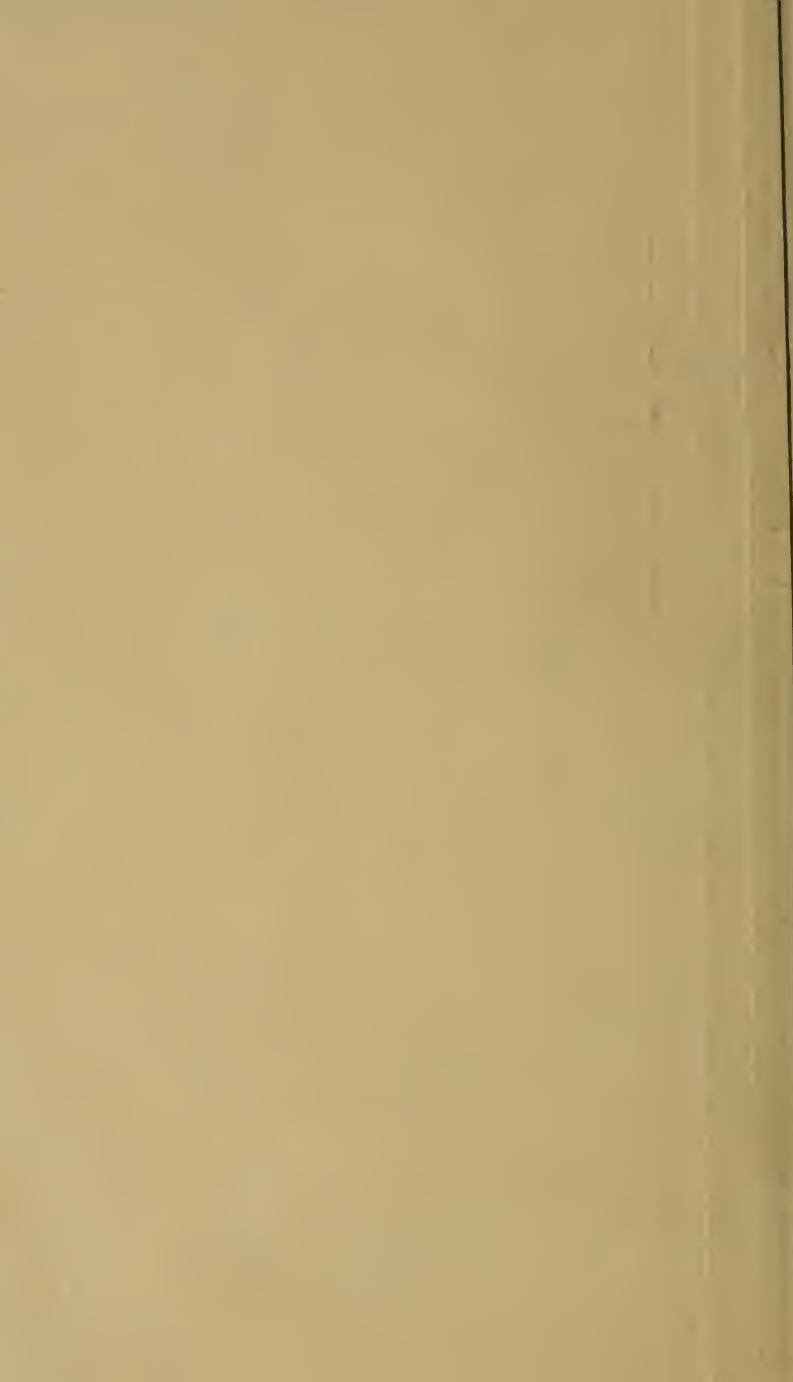
Bunch rather large, short, broad, compact, often shouldered. Berry large, roundish to oval, black. Flesh tender, nearly free from pulp, juicy, sweet, pleasant. Ripens about the time of Concord.

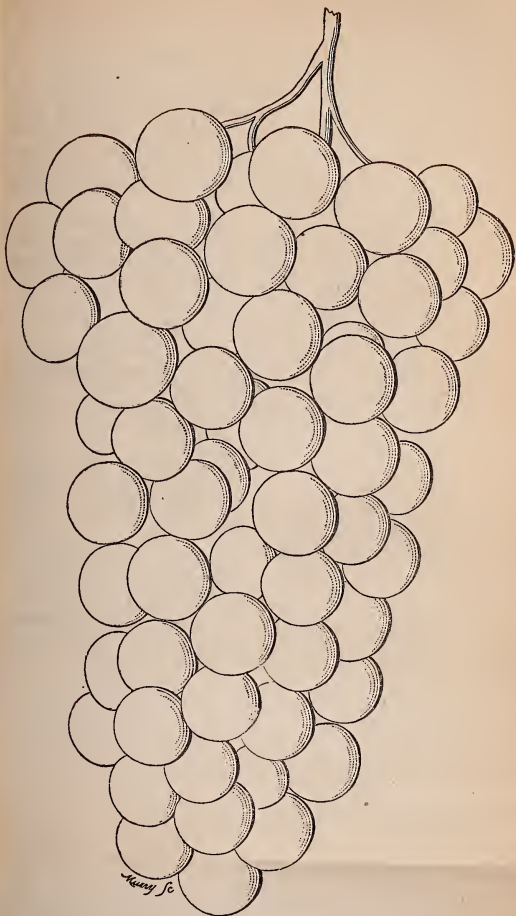
CANADA.

Arnold's No. 16.

Raised by Charles Arnold, Paris, Canada West, from seed of Clinton crossed with pollen of Black St. Peter's. Vine and foliage somewhat like Clinton. The fruit also resembles







Adirondac.

Clinton in appearance of bunch, but larger berry, and much superior flavor.

Bunch medium to large, long, compact, sometimes shouldered. Berry medium, nearly round, black, blue bloom. Flesh free from pulp, tender, juicy, sweet, vinous, slightly aromatic. Ripens about the time of Concord or just before.

CATAWBA.

Red Muncy.
Michigan.

Catawba Tokay.
Fancher.

Saratoga.
Emma.

This excellent native Grape was first introduced to notice by Major Adlum, of Georgetown, D. C., and was found by him in Maryland.

The Catawba is too late in ripening for general cultivation in the Eastern and Northern States; but where it does succeed few Grapes are its superior. Clay shale soils appear to give most richness to the fruit; but very handsome clusters are grown in gravelly or sandy soils. It is a popular and profitable market sort. Vine hardy and productive.

Bunches of medium size, somewhat loose, shouldered. Berries round (or sometimes slightly oval), pretty large. Skin rather thick, pale red in the shade, but pretty deep red in the sun, covered with a lilac bloom. Flesh slightly pulpy, juicy, very sweet, with an aromatic, rich, musky flavor. Ripe from the 1st to the middle of October, and should be allowed to hang till fully ripe.

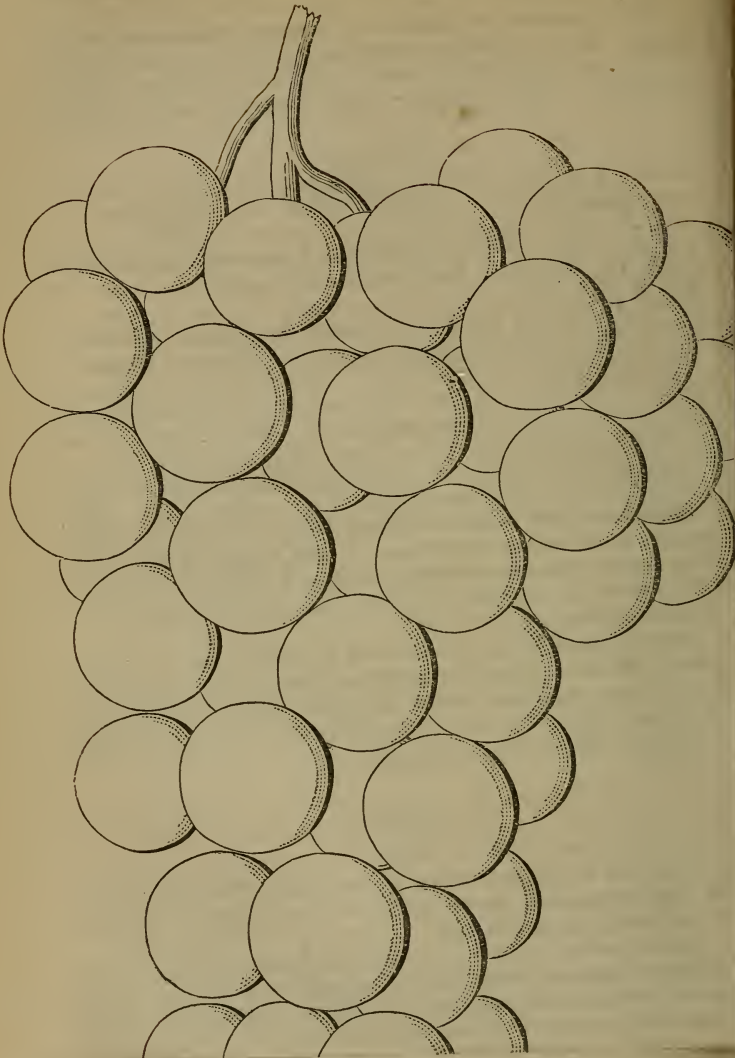
Mead's Seedling, and Mammoth Catawba, and Poeschel's Mammoth are claimed as seedlings of the Catawba; but they are so nearly identical as not to require distinct descriptions. The Zane, White Catawba, Pond's Seedling, James' Seedling, Clermont, also belong to this class.

CONCORD.

Main.

This fine hardy native Grape was raised from seed by E. W. Bull, Concord, Mass. It is of very healthy, vigorous habit, hardy and productive.

Bunch rather compact, large shouldered. Berries large, globular, almost black, thickly covered with bloom. Skin rather thick, with more of the native pungency and aroma than the Isabella, which it resembles, but does not quite equal in quality. Flesh somewhat buttery, moderately juicy, sweet, with considerable toughness and acidity in its pulp. It is more hardy than the Isabella, and ripens about ten days earlier, consequently it is a very valuable variety for a large



northern range where the Isabella does not ripen. It is very popular, but as a market sort the fruit, if left to ripen before gathered, does not carry well long distances, and is liable to drop from the bunch after a few days.

CORNUCOPIA.

Arnold's No. 2.

Raised in the year 1859, by Charles Arnold, from seed of Clinton, crossed with St. Peter's. Vine very healthy and vigorous. Leaves large, dark green, smooth on both sides. Wood short jointed. Very productive and a long keeper. The skin being thin, the fruit sometimes cracks.

Bunch medium to large, nearly compact, shouldered; berry medium, round, very black with a slight blue bloom. Flesh tender, juicy, sweet, vinous and sprightly. Ripens about the time of Concord.

CREVELLING.

Catawissa Bloom.
Columbia County.

Bloomburg.
Laura Beverly?

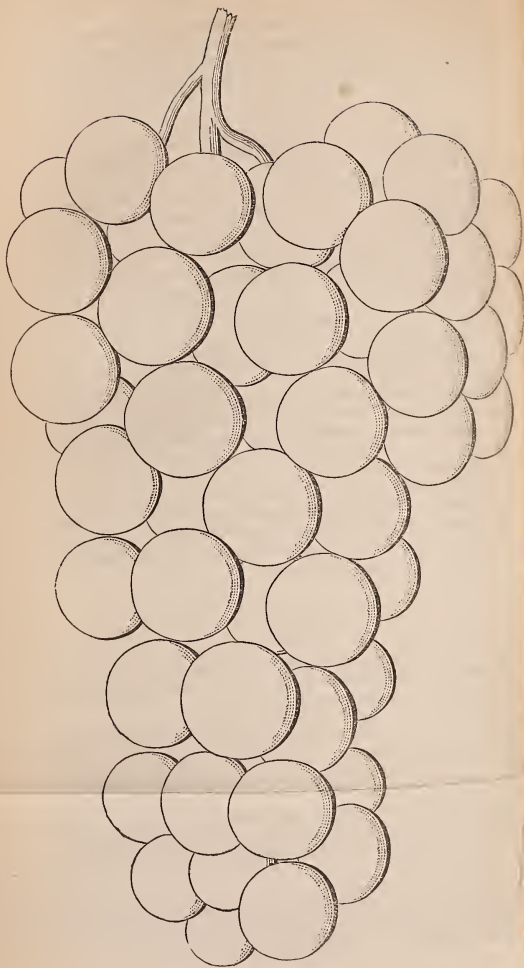
Claimed to be of Pennsylvania origin. Vine hardy and vigorous, moderately productive. It has imperfect blooms, but is said to be quite productive when grown side by side with Concord.

Bunch medium to large, long, loose, shouldered. Berries medium, nearly round, black, with a blue bloom. Flesh tender, very little pulp, juicy, sweet, and moderately rich, more so than Concord. Ripens soon after Hartford Prolific.

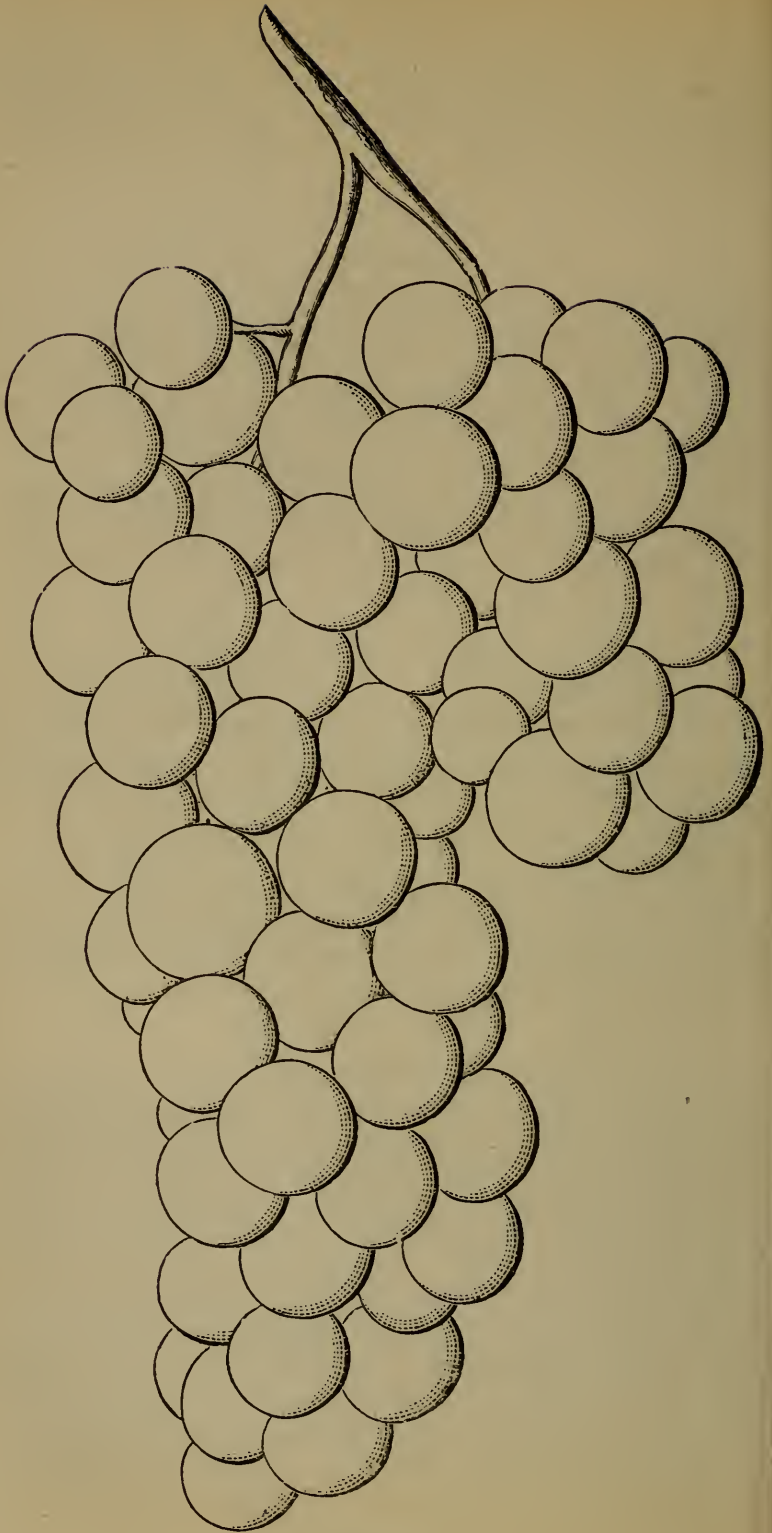
CROTON.

A new early Grape raised by Stephen Underhill, of Croton Point, N. Y., and is a hybrid between Delaware and Chasselas de Fontainebleau. It is not yet fully tested, but is said to be hardy, vigorous, and productive. The fruit is beautiful and of the finest quality, well suited to the amateur, is likely to prove a valuable early market grape, and is being planted for that purpose.

Bunch large, long, moderately compact, shouldered, sometimes double shouldered, or small wings; berry medium, round. Skin whitish green, changing to deep rich yellow where fully exposed. Flesh tender to the centre, juicy, sugary, rich, and slightly aromatic. Ripens soon after Hartford Prolific, or between that and Concord, and continues a long time in use.

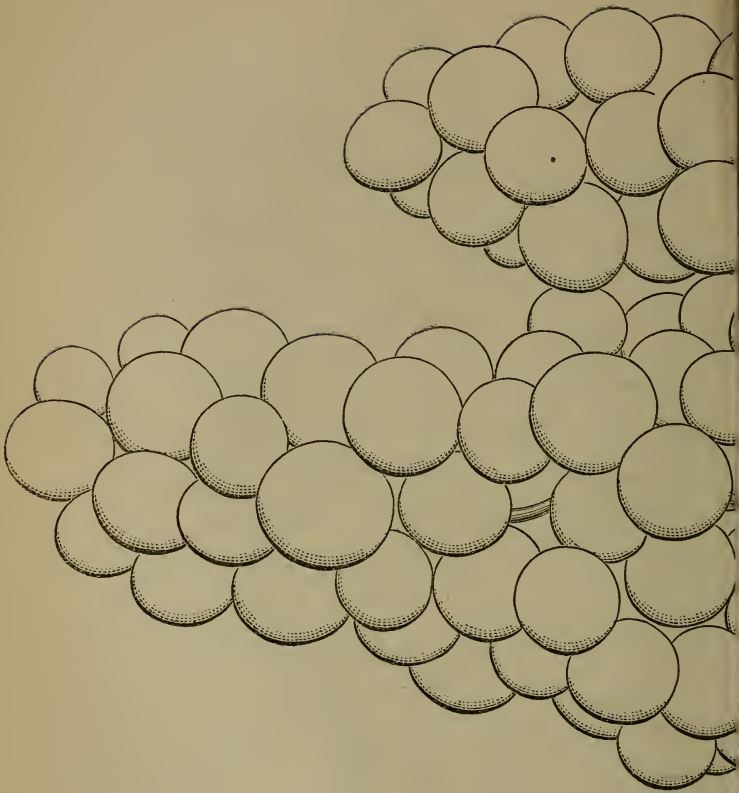


Concord.

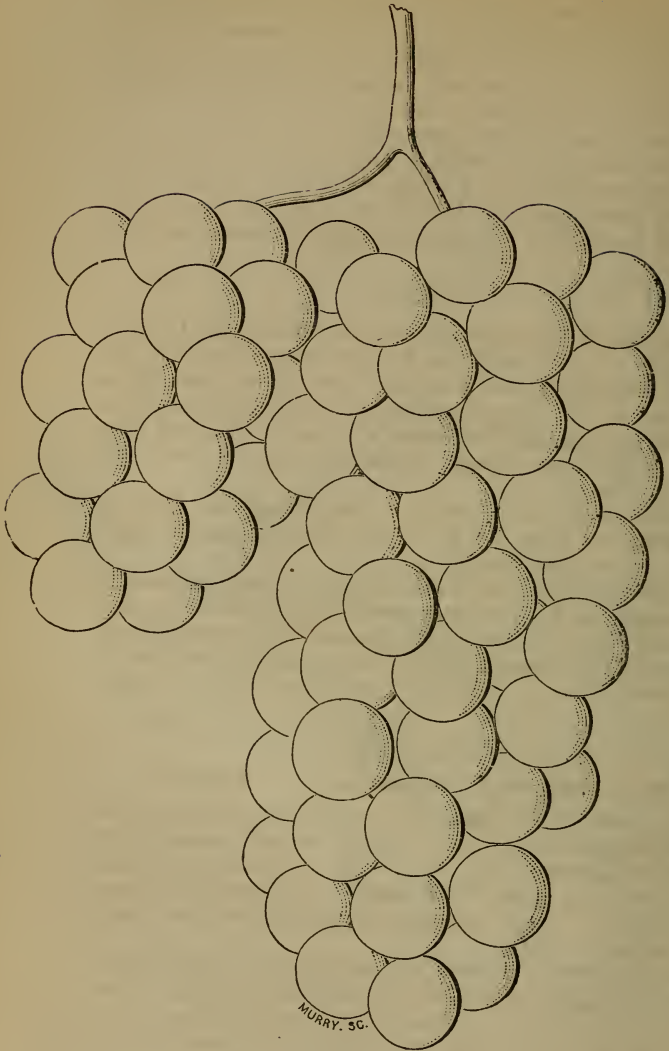


Cornucopia.

Croton.







Delaware.

DELAWARE.

Heath.

Italian Wine.

The precise origin of this Grape is not known. It was

found many years since in the garden of Paul H. Provost, Frenchtown, Hunterdon Co., N. J. It is moderately vigorous in growth, with short-jointed wood. Quite hardy, requires rich soil, open, and well drained, to produce the finest of fruit. One of our most, if not the most, valuable sorts for general cultivation. Very productive.

Bunch small, very compact, and generally shouldered. Berries rather small, round. Skin thin, of a beautiful light red, very translucent. It is without hardness or acidity in its pulp, exceedingly sweet, but sprightly, vinous, and aromatic.

DIANA.

A seedling of the Catawba, raised by Mrs. Diana Crehore, of Boston. It is a very fine fruit when well ripened, but while it colors early, does not ripen much, if any, earlier than Catawba. It is a very vigorous vine, requiring much room and long pruning, and increases in productiveness and good quality as the vines get age. It does not require a very rich soil.

Bunches large, very compact, and heavy, not properly shouldered, but often having a small bunch appended by a long branch of the peduncle.

The color is a fine reddish lilac, thickly covered with bloom. The berries round. The fruit when fully ripe abounds in fine rich juice, vinous, and aromatic, from which all the offensive native odor has disappeared. It hangs long on the vines, is not injured by severe frosts, and keeps admirably for winter use.

ELSINGBURGH.

Smart's Elsingburg. Elsenborough. Elsinboro.

A very nice little Grape for the dessert, perfectly sweet and melting, without pulp, originally brought from a township of this name in Salem Co., N. J. It is not a great deal larger than the common Frost Grape in the size of the berry. A moderate, but regular bearer, ripens well, and much esteemed by many for the table.

Bunches pretty large, loose, and shouldered. Berries small, round. Skin thin, black, covered with a blue bloom. Flesh entirely without pulp, melting, sweet, and excellent. The leaves are deeply five-lobed, pretty dark green, and the wood rather slender, with long joints.

EUMELAN.

A chance seedling originated with the Messrs. Thorne, near Fishkill, N. Y. Vine hardy, productive, and ripens early.

The bunch of good size, compact, shouldered. Berry medium size, nearly round, of a deep purple or bluish black color, covered with a light bloom. Flesh tender, melting, ripening to the centre, sweet, sprightly, vinous.

GOETHE.

Rogers' No. 1.

Raised by E. S. Rogers, of Salem, Mass. Vine vigorous, productive, and has more of the foreign character in it than any other of his seedlings. It does not ripen here, except in favorable seasons. It is said to succeed well South and Southwest.

Bunch large, moderately compact, shouldered. Berry very large, oval, yellowish green, often blotched with dull red, becoming pale red when fully ripe. Flesh tender to the centre, buttery, fleshy, juicy, sweet, slightly aromatic.

HARTFORD PROLIFIC.

Seneca?

Framingham.

Raised by Paphn Steel, of West Hartford, Conn. Hardy, vigorous, and productive.

Bunch large, shouldered, rather compact. Berry large, globular, with a good deal of the native perfume. Skin thick, black, covered with a bloom. Flesh sweet, moderately juicy, with considerable toughness and acidity in its pulp. Ripe among the very earliest. An early variety for marketing, but too liable to drop its fruit from the bunch as soon as fully ripe.

HERBEMONT.

Warren.

Herbemont's Madeira.

Warrenton.

Neil Grape.

Origin claimed for many localities, but not yet fully ascertained. It is, however, a Southern Grape, a vigorous grower, a good bearer, and particularly fitted for those Southern latitudes that are liable to injury from late frosts in spring, as it flowers very late. It is highly esteemed as a wine grape in Missouri, Tennessee, and other Southern and Southwestern sections. At the North it does not ripen its fruit except in warm, sheltered situations.

Bunch large and very compact, shouldered. Berries below medium, round, dark blue or violet, covered with a thick light bloom. Skin thin, which is filled with a sweet, rich, vinous aromatic juice of so little consistence that it cannot be called flesh.

IONA.

Originated by Dr. C. W. Grant, Iona Island, N. Y. Vine vigorous, productive. A superior grape when in perfection, and has been remarkably fine the past season (1870) in several localities, and is considered by many the best of American grapes; it does not, however, succeed in all situations, and requires a favorable season at the North to have it in perfection.

Bunch medium to large, shouldered, sometimes double-shouldered. Berries medium, roundish oval, light clear red, fine bloom. Skin thin. Flesh soft, tender to the centre, juicy, sweet, vinous. Ripens a few days after Delaware, and continues a long time in use.

ISABELLA.

Paig's Isabella.
Woodward.

Christie's Improved Isabella.
Sanbornton?

Payne's Early.

This very popular Grape, a native of South Carolina, was brought to the North and introduced to the notice of cultivators about the year 1818, by Mrs. Isabella Gibbs, the wife of George Gibbs, Esq., in honor of whom it was named. Its great vigor, hardness, and productiveness, with the least possible care, have caused it to be most widely disseminated. It is, perhaps, a little more hardy, and ripens earlier than the Catawba.

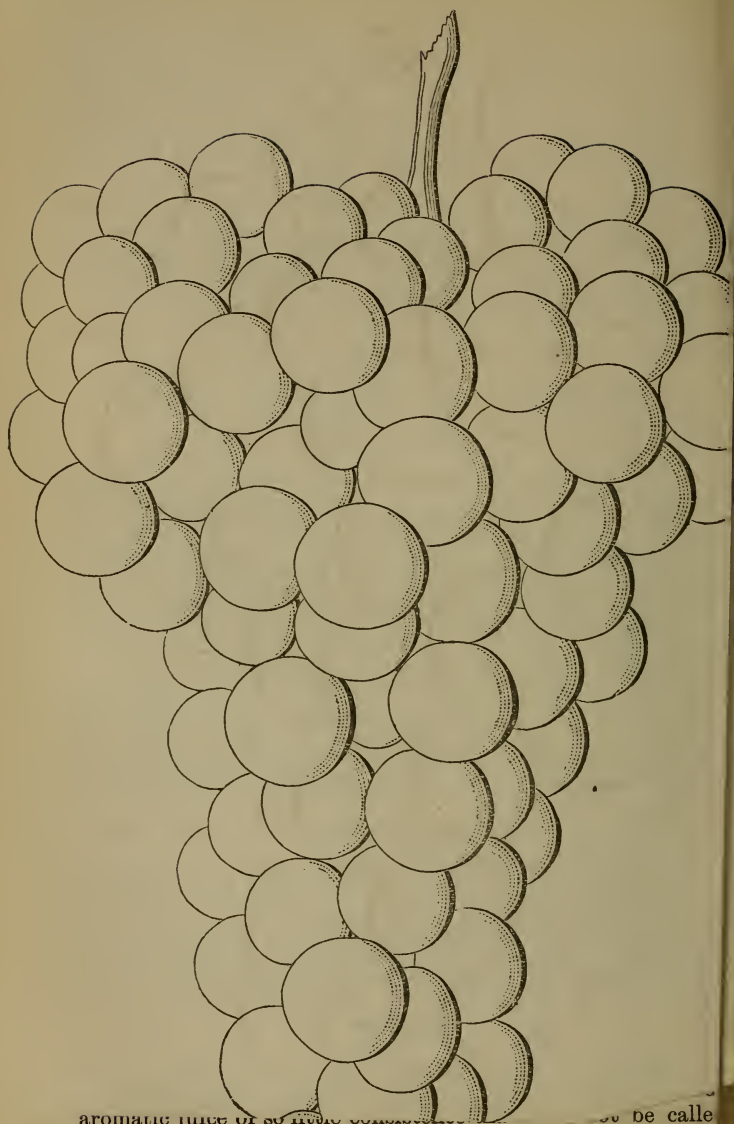
Bunches of good size—five to seven inches long, rather loose, shouldered. Berries oval, pretty large. Skin thick, dark purple, becoming at last nearly black, covered with a blue bloom. Flesh tender, with some pulp, which nearly dissolves when fully mature; juicy, sweet, and rich, with slight musky aroma.

This Grape is frequently picked as soon as it is well colored, and long before it is ripe.

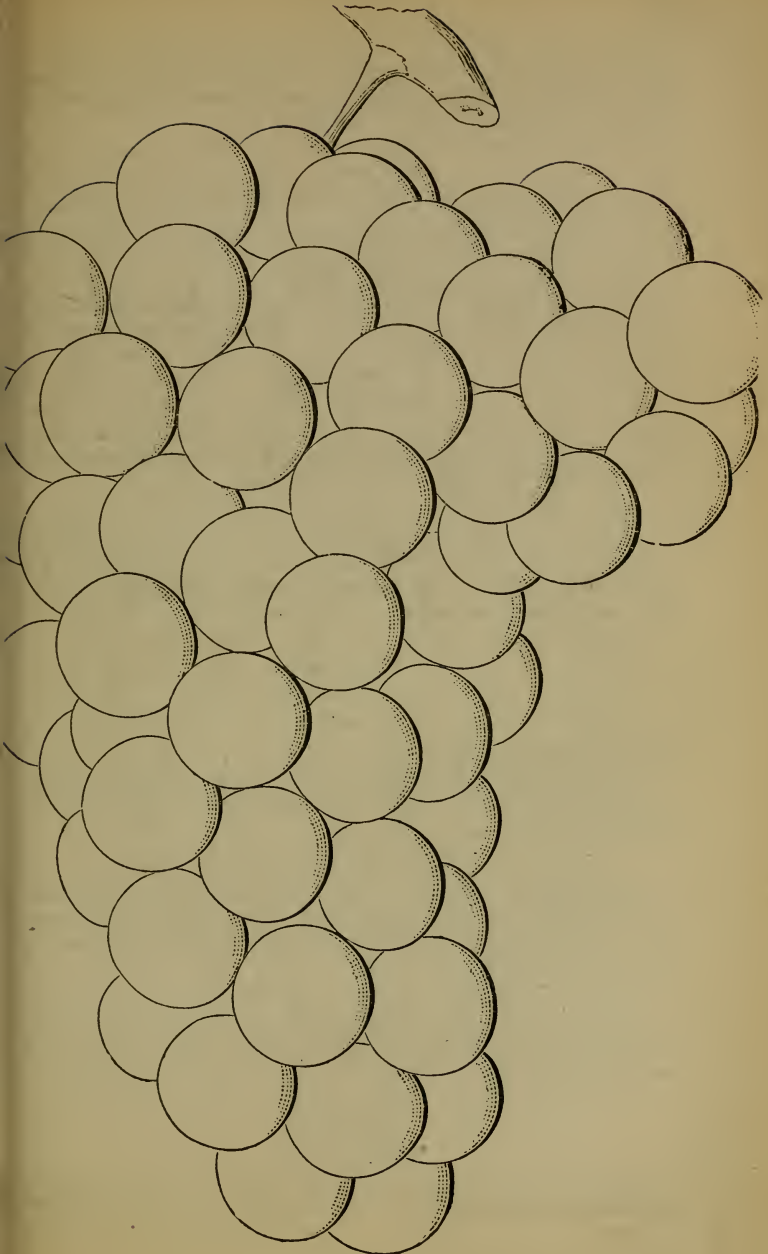
Many seedlings of the Isabella have been grown, differing very little in form, size, or quality of fruit, or in growth and productiveness, and therefore we prefer to class them as sub-varieties. They are Cloanthe, Aiken, Richmond, Baker, Bogue's Eureka, Sanbornton, Wright's Isabella, Lee's, &c., &c.

ISRAELLA.

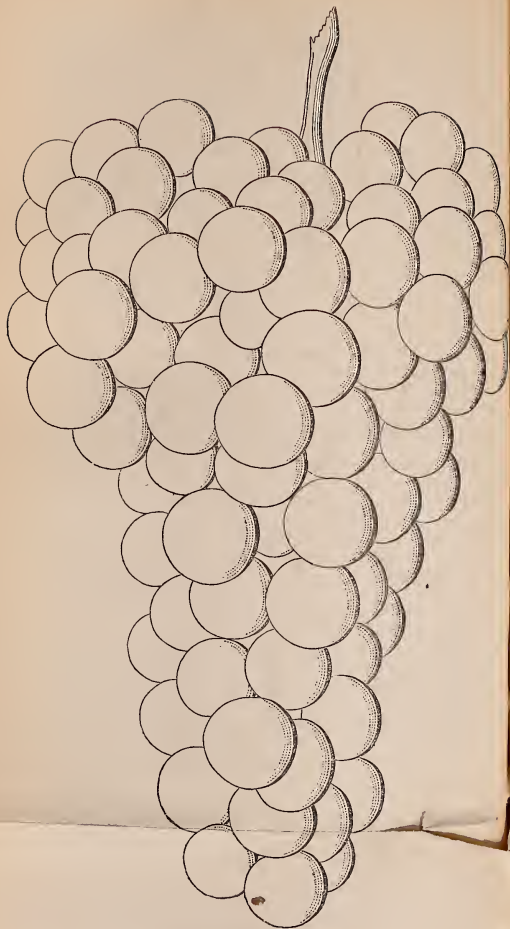
Originated with Dr. C. W. Grant, of Iona Island, N. Y. This vigorous, hardy, and very productive, a fine early grape, in use a long time, and improves in quality as the season advances.



aromatic juice of so rich a character as to be called
flesh.



Israella.



Iona.

Bunch medium to large, often shouldered, compact. Berries large, slightly oval. Skin rather thin, deep black, with a thick blue bloom. Flesh tender, juicy, free from pulp, sweet. Ripens soon after Hartford Prolific.

LENOIR.

This Grape takes its name from Lenoir Co., N. C. It has been confounded with Black July, but is distinct, as shown in foliage. The foliage of this has lobed leaves.

Bunch medium, compact, shouldered. Berry small, round, dark, almost black. Flesh tender, vinous, juicy, sweet. A good variety South, but too late in ripening for the North.

MARTHA.

White Concord.

Raised by Samuel Miller, Bluffton, Mo. The habit of the vine is much like Concord, but it has not yet been tested, as we think, sufficiently to decide on its productiveness.

Bunches medium, not very compact, shouldered. Berry large, roundish, greenish yellow, with a bloom. Flesh similar to Concord, perhaps a little sweeter. Skin thin, slightly foxy, buttery, with a slight pulp. A promising new sort, ripening a few days earlier than Concord.

MASSASOIT.

Rogers' No. 3.

Raised by E. S. Rogers, of Salem, Mass. Vine moderately vigorous, productive, early.

Bunch medium, rather loose, short, shouldered. Berry large, round, claret red. Flesh tender, juicy. Ripens before Concord.

MAXATAWNEY.

Originated at Eagleville, Montgomery Co., Pa., in 1844. Vine healthy, vigorous, hardy, and productive. Requires a warm situation at the North, but Southwest proves one of the finest White Grapes.

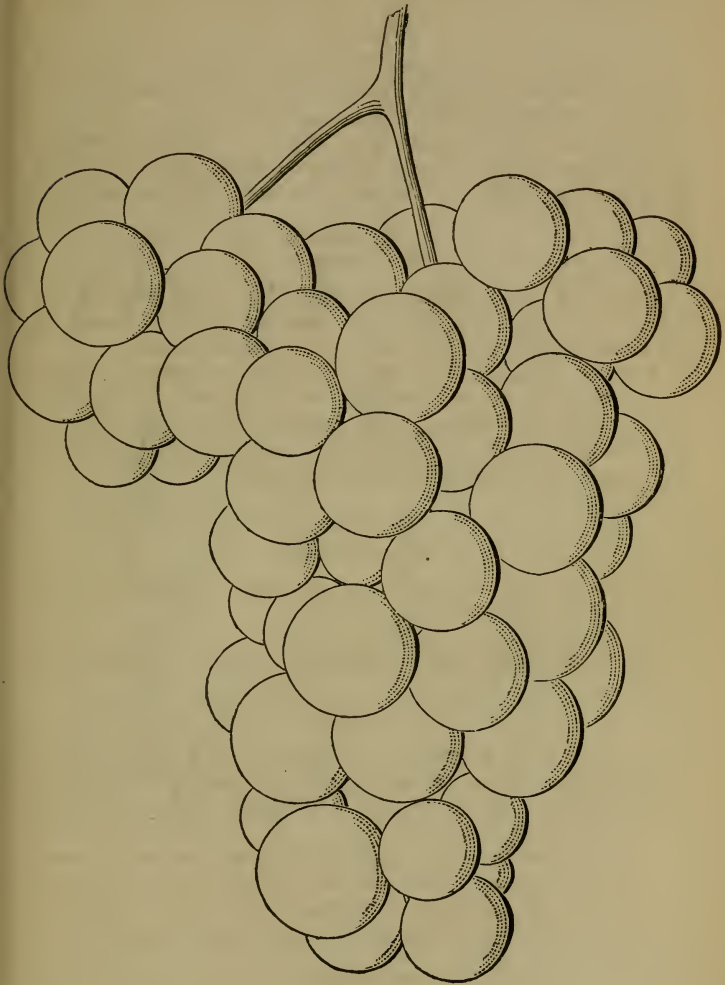
Bunch medium, not generally shouldered, somewhat loose, occasionally compact. Berries medium, roundish oval, greenish white, with an amber tint when ripe. Flesh tender, not pulpy, very sweet and delicious. Ripens last of September.

MERRIMACK.

Rogers' No. 19.

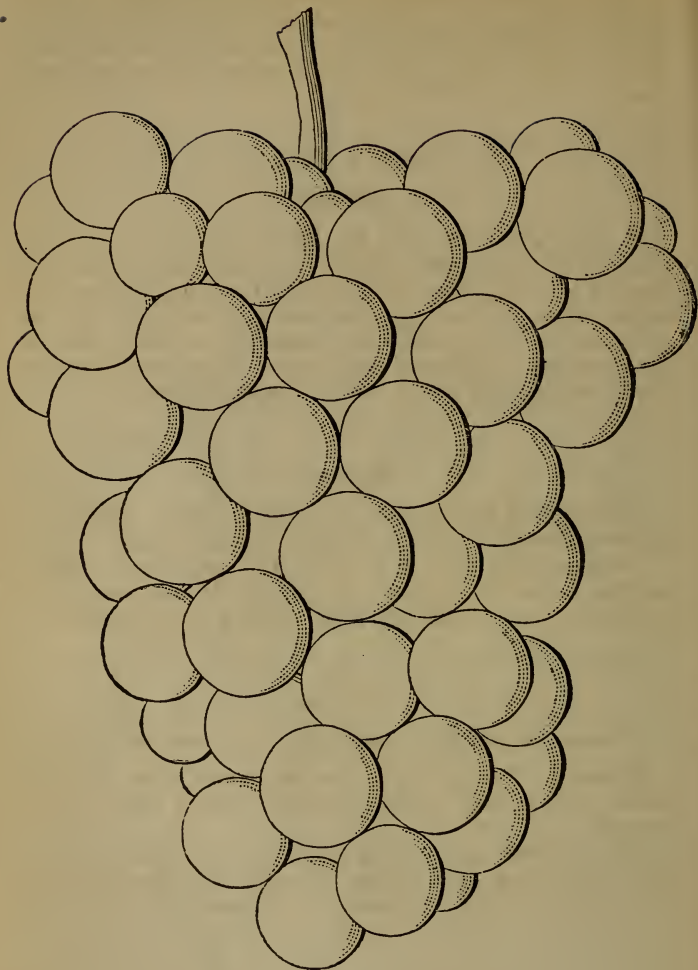
Raised by E. S. Rogers, of Salem, Mass. Vine very vigorous, very productive.

Bunch rather large, short, and broad, compact. Berry large, round, black, with a slight bloom. Flesh tender nearly



Martha.

to the centre, juicy, sweet, and very much like the Wilder, and ripens at the same time.



Mottled.

MOTTLED.

A seedling grown by Charles Carpenter, Kelly Island, O. Vine hardy, very short jointed. A profuse bearer, ripening with Delaware. It will hang a long time after ripe, and keeps unusually well.

Bunch medium, slightly shouldered, close, compact. Berries round, medium size, maroon red, with spots that when held to the light give it a mottled appearance, hence its name. Flesh tender. Pulp small. Juice sweet, rich, vinous, abundant.

NORTON'S VIRGINIA.

Norton's Seedling.

A variety introduced by Dr. D. N. Norton, of Richmond, Va. It is a most productive Grape in garden or vineyard, bearing very large crops (especially at the South, where many kinds rot) in all seasons. It is valued for making a red wine.

Bunch medium, shouldered, somewhat compact. Berries small, round. Skin thin, dark purple. Flesh tender, with a brisk, rather rough flavor. Ripens with Catawba.

ONONDAGA.

Originated in Fayetteville, Onondaga Co., N.Y., with Lewis Hueber, from a cross between Diana and Delaware.

Bunches about the size and form of Diana, compact. Berry medium, amber color when ripe. Flesh delicate, sweet, rich, without any of the native aroma. Ripens with Delaware.

OTHELLO.

Canadian Hamburg. Arnold's No. 1. Canadian Hybrid.

Raised in 1859, by Charles Arnold, Canada West. A good, strong grower and very productive. Leaves deeply lobed, smooth.

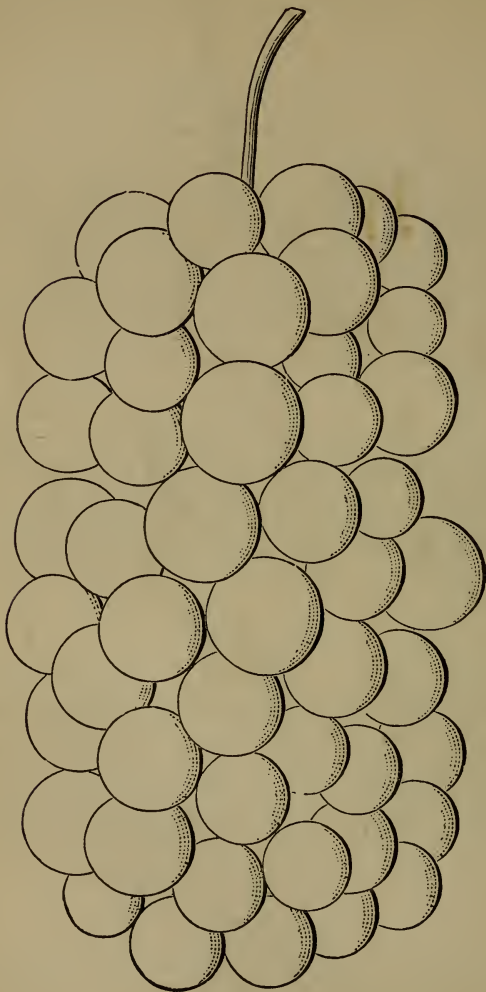
Bunches large, shouldered, compact. Berries large, round. Skin thin, black, blue bloom. Flesh solid, crisp, free from pulp, juicy, sprightly. Ripens with Delaware.

REBECCA.

Originated in the garden of E. M. Peake, of Hudson, N. Y. Vine moderately vigorous, a nice amateur Grape. Succeeds finely in some localities.

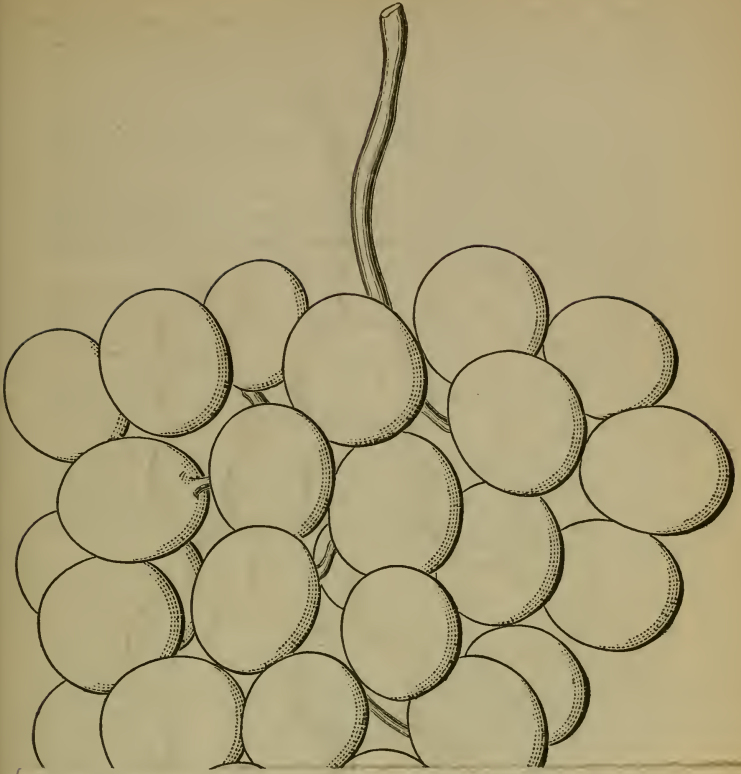
Bunches medium, very compact, rarely shouldered. Berries of full medium size, roundish oval, strongly adhering to the peduncle. Color light green in the shade, auburn or golden

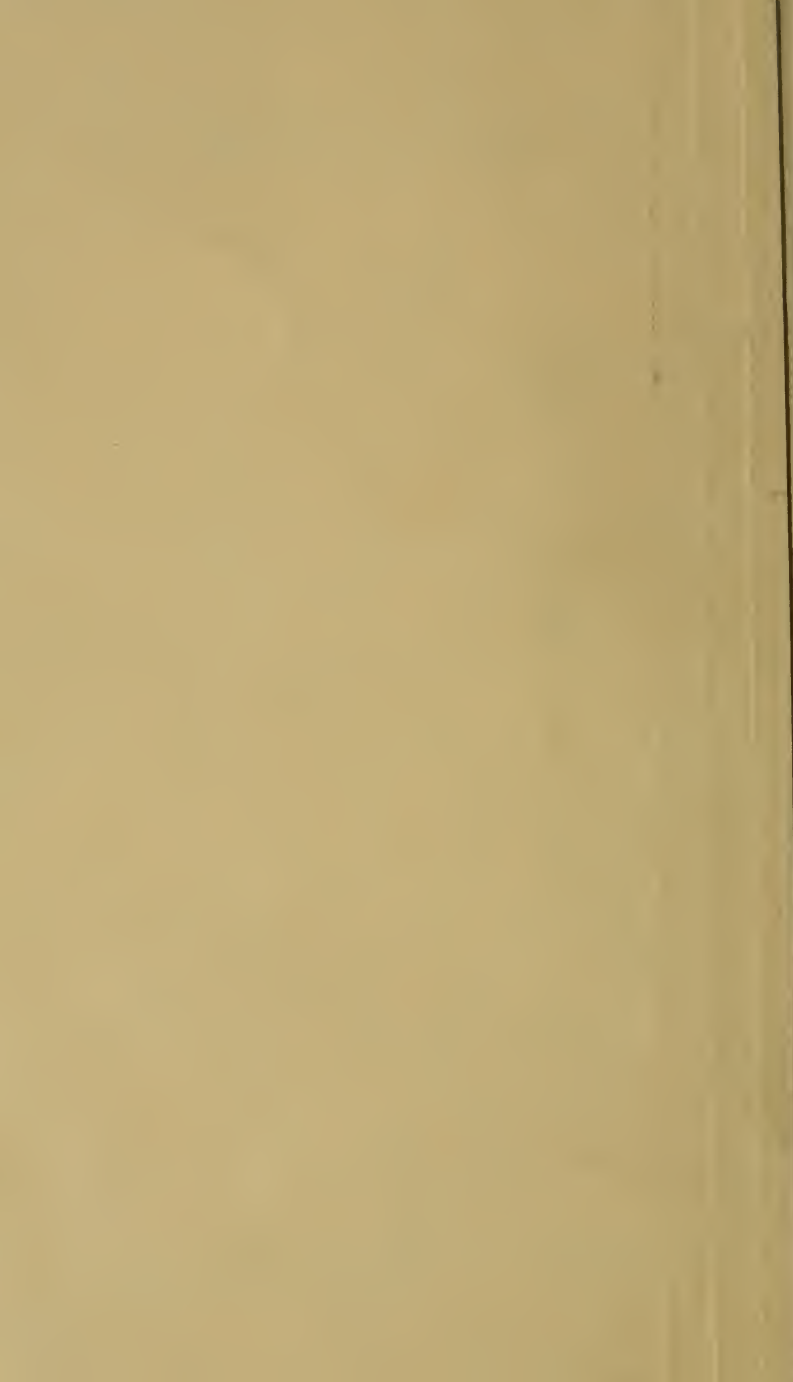
in the sun, and covered with a light bloom, considerably translucent. Flesh of some consistence, juicy, sweet, and delicious,

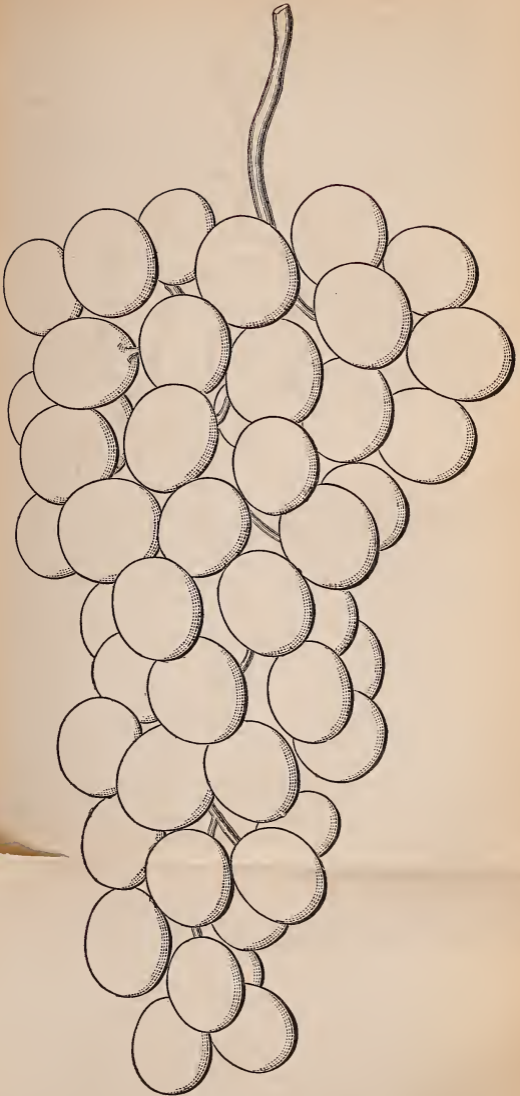


Rebecca.

with a perceptible native perfume, but very agreeable. Ripens with Isabella, and keeps well.







Ricketts' No. 1.

RICKETTS' No. 1.

This new promising grape originated with James H. Ricketts, of Newburgh, N. Y., and is a hybrid between Israella and Muscat Hamburg. It has as yet only been grown on the grounds of the originator, where it so far has proved healthy, hardy, and vigorous, with the thermometer the past winter 10° below zero.

Bunch large, sometimes shouldered, compact. Berry large, oval, black, covered with a blue bloom. Flesh quite firm, and yet tender, breaking, juicy, sweet, rich, with a sprightly flavor. Ripens soon after the Concord.

ST. GENEVIEVE.

Rulander.

Amoureux.

Red Elben.

An old Southern variety, and valuable in the South and Southwest. Vine vigorous, short-jointed, does not succeed North.

Bunch medium to small, sometimes shouldered, compact. Berry small, roundish oval, dark purple or black, thick bloom, tender, juicy, sweet, slightly vinous, and rich at the South, where it ripens last of July.

SALEM.

Rogers' No. 22.

Raised by E. S. Rogers, of Salem, Mass. Vine healthy, vigorous, and productive. We have not fruited it sufficient to express a decided opinion of it, more than it promises well.

Bunch large, short, and broad, compact. Berry large, round, a shade or two darker in color than Catawba. Flesh tender, juicy, nearly free from pulp, sweet, aromatic, and well-flavored. Ripens soon after Delaware.

SCUPPERNONG.

Bull or Bullet.

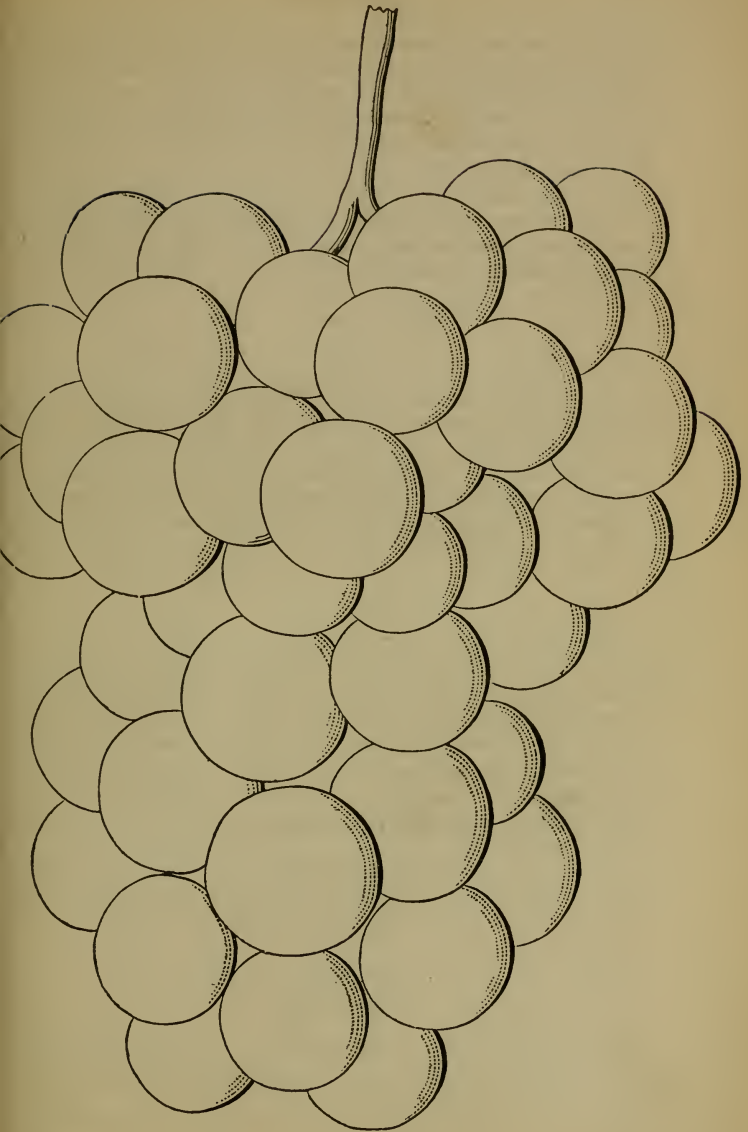
Roanoke.

Vitis Vulpina.

American Muscadine.

Vitis rotundifolia.

The Scuppernong Grape is a very distinct Southern species, found growing wild, from Virginia to Florida, and climbing the tops of the tallest trees. It is easily known from every other Grape by the small size of its leaves, which are seldom over two or three inches in diameter, and by their being glossy and smooth on both the under and upper surfaces. These leaves are roundish and coarsely serrated, and the young shoots are slender; the old wood is smooth, and not shaggy, like that of most vines.



Salem.

We have made several trials with the Scuppernong Grape, but find it quite too tender for a Northern climate, being killed to the ground by our winters. At the South it is a very hardy, productive, and excellent wine grape. The White and Black Scuppernong scarcely differ, except in the color of the fruit. The *tendrils* of each correspond in hue with the fruit.

Bunches small, loose, seldom composed of more than six berries. Berries round, large. Skin thick, light green in the white, dark red in the black variety. Flesh quite pulpy, except when very thoroughly ripe, juicy, and sweet, but with a strong musky scent and flavor.

SECRETARY.

Originated with James H. Ricketts, of Newburgh, N. Y. It is a hybrid between Clinton and Muscat Hamburg, and is yet young, and has not been fully tested, but promises well. The vine is vigorous, healthy, and so far has proved hardy.

Bunch medium, compact. Berry medium, round, black, blue bloom. Flesh rather firm, breaking, tender, juicy, sweet, slightly vinous and rich. Ripens about the time of the Delaware.

SENASQUA.

This new grape was raised by Stephen Underhill, of Croton Point, N. Y., and is a hybrid between Concord and Black Prince. The vine is vigorous and hardy like the Concord, and the fruit is similar to Black Prince and of very fine quality; but in consequence of its thin skin and compactness of bunch the fruit is sometimes apt to crack, especially in wet weather.

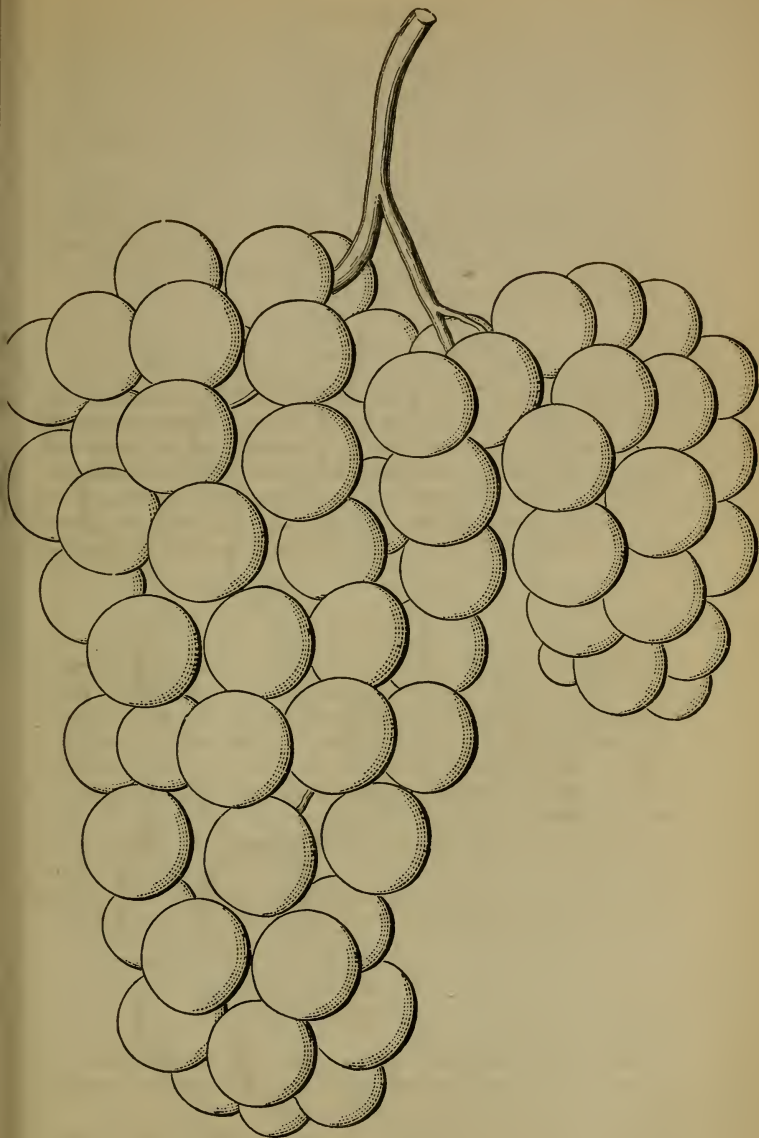
Bunch large, often shouldered, very compact. Berry large, round. Skin deep black, with a thick blue bloom. Flesh quite firm, but tender, breaking, juicy, sweet, rich, slightly vinous. Ripens about the time of Concord, or soon after.

TELEGRAPH.

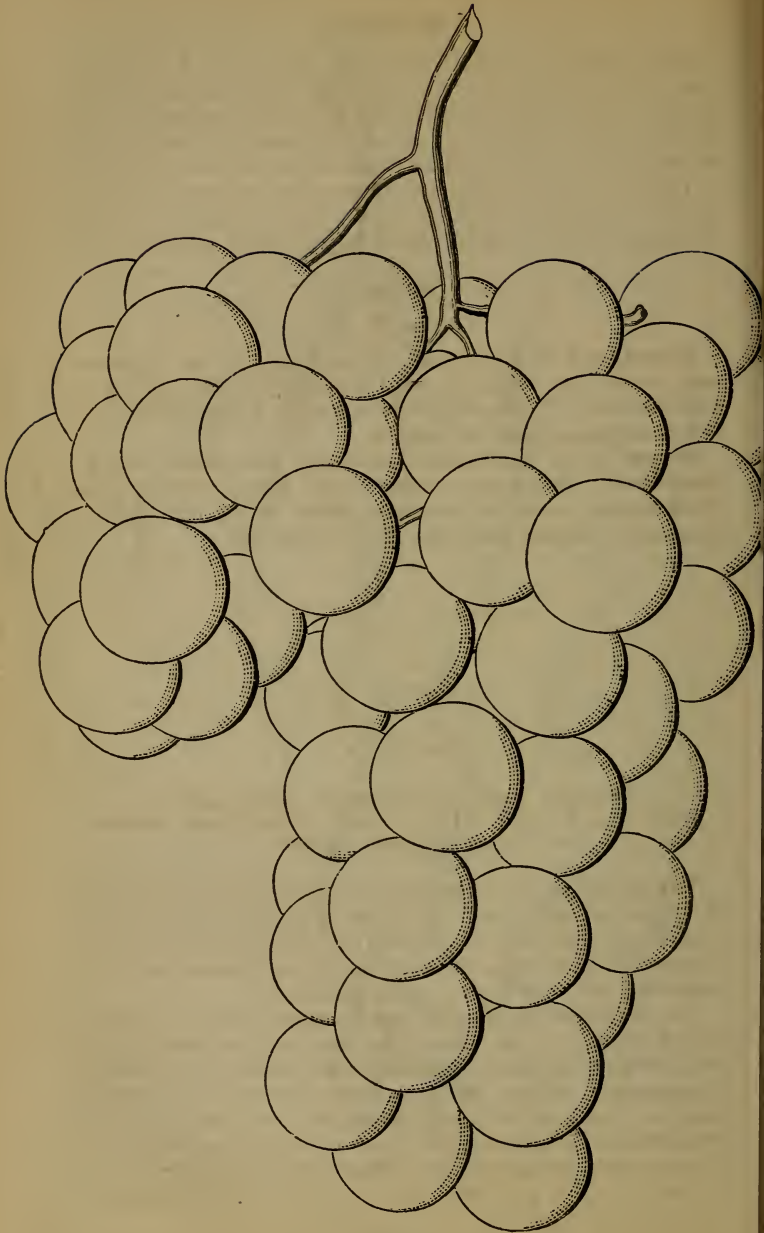
Christine.

This variety was found in a yard near Philadelphia, Pa. A hardy and vigorous vine. Fruit of fair quality, ripening early or about with Hartford Prolific.

Bunch above medium to large, compact. Berry large, round, black. Flesh juicy, with some pulp, similar in quality to Hartford Prolific.



Walter.



Wilder.

WALTER.

Originated with A. J. Caywood, Poughkeepsie, N. Y., from seed of Delaware crossed with Diana. The vine is vigorous and has produced good crops annually with the originator, and is of excellent quality. It is said by those who are experimenting with it that it will make a first-class of American wine.

Bunch medium, shouldered, moderately compact. Berries medium or above, round, light red. Flesh juicy, sweet, rich, not quite tender at the centre. Ripens about with Concord.

WILDER.

Rogers' No. 4.

Raised by E. S. Rogers, of Salem, Mass. Vine vigorous, very productive. This is one of the best of Rogers' seedlings, adheres well. The bunch keeps well after it is gathered, and is a promising variety for market.

Bunch large, compact, shouldered, sometimes double-shouldered. Berry very large, round, black, slight bloom. Flesh tender nearly to the centre, juicy, sweet, rich, slightly aromatic. Ripens about the time of Concord.

CHAPTER XIX.

THE MELON.

Cucumis Melo, L. *Cucurbitaceæ*, of botanists.

Melon, of the French; *Melona*, German; *Meleon*, Dutch; *Melone*, Italian, and *Melon*, Spanish.

THE Melon (or Muskmelon) is the richest and most luscious of all herbaceous fruits. The plant which bears this fruit is a trailing annual, supposed to be a native of Persia, but which has been so long in cultivation in all warm climates that it is quite doubtful which is its native country.

The climate of the Middle and Southern States is remarkably favorable for it—indeed far more so than that of England, France, or any of the temperate portions of Europe. Consequently Melons are raised as field crops by market gardeners, and in the month of August the finest citrons or green-fleshed Melons may be seen in all the markets of the States in immense quantities. Warm dry soils are peculiarly favorable to the growth of Melons, and even at low prices

the product is so large that this crop is one of the most profitable.

CULTURE. The culture of the Melon is very easy in all except the most northern portions of the United States. Early in May a piece of rich, light soil is selected, well manured, and thoroughly dug or prepared by deep ploughing and harrowing. Hills are then marked out, six feet apart each way. The hills are prepared by digging a foot deep and two feet across, which are filled half full of good, well-rotted, manure. Upon the latter are thrown three or four inches of soil, and both manure and soil are then well mixed together. More soil, well pulverized, is now thrown over the top, so as to complete the hill, making it three inches higher than the surface. Upon this plant eight or ten grains of seed, covering them about half an inch deep.

When the plants have made too rough leaves, thin them so as to leave but two or three to each hill. Draw the earth nicely around the base of the plants with the hoe. In case the striped bug (*Galereuaca vittata*) attack the plants, which it often does, the best remedy is to hand-pick them early in the morning and then draw earth up even with the base of the leaves. The *cucumber flea-beetle* is kept off by dusting the vines early in the morning, daily, for a period, while they are yet moist with dew, using either dry fine soil, soot, or plaster.

As soon as the runners show the first blossom-buds, stop them by pinching out the bud at the extremities. This will cause an increased production of lateral shoots, and add to the size of the fruit. Nothing more is necessary but to keep the surface free from weeds, and to stir the soil lightly with the hoe, in field culture. In gardens, thinning the fruit, and placing bits of slate or blackened shingels under each fruit, improve its size and flavor.

To retain a fine sort of Melon in perfection, it should be grown at some distance from any other sort, or even from any of the cucumber family, otherwise the seeds of the next generation of fruit will be spoiled by the mixture of the pollen.

VARIETIES. A large number of varieties are enumerated, but many of these do not succeed without extra care, which their quality is not found to repay. Indeed what is popularly known as the *Citron Melon*, one of the finest of the green-fleshed class, is the greatest favorite with all American gardeners. It is high-flavored, uniformly good, very productive, and in all respects adapted to the climate.

Melons have become so intermingled during the past ten or fifteen years that it is almost impossible at this time to classify them, as was once done. As before said, however,

the Citron or Fine Netted, being types of the Green-Fleshed, are among the highest flavored and most delicate.

ALLEN'S SUPERB.

A variety of the Nutmeg, a trifle larger than the old Nutmeg, round, considerably netted. Flesh green, and sweet. Esteemed as profitable for market growing.

GREEN CITRON.

This is much the finest Melon for general culture.

Fruit rather small, roundish, flattened at the end, regularly ribbed and thickly netted. Skin deep green, becoming pale greenish yellow at maturity. Rind moderately thick. Flesh green, firm, rich, and high-flavored. Ripens pretty early and bears a long time.

NUTMEG.

An old variety, often seen impure, but when in perfection very melting and excellent.

Fruit large, roundish oval. Skin very thickly netted, pale green, slightly but distinctly ribbed. Rind rather thin. Flesh pale green, very melting, sweet and good, with a high musky flavor. Medium season.

WHITE JAPAN.

Comparatively new. Originally from Japan.

Fruit small to medium, ribbed, sometimes slightly netted, color creamy white. Flesh thick, juicy, sweet, and well flavored.

Besides the foregoing there are *Winter Melons* from the South of Europe, very commonly cultivated in Spain, which, if suspended in a dry room, may be kept till winter. The GREEN, VALENCIA, and the DAMPSHA are the three principal sorts; they are oval, skin netted, flesh white, sugary, and good.

CHAPTER XX.

THE WATER-MELON.

Cucurbita citrullus, L. *Cucurbitaceæ*, of botanists.

Pasteur, of the French; *Wasser Melone*, German; *Cocomero*, Italian.

THE Water-melon is a very popular and generally cultivated fruit in this country. The vine is a training annual of the

most vigorous growth, and the fruit is very large, smooth, and green, with a red or yellow core. Though far inferior to the Melon in richness, its abundant cooling juice renders it very grateful and refreshing in our hot midsummer days. Immense fields of the Water-melon are raised, and their culture is very easy throughout all the Middle and Southern States.

The cultivation of the Water-melon is precisely similar to that of the Melon, except that the hills must be eight feet apart. The finest crops we have ever seen were grown upon old pieces of rich meadow land, the sod well turned under with the plough at the last of April, and the melons planted at once.

The following are its best varieties:—

BAUGH.

Received from Kentucky.

Fruit large, long oval, pale green. Flesh red, nearly solid, juicy, sweet. Rind thin. Rather early. Seeds reddish.

BRADFORD.

Originated in South Carolina.

Fruit large, oblong. Skin usually dark green, with gray longitudinal stripes, mottled and streaked with green. Rind half an inch thick. Flesh red to the centre, with a fine sugary flavor, of the best quality.

CAROLINA.

The large common variety.

Fruit very large, oblong. Skin dark green and white marbled. Rind thick. Flesh deep red, hollow at the centre, sweet and good. Seeds large, black.

There is also a sub-variety, with pale yellow flesh and white seeds.

CLARENDON.

Origin, Clarendon District, South Carolina.

Large, oblong. Skin mottled gray, with dark green longitudinal stripes. Rind half an inch thick. Flesh scarlet to the centre, with a sugary and exquisite flavor, "best" quality. Seeds yellow, with a black stripe around the edge, and from one to three black spots on each side; the form and number corresponding on the two sides.

CITRON WATER-MELON.

This is a small, round, pale green, marbled sort, ripening late, and esteemed by many for preserving.

IMPERIAL.

A remarkably fine-flavored and very productive sort, from the Mediterranean. Keeps a long time after it is ripe.

Fruit of medium size, nearly round. Skin pale green and white, marbled. Rind remarkably thin. Flesh solid to the centre, light red, crisp, rich, and high-flavored. Seeds quite small, reddish brown.

MOUNTAIN SWEET.

Similar to the above, except it often has a mammelonne neck. Flesh rather more solid, and of excellent flavor. This is grown extensively for the markets.

ORANGE.

Peculiar for the division of its flesh from the rind, medium size, roundish oval, light green, with shades of darker green. Rind half an inch thick. Flesh red, not very solid, of good quality, but not equal to Mountain Sweet and Imperial.

RAVENS-CROFT.

Origin, South Carolina.

Large, oblong, dark green, faintly striped, and marked with lighter green. Rind half an inch thick. Flesh red to the centre, with a delicious sugary flavor, of the best quality. Seeds cream color, having a brown stripe around the edge.

CHAPTER XXI.

THE MULBERRY.

Morus, Tourn. *Urticaceæ*, of botanists.

Murier, of the French; *Maulbeerbaum*, German; *Moro*, Italian; *Morel*, Spanish.

THE Mulberry is a hardy, deciduous fruit-tree, but little cultivated in this country, though it is really a very considerable acquisition to our list of summer fruits, and every garden of considerable size ought to contain one or two trees. The fruit ripens in July, very soon after the season of cherries. It is rarely picked from the trees, as it falls as soon as ripe, and it is therefore the custom to keep the surface below it in short turf, and the fruit is picked from the clean grass. Or, if the surface is dug ground, it may be sown thickly with cress seed,

six weeks previously to the ripening of the fruit, which will form a temporary carpet of soft verdure.

The **BLACK MULBERRY**, or English Mulberry (*Morus nigra*, L.), is a very celebrated old fruit-tree, originally from Asia, more or less commonly cultivated in all parts of Europe, but yet quite rare in this country. Its growth is slow, and it seldom attains a height of more than twelve or fifteen feet, forming a low, branching tree, with lobed leaves, but it is very long-lived, and there is a specimen in England, at the seat of the Duke of Northumberland, 300 years old. In this country it is scarcely hardy enough north of New York, except in sheltered situations. An occasional extreme cold winter kills them; they are also subject to canker and die off.

The fruit is incomparably larger and finer than that of the Red Mulberry, being an inch and a half long, and nearly an inch across—black, and of a delicious flavor.

EVERBEARING. Originated here from seed of the Multicaulis. Tree very vigorous and very productive, an estimable variety, and surpassed by none except the Black English, and possesses the same rich subacid flavor. It continues in bearing a long time.

Fruit cylindrical, one and a quarter of an inch long, and nearly half an inch in diameter. Color maroon, or an intense blue black at full maturity. Flesh juicy, rich, sugary, with a sprightly vinous flavor. Hick's Everbearing, from Kentucky, is similar to the above.

JOHNSON, a seedling from Ohio. Fruit very large, oblong cylindrical; blackish color, subacid, and of mild, agreeable flavor. Growth of the wood strong and irregular. Leaves uncommonly large.

The **RED MULBERRY** (*Morus rubra*, L.) is a native species, more or less common in our woods, with large, rough, heart-shaped or lobed leaves. The fruit is about an inch long, and very pleasant and palatable, though much inferior to the Black English. It bears transplanting well, or is easily raised from seed, and may, undoubtedly, be greatly improved by repeated reproduction in this way. As it forms a large ornamental tree, with a fine spreading head, forty feet high, it is well deserving a place on the lawn, or near the house, in ornamental plantations.

There are many varieties of the White Mulberry, commonly cultivated for silk, but which produce fruit of no value.

The best soil for the Mulberry is a rich, deep, sandy loam. The tree requires little or no pruning and is of very easy culture. It is usually propagated by cuttings, three feet long, planted in the spring, half their depth in the ground; cuttings made of pieces of the roots will also send up shoots and become plants.

CHAPTER XXII.

THE NECTARINE.

Persica vulgaris (v.) *Lævis*, Dec. *Rosaceæ*, of botanists.

THE Nectarine is only a variety of the peach with a smooth skin (*Pêche lisse*, or *Brugnon*, of the French). In its growth, habit, and general appearance, it is impossible to distinguish it from the peach-tree. The fruit, however, is rather smaller, perfectly smooth, without down, and is one of the most wax-like and exquisite of all productions for the dessert. In flavor it is perhaps scarcely so rich as the finest peach, but it has more piquancy, partaking of the noyau or peach-leaf flavor.

The Nectarine is known in Northern India, where it is called *moondla aroo* (smooth peach). It appears to be only a distinct, accidental variety of the peach, and this is rendered quite certain since there are several well-known examples on record of both peaches and nectarines having been produced on the same branch—thus showing a disposition to return to the natural form. Nectarines, however, usually produce nectarines again on sowing the seeds; but they also occasionally produce peaches. The Boston Nectarine originated from a peach-stone.

The Nectarine appears a little more shy of bearing in this country than the peach, but this arises almost always from the destruction of the crop of fruit by the *curculio*, the destroyer of all smooth-skinned stone fruit in sandy soils. It is quite hardy here wherever the peach will thrive, though it will not generally bear large and fine fruit, unless the branches are *shortened-in* annually, as we have fully directed for the peach-tree.

With this easy system of pruning, good crops are readily obtained wherever the *curculio* is not very prevalent.

The culture of the nectarine is in all respects precisely similar to that of the peach, and its habits are also completely the same.

VARIETIES.

The same characters are used as in describing peaches, for which the reader is referred to that part.

ALBERT.

A variety raised by Thomas Rivers, of Sawbridgeworth, England. It is one of the finest of Nectarines, but requires a warm location and soil to ripen it well.

Leaves with reniform glands. Flowers large.

Fruit large, round. Skin greenish white, with a pale red cheek. Flesh pale red next the stone, juicy, melting, brisk, vinous. Separates freely from the stone. Season middle of August.

BOSTON.

Lewis's.

Perkins' Seedling.

This American seedling was raised from a peach-stone by Mr. T. Lewis, of Boston. The fruit, though not of high flavor, is excellent, the tree very hardy and productive, and one of the best for general standard culture. Leaves with globose glands. Flowers small.

Fruit large and handsome, roundish oval. Skin bright yellow, with very deep red cheek, shaded off by a slight mottling of red. Flesh yellow to the stone (which is small and pointed), sweet, though not rich, with a pleasant and peculiar flavor. Separates from the stone. Ripe first of September.

DOWNTON.

The Downton is a seedling raised by Mr. Knight. It is in quality, appearance, and season, an intermediate variety between the *Violette Hâtive* and the *Elruge*, ripening a few days earlier than the latter. Leaves with reniform glands. Flowers small.

Fruit large, roundish oval. Skin pale green, with a deep violet red cheek. Flesh pale green, slightly red at the stone; melting, rich, and very good. Separates from the stone. Ripens about the 25th of August.

DUC DU TELLIER'S.

Duc Tilliers.

Duke de Tilley.

Duc de Tello.

Du Tilly's

A very excellent Nectarine, considerably resembling the *Elruge*, but a much greater bearer. Leaves with reniform glands. Flowers small.

Fruit rather large, roundish oblong, being slightly narrowed at the top, and broad at the base or stalk. Skin pale green, with a marbled purplish-red cheek. Flesh greenish white, pale red at the stone, melting, juicy, sweet, and good. Separates from the stone. Last of August.

EARLY NEWINGTON.

Early Black Newington.

Lucombe's Black.

New Dark Newington.

Lucombe's Seedling.

New Early Newington.

Early Black.

Black.

The Early Newington is one of the best of clingstone Nec-

tarines. It is not only a richer flavored fruit than the old Newington, but it is larger, dark-colored, and earlier. Leaves serrated, without glands. Flowers large.

Fruit large, roundish ovate, a little enlarged on one side of the suture, and terminating with an acute swollen point at the top. Skin pale green in its ground, but nearly covered with bright red, much marbled and mottled with very dark red, and coated with a thin bloom. Flesh greenish white, but deep red at the stone, juicy, sugary, rich, and very excellent. Beginning of September.

ELRUGE.

Common Elruge
Claremont.
Oatlands.

Anderson's.
Temple's.
Peterborough.

Spring Grove.

The Elruge is everywhere esteemed as one of the very finest Nectarines. It is an English variety which has been a good while cultivated, and, with the *Violette Hâtive*, is considered indispensable in every collection. In this country, when the young wood is annually *shortened-in*, it bears good crops on standard trees, which ripen finely.

Without this precaution, like almost all other Nectarines, the fruit is small, poor, and ripens imperfectly. Leaves with reniform glands. Flowers small.

Fruit of medium size, roundish oval, the suture slight except at the top, where it is distinctly marked. Skin with a pale-green ground, but when fully exposed it is nearly covered with deep violet, or blood-red, dotted with minute brownish specks. Flesh pale green to the stone, or slightly stained there with pale red; melting, very juicy, with a rich high flavor. Stone oval, rough, of a *pale* color. Separates from the stone. Last of August and beginning of September.

HARDWICKE.

Hardwicke's Seedling.

Was raised at Hardwicke House, in Suffolk, England, and has the reputation of being "one of the best and hardiest of Nectarines, and a very excellent bearer." Leaves with globose glands.

Fruit very large, roundish, inclining to oval, and resembling the Elruge. Skin pale green, with a deep violet red cheek. Flesh pale green, slightly marked with red at the stone, juicy, melting, rich, and high-flavored. End of August. Freestone.

HUNT'S TAWNY.

Hunt's Large Tawny.

Hunt's Early Tawny.

This is the best very early Nectarine. It is a very distinct sort, with serrated leaves, and was originated in England about fifty years ago. It is worthy of general cultivation, as it is not only early but hardy, and an abundant bearer. Leaves serrated, without glands. Flowers small.

Fruit nearly of medium size, roundish ovate, being considerably narrowed at the top, where there is a prominent swollen point; and the fruit is slightly enlarged on one side of the suture. Skin pale orange, with a dark-red cheek, mottled with numerous russety specks. Flesh deep orange, juicy, melting, rich, and very good. Separates from the stone. It ripens from the 5th to the 15th of August.

NEW WHITE.

Neat's White.

Cowdray White.

Flanders.

Emerton's New White.

Large White.

The New White is a fine light-skinned variety. Leaves with reniform glands. Flowers large.

Fruit rather large, nearly round. Skin white, with occasionally a slight tinge of red when exposed. Flesh white, tender, very juicy, with a rich, vinous flavor. The stone is small. Separates freely. Ripens early in September.

PITMASTON ORANGE.

William's Orange.

William's Seedling.

The Pitmaston Orange, which is considered the best *yellow*-fleshed nectarine, was raised in 1816 by John Williams, of Pitmaston, near Worcester, England. The tree is vigorous. Leaves with globose glands. Flowers large.

Fruit large, roundish ovate, the base (towards the stalk) being broad, and the top narrow, and ending in an acute swollen point. Skin rich orange yellow, with a dark brownish-red cheek, streaked at the union of the the two colors. Flesh deep yellow, but red at the stone; melting, juicy, rich, sweet, and of excellent flavor. The stone is rather small, separates freely. Ripens middle and last of August.

RED ROMAN.

Old Roman.

Roman.

Brugnon Violette Musquée.

Brugnon Musquée.

The Red Roman is a very old European variety, having been enumerated by Parkinson in 1629. It is one of the

richest and best of clingstone Nectarines. The tree healthy and productive. Leaves with reniform glands. Flowers large.

Fruit large, roundish, a little flattened at the top. Skin greenish yellow, with a brownish, muddy red cheek, which is somewhat rough, and marked with brown russety specks. Flesh firm, greenish yellow, and deep red at the stone, juicy, with a rich, high vinous flavor. Ripening early in September.

RIVERS' ORANGE.

New variety, produced by Thomas Rivers, England, from seed of Pitmaston Orange. It is described as much resembling its parent, but higher flavored, and ripening a week or so later. The tree is a great bearer, robust, and hardy. Leaves with uniform glands. Flowers large.

STANWICK.

A new late variety. At the South, probably, it will prove an acquisition.

It was grown in England from a stone brought from Syria, and is described in the Journal of the London Horticultural Society as above medium size, roundish oval, slightly heart shaped at base. Skin pale greenish white, shaded into deep rich violet in the sun. Flesh white, tender, juicy, rich, sugary, and without the slightest trace of prussic acid flavor.

VICTORIA.

Raised by Thomas Rivers, Sawbridgeworth, England, from seed of *Violette Hâtive* fertilized by Stanwick.

Fruit large, roundish, flattened at top. Skin greenish yellow, crimson on the sunny side. Flesh rich, sweet, one of the best. Glands reniform. Flowers small. Middle of August. New.

VIOLETTE HÂTIVE.

Early Violet.

Violet.

Early Brugnion.

Brugnion Red at the Stone.

Hampton Court.

Large Scarlet.

New Scarlet.

Aromatic.

Petite *Violette Hâtive*.

Brugnion Hâtif.

Violette Angervillières.

Violette Musquée.

Lord Selsey's Elruge.

Violet Red at the Stone.

Violet Musk.

The *Violette Hâtive*, or Early Violet Nectarine, everywhere takes the highest rank among Nectarines. It is of delicious flavor, fine appearance, hardy, and productive. Externally the fruit is easily confounded with that of the Elruge, but it

is readily distinguished by its dark-colored stone, and the deep red flesh surrounding it. The fruit is usually rather darker colored. It is of French origin, and has been long cultivated. Leaves with reniform glands. Flowers rather small.

Fruit rather large, roundish, narrowed slightly at the top, where it is also marked with a shallow suture. Skin pale yellowish green in the shade, but when exposed nearly covered with dark purplish red, mottled with pale-brown dots. Flesh whitish, but much rayed with red at the stone. The latter is roundish, the furrows not deep, and the surface reddish brown. The flesh is melting, juicy, rich, and very high-flavored. It ripens about the last of August.

The VIOLETTE GROSSE (Thomp.) resembles the foregoing in leaves and flowers, and general appearance. The fruit is, however, larger, but not so richly flavored.

CHAPTER XXIII.

NUTS.

THE CHESTNUT (*Castanea vesca*, W.; *Châtaignier*, of the French; *Kastanienbaum*, German; *Castagno*, Italian) is one of our loftiest forest-trees, common in most parts of the United States and Europe, and bearing excellent Nuts. The foreign variety best known in this country is the Spanish Chestnut, with fruit nearly as large as that of the Horse-Chestnut, and which is excellent when boiled or roasted. It thrives very well here, but is not quite hardy to the north or east of this. One or two English varieties have been produced, of considerable excellence, among which the Downton is considered the best. The French cultivate a dozen or more varieties of greater or less excellence, but though some of them have been introduced, we have not yet fairly tested them in this country.

The CHINQUAPIN, or Dwarf Chestnut, common in some parts of the Middle and Southern States, is a dwarf species of the chestnut, usually growing not more than six to ten feet high, and bearing fruit of half the size of the common chestnut, with the same flavor. It is worth a place in a small fruit-garden as a curiosity.

All the chestnuts are very easily cultivated in any good, light soil, and may be propagated by grafting and by sowing the seeds.

THE EUROPEAN WALNUT (*Juglans regia*, L.; *Noyer*, of the French; *Walnussbaum*, German; *Noce*, Italian; and

Nogal, Spanish), better known here as the *Madeira Nut*, is a fine lofty growing tree, with a handsome spreading head, and bearing crops of large and excellent nuts, enclosed like those of our native black walnut in a simple husk. It stands the winter very well here, and to the south of this it would undoubtedly be a profitable fruit to plant for the market. The fruit in a green state is very highly esteemed for pickling, and the great quantities of the ripe nuts annually imported and sold here, prove the estimation in which they are held for the table. There are several varieties reputed to be of rather finer quality, which, however, have not displaced the original species, even in the gardens of Europe, and have not yet borne fruit here.

This tree is usually propagated by the seed, and transplanted from the nurseries when from three to six feet high. But it may also be grafted, with due care, on the common hickory-nut. A number of distinct varieties have been produced from seed and perpetuated by grafting. Among them the following are regarded as of the most value:—

DWARF PROLIFIC.

Early-Bearing.

Fertile.

Precocious.

This is a dwarf-growing and very early bearing variety, very desirable for small fruit-gardens, as it may in our Northern States be easily protected in winter. The trees commence bearing when not more than three feet high, and, like the common walnut, it reproduces itself nearly always from seed.

THIN-SHELLED.

À Coque Tendre.

This is an oblong-shaped nut with a tender shell, well filled, one of the best.

The FILBERT (*Noisette*, of the French; *Haselstaude*, German; *Avellano*, Spanish) is an improved variety of the common hazel-nut of the woods of Europe (*Corylus avellana*, L.). The fruit is three or four times as large as that of our common hazel-nut, and from its size and excellent flavor is admired for the dessert. The old Spanish filbert, common in many of our gardens, is a worthless, nearly barren variety; but we have found the better English sorts productive and excellent in this climate, and at least a few plants of them should have a place in all our gardens. They are generally raised from layers, made in the spring, but they may also be grafted readily on the common hazel-nut, or the Spanish nut. When planted out they should not be permitted to sucker,

and should be kept in the form of bushes with low heads, branching out about two feet from the ground, and they should be annually pruned somewhat like the gooseberry, so as to preserve a rather thin, open head, shortening back the extremities of the young shoots one-half, every spring.

The following are the best filberts known :—

COSFORD. Nut large, oblong. Husk hairy. Shell remarkably thin, and kernel of excellent flavor. A good bearer.

FRIZZLED. Easily known by its handsome, deeply cut husk. Nut of medium size, oval, compressed. Husk hairy. Shell thick. Kernel sweet and good.

LAMBERT (*Kentish Cob, Filbert Cob*). This is perhaps the best of all the nuts, some of them being an inch or more in length. Husk nearly smooth. Nut large, oblong, and somewhat compressed. Shell pretty thick, of a brown color. Kernel full and rich. A great bearer.

PEARSON'S PROLIFIC (*Dwarf Prolific, Nottingham Prolific*). Nut medium size, obtusely ovate. Shell rather thick. Kernel full.

PURPLE FILBERT (*Purple-leaved*). This is an ornamental shrub, as well as productive of excellent fruit. Its fruit is much like the Red Filbert, but the foliage is of a deep purple or red color.

NORTHAMPTONSHIRE PROLIFIC. Ripens early. Nut of medium size, oblong. Husk hairy. Shell thick.

RED FILBERT. Easily known from other sorts by the crimson skin of the kernel. Fruit of medium size, ovate. Shell thick. Kernel with a peculiar, excellent flavor.

WHITE FILBERT. Resembles the last, but with a light yellow or white skin. The tree is also quite bushy. Nuts ovate. Husk long and tubular.

The English generally call those varieties with long husks, *filberts* (*full-beards*), and those with short husks, simply *nuts*.

The **HICKORY-NUT** (*Corya alba*), or shell-bark, the Black Walnut (*Juglans nigra*), and the Butternut (*J. cinerea*), are native nut-bearing trees, common in our forests, and too well known to need description here. There are occasionally found the woods accidental varieties of the *shell-bark hickory* of much larger size and finer flavor than the common species, which are highly worthy of cultivation, as we confess, to our own taste, this nut is much superior to the European walnut. There is indeed no doubt that, with a little care in reproduction by seed, the shell-bark may be trebled in size, and greatly improved in flavor.

CHAPTER XXIV.

THE OLIVE.

Olea Europea, L. ; *Oleina*, of botanists.

Olivier, of the French ; *Oehlbaum*, German ; *Ulivo*, Italian ; *Olivo*, Spanish.

THE Olive, which, as Loudon justly remarks, furnishes, in its invaluable oil, the cream and butter of Spain and Italy, will undoubtedly one day be largely cultivated in our Southern States.

The uses and value of the olive-oil are still comparatively unknown in this country. In the South of Europe it is more valuable than bread, as, to say nothing of its wholesomeness, it enters into every kind of cookery, and renders so large a quantity of vegetable food fit for use. A few olive-trees will serve for the support of an entire family, who would starve on what could otherwise be raised on the same surface of soil ; and dry crevices of rocks, and almost otherwise barren soils in the deserts, when planted with this tree, become flourishing and valuable places of habitation.

The olive is a native of the temperate sea-coast ridges of Asia and Africa ; but it has, time out of mind, been cultivated in the South of Europe. It is a low evergreen tree, scarcely twenty feet high, its head spreading, and clothed with stiff, narrow, bluish-green leaves. Its dark green or black fruit is oval, the hard fleshy pulp enclosing a stone. In a pickled state the fruit is highly esteemed. The pickles are made by steeping the unripe olives in lye-water, after which they are washed and bottled in salt and water, to which is often added fennel, or some kind of spice. The oil is made by crushing the fruit to a paste, pressing it through a coarse hempen bag into hot water, from the surface of which the oil is skimmed off. The best oil is made from the pulp alone : when the stone also is crushed, it is inferior.

PROPAGATION AND CULTURE. A very common mode of propagating the olive in Italy is by means of the *uovoli* (little eggs). These are knots or tumors, which form in considerable numbers on the bark of the trunk, and are easily detached by girdling them with a pen-knife, the mother-plant suffering no injury. They are planted in the soil like bulbs, an inch or so deep, when they take root and form new trees. It is also propagated by cuttings and seeds. The seedlings form the strongest and thriftiest trees ; they are frequently some months in vegetating, and should therefore be buried an inch deep in the soil as soon as ripe.

The wild American olive (*Olea Americana*, L.) or Devil-wood, a tree that grows more or less abundantly as far north as Virginia, will undoubtedly prove a good stock on which to ingraft the European olive. It is of a hardier habit, and, though worthless itself, may become valuable in this way.

The olive-tree commences bearing five or six years after being planted. Its ordinary crop is fifteen or twenty pounds of oil per annum, and the regularity of its crop, as well as the great age to which it lives, renders an olive plantation one of the most valuable in the world. With respect to its longevity we may remark, that there is a celebrated plantation near Terni, in Italy, more than five miles in extent, which, there is every reason for believing, has existed since the time of Pliny.

The Olive is not a very tender tree. It will thrive farther north than the orange. The very best sites for it are limestone ridges, and dry, crumbling, limestone rocky regions always produce the finest oil. The tree, however, thrives most luxuriantly in deep, rich, clayey loams, which should be rendered more suitable by using air-slaked lime as manure. It requires comparatively little pruning or care when a plantation is once fairly established.

VARIETIES. There are numberless varieties enumerated in the French catalogues, but only a few of them are worth the attention of any but the curious collector. The common European Olive is, on the whole, much the best for general cultivation, yielding the most certain and abundant crops.

The sub-variety most cultivated in France is the LONG-LEAVED OLIVE (*Olea, e. longifolia*), with larger and longer leaves; the fruit nearly of the same size as that of the common olive.

The favorite sort in Spain is the BROAD-LEAVED OLIVE (*Olea e. latifolia*). Its fruit is nearly double the size of the common Olive, and yields an abundance of oil, but the latter is so strong in flavor as to be more relished by the Spaniards than by strangers.

The OLIVIER A FRUIT ARRONDI (*Olea spherica*, N. Duh.) is a hardy French variety, which, in a moist, rich soil, yields most abundant crops of fine oil.

The OLIVIER PICHOLINE (*Olea oblonga*, N. Duh.) yields the fruit most esteemed for pickling. It grows quite readily in any tolerable soil, and is one of the hardiest varieties.

The OLIVIER PLEUREUR (*Olea eranimorpha*, N. Duh.), or Weeping Olive, is one of the largest and finest trees. Its branches are pendent, its fruit excellent, and the oil pure and abundant. It is a very hardy sort, and grows best in damp valleys.

CHAPTER XXV.

THE ORANGE FAMILY.

Citrus, L. *Aurantiaceæ*, of botanists.

THE Orange family includes the common orange (*Citrus aurantium*); the Lemon (*C. limonum*); the Lime (*C. limetta*); the Shaddock (*C. decumana*); and the Citron (*C. medica*); all different species, with the same general habit.

The Orange, a native of Asia, is the most attractive and beautiful of fruit-trees, with its rich, dark evergreen foliage and its golden fruit; and it may well, therefore, enjoy the reputation of being the Golden Apple of the Hesperides. When to these charms we add the delicious fragrance of the blossoms, surpassing that of any other fruit-tree, it must be conceded that, though the orange must yield in flavor to some other fruits, yet, on the whole, nothing surpasses an orange grove, or orchard, in its combination of attractions—rich verdure, the delicious aroma of its flowers, and the great beauty of its fruit.

The south of Europe, China, and the West Indies, furnish the largest supplies of this fruit. But it has, for a considerable time, been cultivated pretty largely in Florida, and the orange groves of St. Augustine yield large and profitable crops. Indeed the cultivation may be extended over a considerable portion of that part of the Union bordering on the Gulf of Mexico; and the southern part of Louisiana, and part of Texas, are highly favorable to orange plantations. The Bitter Orange has become quite naturalized in parts of Florida, the so-called Wild Orange Seedlings furnishing a stock much more hardy than those produced by sowing the imported seeds. By continually sowing the seed of these Wild Oranges they will furnish stocks suited to almost all the Southern States, which will in time render the better kinds grafted upon them comparatively hardy.

North of the latitude where, in this country, the orange can be grown in groves or orchards, it may still be profitably cultivated with partial protection. The injury the trees suffer from severe winters, arises not from their freezing—for they will bear, without injury, severe frost—but from the rupture of sap-vessels by the sudden thawing. A mere shed, or covering of boards, will guard against all this mischief. Accordingly, towards the south of Europe, where the climate

is pretty severe, the orange is grown in rows against stone walls or banks, in terraced gardens, or trained loosely against a sheltered trellis; and at the approach of winter they are covered with a slight movable shed, or frame of boards. In mild weather the sliding doors are opened, and air is admitted freely—if very severe, a few pots of charcoal are placed within the enclosure. This covering remains over them four or five months, and in this way the orange may be grown as far north as Baltimore.

SOIL AND CULTURE. The best soil for the orange is a deep rich loam. In propagating them, sow, early in the spring, the seeds of the naturalized or wild bitter orange of Florida, which gives much the hardiest stock. They may be budded in the nursery-row the same season, or the next, and for this purpose the earliest time at which the operation can be performed (the wood of the buds being sufficiently firm), the greater the success. Whip or splice grafting may also be resorted to early in the spring. Only the hardiest sorts should be chosen for orchards or groves; the more delicate ones can be grown easily with slight covering in winter. Fifty feet is the maximum height of the orange in its native country, but it rarely forms in Florida more than a compact low tree of twenty feet. It is better, therefore, to plant them so near as partially to shade the surface of the ground.

INSECTS. The orange plantations of Florida have suffered very severely from the attacks of the scale insect (*Coccus hispidum*), which in some cases has spread over whole plantations, and gradually destroyed all the trees. It is the same small, oval, brownish insect, so common in our greenhouses, which adheres closely to the bark and underside of the leaves. A wash of sal soda or potash water, applied with a brush to the bodies and limbs of the trees, is the most certain and sure remedy for destroying this insect that we have known. Repeating this once or twice will probably effectually rid the trees of the scaled insect.

VARIETIES. From among the great number of names that figure in the European catalogues, we select a few of those really deserving attention in each class of this fruit.

THE ORANGE.

The Orange (*Oranger*, French; *Pomeranzenbaum*, German; *Arancio*, Italian; and *Naranjo*, Spanish) is, on the whole, the finest tree of the genus. Its dark-green leaves have winged foot-stalks, its fruit is round, with an orange-colored skin. It is one of the longest lived fruit-trees, as an instance of which we may quote the celebrated tree at Ver-

sailles, called "the Grand Bourbon," which was sown in 1421, and is at the present time in existence, one of the largest and finest trees in France.

The fruit of the orange is universally esteemed in its ripe state. The bitter orange is used for marmalades; the green fruits, even when as small as peas, are preserved, and used in various ways in confectionery; the rind and pulp are used in cooking; and the orange flowers, distilled, give the orange-flower water, so highly esteemed as a perfume and in cookery.

Besides the COMMON SWEET ORANGE, the most esteemed sorts are the MALTESE and the BLOOD-RED, both of excellent flavor, with *red* pulp. The MANDARIN orange is a small, flattened fruit, with a thin rind separating very easily from the pulp, frequently parting from it of itself, and leaving a partially hollow space. It comes from China, and is called there the mandarin, or noble orange, from its excellent quality. The flesh is dark orange-colored, juicy, and very rich.

The BERGAMOT orange has small flowers and pear-shaped fruit. The leaves, flowers, and fruit being peculiarly fragrant, it is highly esteemed by the perfumer, and yields the bergamot essence. "The rind, first dried and then moistened, is pressed in moulds into small boxes for holding sweetmeats, to which it communicates a bergamot flavor."

The HAVANA or common sweet orange is a well-known fruit, of good size and moderately rough rind, pulp well filled with delicious juice.

The ST. AUGUSTINE oranges are a large variety of the Havana, much better than those brought from Cuba.

The ST. MICHAEL'S orange is a small fruit, the skin pale yellow, the rind thin, the pulp often seedless, juicy, and lusciously sweet. It is considered the most delicious of all oranges, and the tree is a most abundant bearer.

The SEVILLE, or bitter orange, is the hardiest of all the varieties, enduring very hard frosts without injury. It has the largest and most fragrant flowers; the pulp, however, is bitter and sharp, and is valued chiefly for marmalades. The *Double Bigarade* is a French variety of this species, with fine double blossoms.

Besides the above, the *Fingered*, *Sweet-skinned*, *Pear-shaped*, and *Ribbed* oranges, are the most striking sorts—all chiefly cultivated by curious amateurs.

LEMONS.

The Lemon (*Limonier*, of the French and German; *Limone*, Italian; *Limon*, Spanish) has longer, paler leaves than the orange, the footstalks of which are naked or wingless;

the flowers tinged with red externally, and the fruit is oblong, pale yellow, with a swollen point, and usually an acid pulp. Its principal use is in making lemonade, punch, and other cooling acid drinks.

Besides the common Lemon, there is an Italian variety, called the SWEET LEMON, the pulp of which is sweet and good.

THE LIME.

The Lime (*Limettier*, of the French), differs from the Lemon by its smaller, entirely white flowers, and small, roundish, pale yellow fruit, with a slight protuberance at the end. The acid, though sharp, is scarcely so rich and high as that of the lemon, and is used for the same purposes. The green fruit is more esteemed than any other for preserving. The Italians cultivate a curiously marked variety called *Pomo d'Adamo*, in which Adam is said to have left the marks of his teeth.

THE CITRON.

The Citron (*Cédratier*, of the French; *Citronier*, German; *Cedrato*, Italian) is one of the finest growing trees of this family, with large, oblong, wingless leaves, and flowers tinged with purple externally. The fruit, shaped like that of the lemon, is much larger, of a yellow color, warted and furrowed externally. The rind is very fragrant and very thick, the pulp is subacid, and is used in the same way as that of the lemon. It is chiefly valued, however, for the rich sweetmeat or preserve, called *citron*, made from the rind.

The MADRAS citron is considered the largest and best variety.

THE SHADDOCK.

The Shaddock (*Pampelmous*, French; *Arancio massimo*, Italian) may be considered a monstrous orange, with a comparatively tasteless pulp. It is a native of China and Japan, and has its name from Dr. Shaddock, who first carried it to the West Indies. The leaves are winged, like those of the orange, the flowers white, and the fruit globular. Its size is very large, as it often weighs six or eight pounds. The pulp is sweetish, or subacid, and the juice is rather refreshing. It is, however, more showy than useful, and certainly makes a magnificent appearance in a collection of tropical fruits.

CHAPTER XXVI.

THE PEACH.

Persica vulgaris, Dec. *Rosaceæ*, of botanists. \
Pêcher, of the French ; *Pfirsichbaum*, German ; *Pursickkeboom*, Dutch ;
Persico, Italian ; and *el Melocoton*, Spanish.

THE Peach-tree is a native of Persia and China, and was brought from the former country to Italy by the Romans in the time of the Emperor Claudius. It was considerably cultivated in Britain as early as the year 1550, and was introduced to this country by the early settlers somewhere about 1680. From Persia, its native country, its name in all languages—*Persico*—*Pêcher*—*Peach*—has evidently been derived.

The peach is a rather small fruit-tree, with narrow, smooth, serrated leaves, and pink blossoms. It is more tender and of shorter duration than most other of the fruits usually grown in temperate climates. It is never raised in England, and not generally in France, without the aid of walls. Even at Montreuil, near Paris, a village whose whole population is mainly employed in cultivating the peach for market, it is grown entirely upon white-washed walls. China and the United States are, therefore, the only temperate countries where the peach and the apple both attain their highest perfection in the open orchard. The peaches of Pekin are celebrated as being the finest in the world, and of double the usual size.

It is a curious fact in the history of the peach, that with its delicious flavor were once coupled, in the East, certain notions of its poisonous qualities. This idea seems vaguely to have accompanied it into Europe, for Pliny mentions that it was supposed that the king of Persia had sent them into Egypt to poison the inhabitants, with whom he was then at war. As the peach and the almond are closely related, it has been conjectured by Mr. Knight that the poisonous peaches referred to were swollen almonds, which contain a considerable quantity of prussic acid. But it is also worth remarking that the peach tree seems to hold very much the same place in the ancient Chinese writings that the tree of knowledge of the old Scriptures, and the golden Hesperides apples of the heathens, do in the early history of the western nations. The traditions of a peach-tree, the fruit of which when eaten conferred immortality, and which bore only once in a thousand years—and of another peach-tree of knowledge, which existed

in the most remote period, on a mountain guarded by a hundred demons, the fruit of which produced death—are said to be distinctly preserved in some of the early Chinese writings. Whatever may have been the nature of these extraordinary trees, it is certain that, as Lord Bacon says, “not a slip or sucker has been left behind.” We must, therefore, content ourselves with the delight which a fine peach of modern times affords to the palate and the eye.

We believe there is at the present time no country in the world where the peach is grown in such great quantities as in the United States. North of a line drawn from the Mohawk river to Boston, comprising most of the Eastern States, they do not indeed flourish well, requiring some artificial aid to produce regular crops; but in all the Middle, Southern, and Western States, they grow and produce the heaviest crops in every garden and orchard. Thousands of acres are devoted to this crop for the supply of the markets of our large cities. The market price usually varies according to the abundance of the crop, and to the earliness or lateness of the season at which they are offered. Many growers have orchards of from 10,000 to 100,000 trees of different ages, and send to market in good seasons as many bushels of fruit from the bearing trees. When the crop is not universally abundant, the profits are very large; if the contrary, they are often very little.

The very great facility with which the peach grows in this country, and the numerous crops it produces, almost without care, have led to a carelessness of cultivation which has greatly enfeebled the stock, and, as we shall presently show, has in many places produced a disease peculiar to this country. This renders it necessary to give some additional care and attention to the cultivation of the peach; and with very trifling care this delicious fruit may be produced in great abundance for many successive years.

USES. Certainly no one expects us to write the praises of the peach as the most delicious of fruits. “To gild refined gold” would be a task quite as necessary, and if any one doubts the precise rank which the peach should take among the different fruits of even that cornucopian month—September—and wishes to convince us of the higher flavor of a Seckel or a Belle Lucrative pear, we will promise to stop his mouth and his argument with a sunny-cheeked and melting “George the Fourth,” or luscious “Rareripec!” No man who lives under a warm sun will hesitate about giving a due share of his garden to peaches, if he have no orchard; and even he who lives north of the best Indian corn limits ought to venture on a small line of espalier for the sake of the peach.

In pies and pastry, and for various kinds of preserving, the peach is everywhere highly esteemed. At the South and West a considerable quantity of peach brandy is annually distilled from them, but we believe by no means so much as formerly. Hogs are fattened, in such districts, on the refuse of the orchard and distillery.

In most parts of the country where peaches are largely cultivated the fruit is dried, and in this state sent to market in very large quantities. The drying is performed, on a small scale, in spent ovens; on a large scale, in a small drying-house heated by a stove, and fitted up with ventilated drawers. These drawers, the bottom of which are formed of laths, or narrow strips sufficiently open to allow the air to circulate through them, are filled with peaches in halves. They are cut in two without being peeled, the stones taken out, and the two halves placed in a single layer with the skin downward. In a short time the heat of the drying-house will complete the drying, and the drawers are then ready for a second filling. Farther south they are spread upon boards or frames, and dried in the sun merely; but usually with the previous preparation of dipping the peaches (in baskets) for a few minutes in boiling water before halving them.

The leaf of the peach, bruised in water and distilled, gives the peach water, so much esteemed by many for flavoring articles of delicate cookery; and steeped in brandy or spirits, they communicate to it the flavor of Noyau. Indeed a very good imitation of the celebrated Noyau is made in this way, by using the best white brandy, which, after being thus flavored, is sweetened with refined sugar mixed with a small quantity of milk, and afterwards decanted.

PROPAGATION. The peach is the most easily propagated of all fruit-trees. A stone planted in the autumn will vegetate in the ensuing spring, grow three or four feet high, and may be budded in August or September. Two years from this time, if left undisturbed, it will usually produce a small crop of fruit, and the next season bear very abundantly, unless the growth is over-luxuriant.

In nursery culture it is customary to bury the peach-stones in autumn, in some exposed spot, in thick layers covered with earth. Here they are allowed to lie all winter. As early in the spring as the ground is in fine friable condition, the stones are taken out of the ground, cracked, and the kernels sown in mellow prepared soil, in the nursery rows where they are to grow. They should be covered about an inch deep. Early in the following September they will be fit for *budding*. This is performed with great ease on the peach, and grafting is therefore seldom or never resorted to in this country, except

at the South. The buds should be inserted quite near the ground. The next season the stock should be headed back in March, and the trees will, in good soil, grow to the height of a man's head in one year. This is by far the best size for transplanting the peach—one year old from the bud.

In England the plum stock is universally employed. The advantage gained thereby is, a dwarfer and neater habit of growth for their walls. In France, some of the best cultivators prefer the almond stock. Healthy peach stocks afford the most natural foundation for the growth of standard orchard trees. At the same time we must protest against the indiscriminate employment of peach-stones from any and every source. With the present partially diseased state of many orchards in this country, this is a practice to be seriously condemned; and more especially as, with a little care, it is always easy to procure stones from sections of country where the *Yellows* is not prevalent.

For rendering the peach quite dwarf, the *Mirabelle* plum stock is often employed abroad.

SOIL AND SITUATION. The very best soil for the peach is a rich, deep, sandy loam; next to this, a strong, mellow loam; then a light, thin, sandy soil; and the poorest is a heavy, compact clay soil. We are very well aware that the extensive and profitable appropriation of thousands of acres of the lightest sandy soil in New Jersey and Delaware, has led many to believe that this is the best soil for the peach. But such is not the fact, and the short duration of this tree in those districts is unquestionably owing to the rapidity with which the soil is impoverished. We have, on the contrary, seen much larger, finer, and richer flavored peaches *produced for a long time successively* on mellow loam, containing but little sand, than upon any other soil whatever.

It is a well-founded practice not to plant peach orchards successively upon the same site, but always to choose a new one. From sixteen to twenty-five feet apart may be stated as the limits of distance at which to plant this tree in orchards, more space being required in warm climates and rich soils than under the contrary circumstances. North of New York it is better always to make plantations in the spring, and it should be done pretty early in the season. South of that limit it may usually be done with equal advantage in the autumn.

In districts of country where the fruit in the blossom is liable to be cut off by spring frosts, it is found of great advantage to make plantations on the north sides of hills, northern slopes or elevated grounds, in preference to warm valleys and southern aspects. In the colder exposures the vegetation

and blossoming of the tree is retarded until after all danger of injury is past. Situations near the banks of large rivers and inland lakes are equally admirable on this account, and the blossoms are not injured once in a dozen years; while on level grounds, distant but a little way, they are destroyed every fourth or fifth season.

With regard to the culture of peach orchards, there is a seeming disparity of opinion between growers at the North and South. Most of the cultivators at the South say, *never plough* or cultivate an orchard after it has borne the first crop. Ploughing bruises the roots, enfeebles the trees, and lessens the crop. Enrich the ground by top-dressings, and leave it in a state of rest. The best northern growers say, always keep the land in good condition, mellow and loose by cultivation, and crop it very frequently with the *lighter* root and field crops. Both are correct, and it is not difficult to explain the seeming difference of opinion.

The majority of the peach orchards south of Philadelphia, it will be recollected, grow upon a thin, light soil, previously rather impoverished. In such soils it is necessarily the case that the roots lie near the surface, and most of the food derived by them is from what is applied to the surface or added to the soil. Ploughing, therefore, in such soils, wounds and injures the roots, and cropping the ground takes from it the scanty food annually applied or already in the soil, which is not more than sufficient for the orchard alone. In a stronger and deeper soil the roots of the peach-tree penetrate farther, and are mostly out of the reach of serious injury by the plough. Instead of losing by being opened and exposed to the air, the heavier soil gains greatly in value by the very act of rendering it more friable, while at the same time it has naturally sufficient heart to bear judicious cropping with advantage rather than injury to the trees. The growth and luxuriance of an orchard in strong land, kept under tillage, is surprisingly greater than the same allowed to remain in sod. The difference in treatment, therefore, should always adapt itself to the nature of the soil. In ordinary cases, the duration of the peach orchards in the light sandy soil is rarely more than three years in a bearing state. In a stronger soil, with proper attention to the shortening system of pruning, it may be prolonged to twenty or more years.

PRUNING. It has always been the prevailing doctrine in this country that the peach requires no pruning. It has been allowed to grow, to bear heavy crops, and to die, pretty much in its own way. This is very well for a tree in its native climate, and in a wild state; but it must be remembered that the peach comes from a warmer country than ours, and that

our peaches of the present day are artificial varieties. They owe their origin to artificial means, and require, therefore, a system of culture to correspond.

In short, we view this absence of all due care in the management of the peach-tree, *after it comes into bearing*, as the principal original cause of its present short duration, and the disease which preys upon it in many of the older parts of the country. We therefore earnestly desire the attention of peach-growers to our brief hints upon a regular system of pruning this valuable tree. Of course we speak now of common standard trees in the orchard or garden.

A peach-tree, left to itself after being planted, usually comes into bearing the third or fourth year, and has a well-shaped rounded head, full of small bearing branches, and well garnished with leaves.



A peach-tree without pruning, as commonly seen.

It must be borne in mind that the fruit is only borne on the young shoots of the previous summer's growth. In a young tree these are properly distributed throughout. But in a couple of seasons, the tree being left to itself, the growth being mostly produced at the ends of the principal branches, the young shoots in the interior of the head of the

tree die out. The consequence is, that in a short time the interior of the tree is filled with long lean branches, with only young shoots at their extremities. Any one can see that such a tree can be provided with but half the number of healthy, strong shoots for bearing, that one would have if filled throughout with vigorous young wood. The sap flows tardily through the long and rigid branches, and not half leaves enough are provided to secure the proper growth of the fruit. And, finally, all the fruit which the tree yields being allowed to remain at the ends of the branches, they often break under its weight.

Now, we propose to substitute for this what is generally known as the *shortening-in* system of pruning. We affirm, both from its constant success abroad, and from our own experience and observation in this country, that, putting its two diseases out of the question, the peach may be continued in full vigor and production, in any good soil, for from ten to thirty years.

Let us take a healthy tree in the orchard or garden, in its

first blossoming year. It is usually about six to eight feet high, its well-shaped head branching out about three feet* from the ground. It has never yet been trimmed, except to regulate any deformity in its shape, and this is so much the better.

At the end of February, or as early in the spring as may be, we commence pruning. This consists only of *shortening-in*, i. e., cutting off *half the last year's growth* over the whole outside of the head of the tree, and also upon the inner branches. As the usual average growth is from one to two feet, we shall necessarily take off from six to twelve inches. It need not be done with precise measurement; indeed, the strongest shoots should be shortened back most, in order to bring up the others, and any long or projecting limbs that destroy the balance of the head should be cut back to a uniform length. This brings the tree into a well-rounded shape. By reducing the young wood one-half, we at the same moment reduce the coming crop one-half in number. The remaining half, receiving all the sustenance of the tree, are of double the size. The young shoots, which start out abundantly from every part of the tree, keep it well supplied with bearing wood for the next year, while the greater luxuriance and size of the foliage, as a necessary consequence, produces larger and higher flavored fruit.† Thus, while we have secured against the prevalent evil, an over-crop, we have also provided for the full nourishment of the present year's fruit, and induced a supply of fruit-bearing shoots throughout the tree for the next season.

This course of pruning is followed regularly, every year, for the whole life of the tree. It is done much more rapidly than one would suppose; the pruned wounds are too small to cause any gum to flow; and it is done at the close of winter, when labor is worth least to the cultivator.



A peach-tree pruned by the shortening-in mood

* We think *low* heads much preferable to high ones on many accounts. They shade the root, and are more within reach both for pruning and gathering.

† It is well, in shortening-back, to cut off the shoot close above a *wood-bud* rather than a blossom-bud. Few persons are aware how much the size and beauty of the fruit depend on the size and vigor of the leaves. We have seen two peach-trees of the same age side by side, one unpruned, and the other regularly *shortened-in*, and both bearing about four bushels. That of the latter was, however, of double the size, and incomparably finer.

The appearance of a tree pruned in this way, after many years of bearing, is a very striking contrast to that of the poor skeletons usually seen. It is, in fact, a fine object, with a thick, low, bushy head, filled with healthy young wood, and in the summer with an abundance of dark-green, healthy foliage and handsome fruit. Can any intelligent man hesitate about adopting so simple a course of treatment to secure such valuable results? We recommend it with entire confidence to the practice of every man in the country that cultivates a peach-tree. After he has seen and *tasted* its good effects, we do not fear his laying it aside.*

Training the peach tree against walls or espaliers is but little practised in this country. Espaliers and cordon training, on a small scale, is, however, highly worthy of the attention of persons desiring this fruit in the colder parts of the country, where it does not succeed well as a standard. Everywhere in New England excellent crops may be produced in this way. Full directions for training the peach *en*

* Our attention has been drawn to the following remarkable examples of the good effects of regular pruning, which we translate from the leading French journal of horticulture. We ask the attention of our readers to these cases, especially after perusing our remarks on the Yellows and its cause.

“M. Duvilliers laid before the Royal Society of Horticulture an account of some old peach-trees that he had lately seen at the Château de Villiers, near Ferté-Aleps (Seine-et-Oise). These trees, eight in number, are growing upon a terrace wall, which they cover perfectly, and yield abundant crops. The gardener assured M. Duvilliers that they had been under his care during the thirty years that he had been at the château; that they were as large when he first saw them as at present, and that he supposed them to be at least *sixty years old*. We cannot doubt (says the editor) *that it is to the annual pruning that these peach-trees owe this long life; for the peach-trees that are left to themselves in the latitude of Paris never live beyond twenty or thirty years*. M. Duvilliers gave the accurate measurement of the trunks and branches of these trees, and stated, what it is more interesting to know, that although all their trunks are hollow, like those of the old willows, yet their vigor and fertility are still quite unimpaired.” (*Annales de la Société d'Horticulture*, tome xxx. p. 58.)

In volume 25, page 67, of the same journal, is an account of a remarkable peach-tree in the demesne of M. Joubert, near Ville-neuve le Roi (département de l'Yonne). It is trained against one of the wings of the mansion, covers a large space with its branches, and the circumference of its trunk, taken at some distance from the ground, is two feet and a half. *It is known to be, actually, of more than 93 years' growth*, and it is believed to be more than 100 years old. It is still in perfect health and vigor. It is growing in strong soil, but it has been regularly subjected to a uniform and severe system of pruning, equivalent to our shortening-in mode. Where can any peach-tree of half this age be found in the United States, naturally a much more favorable climate for it than that of France?

espalier and cordon, with illustrations, are given in pages 55-57.

Cordon or low fan training is practised by some cultivators at the North, and in sections where the crop of the peach is uncertain by reason of extreme cold in winter or late spring frosts destroying the buds. When the cordons or low fans are kept within one to two feet from the ground the trees may be readily protected in winter by covering with corn-stalks, straw, or brush of evergreens.

INSECTS AND DISEASES. For a considerable time after the peach was introduced into America, it was grown everywhere south of the 40° of latitude, we may say literally, *without cultivation*. It was only necessary to plant a stone in order to obtain in a few years, and for a long time, an abundance of fruit. Very frequently these chance seedlings were of excellent quality, and the finer grafted varieties were equally luxuriant. Two maladies have appeared within the last twenty years, which, because they are little understood, have rendered this fine fruit-tree comparatively short-lived and of little value. These are the *Peach-borer* and the *Yellows*.

The PEACH-BORER or Peach-worm (*Ægeria exitiosa*, Say) does great mischief to this tree by girdling and devouring the whole circle of bark just below the surface of the ground, when it soon languishes and dies.

The insect in its perfect state is a slender, dark-blue, four-winged moth, somewhat like a wasp. It commences depositing its eggs in the soft and tender bark at the base of the trunk, usually about the last of June, but at different times from June to October. The egg hatches and becomes a small white *borer* or grub, which eventually grows to three-fourths of an inch long, penetrates and devours the bark and sap wood, and, after passing the winter in the tree, it enfolds itself in a cocoon under or upon the bark, and emerges again in a perfect or winged form in June, and commences depositing its eggs for another generation.

It is not difficult to rid our trees of this enemy. In fact, nothing is easier to him who is willing to devote a few moments every season to each tree. The eggs which produce the borer, it will be recollected, are deposited in the soft-portion of bark just at the surface of the earth. Experience has conclusively proved that if a quantity of leached ashes, charcoal, or even common soil, be heaped to the height of one foot around the trunk of each tree at the end of May, and suffered to remain till October, the peach-borer will not attack it. It has been tried most successfully in large orchards, where the protected trees have long remained sound, while

those unprotected have been speedily destroyed by the borer. The remedy undoubtedly lies chiefly in covering the most vulnerable portion of the tree from the attack of the insect. These mounds or heaps of earth, ashes, etc., should be spread over the surface every autumn on approach of winter, thus exposing the larvæ of the insect, if any have entered the tree, to cold and destruction.

Another simple remedy is in spring to first draw away a little earth from the crown of the tree, then wrap the body up, one foot from the ground, with strong coarse paper, securing it with tying, and replace the earth.

Many careful and rigid cultivators prefer a regular examination of the trees every spring and autumn. On removing the earth for a few inches, the appearance of gum or castings quickly indicates where the borer has made his lodging. A few moments with the knife will then eradicate the insect for the season.

THE YELLOWS. This most serious malady seems to belong exclusively to this country, and to attack only the peach-tree. Although it has been the greatest enemy of the peach-planter for the last thirty years,—rendering the life of the tree uncertain, and frequently spreading over and destroying the orchards of whole districts,—still little is known of its nature, and nothing with certainty of its cause. Many slight observers have confounded it with the effects of the peach-borer, but all persons who have carefully examined it know that the two are totally distinct. Trees may frequently be attacked by both the yellows and the borer, but hundreds die of the yellows when the most minute inspection of the roots and branches can discover no insect or visible cause. Still we believe proper cultivation will entirely rid our gardens and orchards of this malady; and this belief is in part borne out by experiments under our own inspection. In order to combat it successfully, it is necessary that the symptoms should be clearly understood.

Symptoms. The Yellows appears to be a constitutional disease, no external cause having yet been assigned for it. Its infallible symptoms are the following:—

1. The production upon the branches of very *slender, wiry shoots*, a few inches long, and bearing starved diminutive leaves. These shoots are not protruded from the extremities, but from latent buds on the main portions of the stem and larger branches. The leaves are very narrow and small, quite distinct from those of the natural size, and are either pale yellow or destitute of color.

2. The premature ripening of the fruit. This takes place from two to four weeks earlier than the proper season. The

first season of the disease it grows nearly to its natural size; the following season it is not more than half or a fourth of that size; but it is always marked externally (whatever may be the natural color) with specks and large spots of purplish red. Internally the flesh is more deeply colored, especially around the stone, than in the natural state.

Either of the foregoing symptoms (and sometimes the second appears a season in advance of the first) are undeniable signs of the Yellows, and they are not produced by the attacks of the worm or other malady. We may add to them the following additional remarks:—

It is established beyond question that the Yellows can always be propagated by budding or grafting from a diseased tree; that the stock, whether peach or almond, also takes the disease, and finally perishes; and that the seeds of the diseased trees produce young trees in which the Yellows sooner or later breaks out. To this we may add that the peach, budded on the plum or apricot, is also known to die with the Yellows.

Very frequently only a single branch, or one side of a tree, will be affected the first season. But the next year it invariably spreads through its whole system. Frequently trees badly affected will die the next year. But usually it will last, growing more and more feeble every year, for several seasons. The roots, on digging up the tree, do not appear in the least diseased.

The soil does not appear materially to increase or lessen the liability to the Yellows, though it first originated, and is most destructive, in light, warm, sandy soils.

Lastly, it is the nearly universal opinion of all orchardists that the Yellows is a *contagious* disease, spreading gradually, but certainly, from tree to tree through whole orchards. It was conjectured by the late William Prince that this takes place when the trees are in blossom, the contagion being carried from tree to tree in the pollen by bees and the wind. This view is a questionable one, and it is rendered more doubtful by the fact that experiments have been made by dusting the pollen of diseased trees upon the blossoms of healthy ones without communicating the Yellows.

We consider the contagious nature of this malady an unsettled point. Theoretically, we are disinclined to believe it, as we know nothing analogous to it in the vegetable kingdom. But on the other hand it would appear to be practically true, and for all practical purposes we would base our advice upon the supposition that the disease is contagious. For it is only in those parts of the Atlantic States where every vestige of a tree showing the Yellows is immediately destroyed, that we

have seen a return of the normal health and longevity of the tree.*

Cause of the Yellows. No writer has yet ventured to assign a theory, supported by any facts, which would explain the cause of this malady. We therefore advance our opinion with some diffidence, but yet not without much confidence in its truth.

We believe the malady called the Yellows to be a *constitutional taint* existing in many American varieties of the Peach, and produced, in the first place, by bad cultivation and the consequent exhaustion arising from successive over-crops. Afterwards it has been established and perpetuated by sowing the seeds of the enfeebled tree, either to obtain varieties or for stocks.

Let us look for a moment into the history of the Peach culture in the United States. For almost a hundred years after this tree was introduced into this country it was largely cultivated, especially in Virginia, Maryland, and New Jersey, as we have already stated, in perfect freedom from such disease, and with the least possible care. The great natural fertility of the soil was unexhausted, and the land occupied by orchards was seldom or never cropped. Most of the soil of these States, however, though at first naturally rich, was light and sandy, and in course of time became comparatively exhausted. The peach-tree, always productive to an excess in this climate, in the impoverished soil was no longer able to recruit its energies by annual growth, and gradually became more and more enfeebled and short-lived. About 1800, or a few years before, attention was attracted in the neighborhood

* The following extract from some remarks on the Yellows by that careful observer, Noyes Darling, Esq., of New Haven, Ct., we recommend as worthy the attention of those who think the disease contagious. They do not seem to indicate that the disease spreads from a given point of contagion, but breaks out in spots. It is clear to our mind that in this, and hundreds of other similar cases, the disease was *inherent* in the trees, they being the seedlings of diseased parents.

“When the disease commences in a garden or orchard containing a considerable number of trees, it does not attack all at once. It breaks out in *patches* which are progressively enlarged, till eventually all the trees become victims to the malady. Thus, in an orchard of two and a half acres, all the trees were healthy in 1827. The next year two trees on the *west side* of the orchard, within a rod of each other, took the Yellows. In 1829, six trees on the *east side* of the orchard were attacked; five of them standing within a circle of four rods diameter. A similar fact is now apparent in my neighborhood. A fine lot of 200 young trees, last year in perfect health, now show disease in two spots near the opposite ends of the lot, having exactly six diseased trees in each patch contiguous to each other, while all the other trees are free from any marks of disease.”—*Cultivator*.

of Philadelphia to the sudden decay and death of the orchards without apparent cause. From Philadelphia and Delaware the disease gradually extended to New Jersey, where, in 1814, it was so prevalent as to destroy a considerable part of all the orchards. About three or four years later it appeared on the banks of the Hudson (or from 1812 to 1815), gradually and slowly extending northward and westward to the remainder of the State. Its progress to Connecticut was taking place at the same time, a few trees here and there showing the disease, until it became well known (though not yet generally prevalent) throughout most of the warmer parts of New England. .

It should be here remarked, that though the disease had been considerably noticed in Maryland and the Middle States previously, yet it was by no means general until about the close of the war of 1812. At this time wheat and other grain crops bore very high prices, and the failing fertility of the peach orchard soils of those States was suddenly still more lowered by a heavy system of cropping between the trees without returning anything to the soil. Still the peach was planted, produced a few heavy crops, and declined from sheer feebleness and want of sustenance. As it was the custom with many orchardists to raise their own seedling trees, and as almost all nurserymen gathered the stones *indiscriminately* for stocks, it is evident that the constitutional debility of the parent trees would naturally be inherited to a greater or less degree by the seedlings. Still the system of allowing the tree to exhaust itself by heavy and repeated crops in a light soil was adhered to, and generation after generation of seedlings, each more enfeebled than the former, at last produced a completely sickly and feeble stock of peach-trees in those districts.

The great abundance of this fruit caused it to find its way more or less into all the markets on the sea-coast. The stones of the enfeebled Southern trees were thus carried north, and, being esteemed by many better than those of home growth, were everywhere more or less planted. They brought with them the enfeebled and tainted constitution derived from the parent stock. They reproduced almost the same disease in the new soil; and thus, little by little, the Yellows spread from its original neighborhood, below Philadelphia, to the whole northern and eastern sections of the Union. At this moment, 1845, it is slowly but gradually moving West; though the rich and deep soils of the Western alluvial bottoms will, perhaps, for a considerable time, even without care, over power the original taint of the trees and stones received from the East.

Let us now look a little more closely into the nature of this enfeebled state of the peach-tree which we call the Yellows.

Every good gardener well knows that if he desires to raise a healthy and vigorous seedling plant, he must select the seed from a parent plant that is itself decidedly healthy. Lindley justly and concisely remarks: "All seeds will not equally produce vigorous seedlings; but the healthiness of the new plant will correspond with that of the seed from which it sprang. For this reason it is not sufficient to sow a seed to obtain a given plant; but in all cases, when any importance is attached to the result, the plumpest and healthiest seeds should be selected, if the greatest vigor is required in the seedling, and feeble or less perfectly formed seeds, when it is desirable to check natural luxuriance." *

Again, Dr. Van Mons, whose experience in raising seedling fruit-trees was more extensive than that of any other man, declares it as his opinion that the more frequently a tree is reproduced *continuously* from seed, the more feeble and short-lived is the seedling produced.

Still more, we all know that certain peculiarities of constitution or habit can be propagated by grafting, by slips and even by seeds. Thus the *variegated* foliage, which is a disease of some sort, is propagated forever by budding, and the disposition to mildew of some kinds of peaches is continued almost always in the seedlings. That the peach-tree is peculiarly constant in any constitutional variation, the *Nectarine* is a well-known proof. That the fruit-tree is only an accidental variety of the peach, and yet it is continually reproduced with a smooth skin from seed.

Is it not evident, from these premises, that *the constant sowing of the seeds of an enfeebled stock of peaches would naturally produce a sickly and diseased race of trees?* The seedlings will at first often appear healthy when the parent had been only partially diseased, but the malady will sooner or later show itself, and especially when the tree is allowed to produce an over-crop.

That poor soil and over-bearing will produce great debility in any fruit-tree, is too evident to need much illustration. Even the apple, that hardiest orchard tree, requires a whole year to recover from the exhaustion of its powers caused by a full crop. The great natural luxuriance of the peach enables it to lay in new fruit-buds while the branches are still loaded with fruit, and thus, except in strong soil, if left to itself, it is soon enfeebled.

There are some facts in our every-day observation which may be adduced in proof of this theory. In the first place, the varieties of this tree always most subject to this disease

* Theory of Horticulture.

are the *yellow peaches*; and they, it is well known, also produce the heaviest crops. More than nine-tenths of the victims, when the disease first appeared, were the yellow-fleshed peaches. On the other hand, the white-fleshed kinds (those white and red externally) are much more rarely attacked; in some parts of the country never. They are generally less vigorous, and bear more moderate crops. And it is well worth remarking that certain fine old sorts, the ends of the branches of which have a peculiar *mildewed* appearance (such as the old Red Rareripe, the Early Anne, etc.), which seems to check the growth without impairing the health, are rarely, if ever, attacked by the Yellows. Slow-growing and moderately productive sorts, like the Nutmeg peaches, are almost entirely exempt. We know an orchard in the adjoining county where every tree has gradually died with the Yellows, except one tree which stood in the centre. It is the Red Nutmeg, and is still in full vigor. It is certainly true that these sorts often decay and suddenly die, but we believe chiefly from the neglect which allows them to fall a prey to the Peach-borer. Indeed the frequency with which the Borer has been confounded with the Yellows by ignorant observers, renders it much more difficult to arrive at any correct conclusions respecting the *contagious* nature of the latter disease.*

It may be said, in objection to these views, that a disease which is only the enfeeblement of the constitution of a tree, would not be sufficient to alter so much its whole nature and duration as the Yellows has done that of the peach. The answer to this is, that the debility produced in a single generation of trees probably would not have led to such effects, or to any settled form of constitutional disease. But it must be borne in mind that the same bad management is to a great extent going on to this day, the whole country over. Every year, in the month of August, the season of early peaches, thousands of bushels of fruit, showing the infallible symptoms of the Yellows,—a spotted skin, etc.,—are exposed and sold in the markets. Every year more or less of the stones of these peaches are planted, to produce, in their turn, a generation of diseased trees, and every successive generation is even more feeble and sickly than the last! Even in the North, so feeble has the stock become in many places, that an excessive crop of fine fruit is but too frequently followed by the Yellows. In this total absence of proper care in the se-

* All knowledge relating to the Yellows appears to us as much in obscurity as when this was written. In our experience no one variety seems more liable to be attacked than another, the most vigorous trees being as often affected as those of moderate growth.—C. D.

lection both of the seed and the trees, followed by equal negligence of good cultivation, is it surprising that the peach has become a tree comparatively difficult to preserve, and proverbially short-lived?

Abroad, it is well known that the peach is always subjected to a regular system of pruning, and is never allowed to produce an over-crop. It is not a little singular, both that the Yellows should never have originated there, and that, notwithstanding the great number of American varieties of this fruit that have been repeatedly sent to England and are now growing there, the disease has never extended itself, or been communicated to other trees, or even been recognized by English or French horticulturists. We must confess, these facts appear to us strong proofs in favor of our opinion as to the nature and origin of the malady.

Remedy for the Yellows. It may seem to many persons a difficult task to rid ourselves of so wide-spread a malady as this, yet we are confident that a little perseverance and care will certainly accomplish it. In the present uncertainty with regard to its contagious nature, it is much the wisest to reject "the benefit of the doubt," and act upon the principle that it is so. We know at the present moment several gardens where the trees are maintained in good health by immediately rooting out and destroying every tree as soon as it shows marked symptoms of the malady.

1. We would therefore commence by exterminating, root and branch, every tree which has the Yellows. And another tree should not be planted in the same spot without a lapse of several years, or a thorough removal of the soil.

2. The utmost care should be taken to select seeds for planting from perfectly healthy trees. Nurserymen, to secure this, should gather them from the latest ripening varieties, or procure them from districts of the country where the disease is not known.

3. So far we have aimed only at procuring a healthy stock of trees. The most important matter remains to be stated—*how to preserve them in a healthy state.*

The answer to this is emphatically as follows: *pursue steadily, from the first bearing year, the shortening-in system of pruning* already explained. This will at once secure your trees against the possibility of over-bearing and its consequences, and maintain them in vigor and productiveness for a long time.* It will, in short, effectually prevent the Yel-

* The following remarks, directly in point, are from Loudon's last work: "The effect of shortening the shoots of the peach is not merely to throw more sap into the fruit, but to add vigor to the tree generally by increasing the power of the roots relatively to the branches.

lows where it does not already exist in the tree. To whoever will follow these precautions, pursue this mode of cultivation, and adopt at the same time the remedy for the Borer already suggested, we will confidently insure healthy, vigorous, long-lived trees, and the finest fruit. Will any reasonable man say that so fine a fruit as the peach does not fully merit them?

Whether the system of shortening-in and careful culture will prevent the breaking out of the Yellows, when constitutionally *latent* in the tree, we will not yet undertake to say. In slight cases of the disease we believe that it may. Of one thing, however, we are certain: it has hitherto failed entirely to reclaim trees in which the malady had once broken out. Neither do we know of any well-attested case of its cure, after this stage, by any means whatever. Such cases have indeed been reported to us, and published in the journals, but, when investigated, they have proved to be trees suffering by the effect of the *borer* only.

A planter of peach-trees must, even with care, expect to see a few cases of Yellows occasionally appear. The malady is too widely extended to be immediately vanquished. Occasionally trees having the constitutional taint will show themselves where least suspected; but when the peach is once properly cultivated these will every day become more rare, until the original health and longevity of this fruit-tree is again established.

THE CURL is the name commonly given to a malady which often attacks the leaves of the peach-tree. It usually appears in the month of May or June. The leaves curl up, become thickened and swollen, with hollows on the under and reddish swellings on the upper side, and finally, after two or three weeks, fall off. They are then succeeded by a new and healthy crop of foliage. Although it does not appear materially to injure either the tree or the crop, yet it greatly disfigures it for a time.

Innumerable seedlings have been produced in this country, and some of them are of the highest excellence. It is very desirable to reduce the collection of peaches to reasonable limits, because, as this fruit neither offers the same variety of flavor nor the extent of season as the apple and pear, a moderate number of the choicest kinds, ripening from the earliest to the latest, is in every respect better than a great variety, many of which must necessarily be second-rate.

The peach being a short-lived tree, *it has been justly remarked by Mr. Thompson, were it allowed to expend all its accumulated sap every year, it would soon exhaust itself and die of old age.*—*Suburban Horticulturist.*

It is worthy of remark, that most of our American varieties of the first quality have proved second-rate in England. This is owing to the comparative want of sun and heat in their climate. Indeed, our finest late peaches will not ripen at all except under glass, and the early varieties are much later than with us. On the other hand, many of the best European sorts are finer here than in England, and we have lately endeavored to introduce all of the foreign sorts of high quality.

In the description of peaches and nectarines the form and outlines of many kinds are so nearly similar that we are obliged to resort to other characteristics to distinguish the varieties. The two most natural classes into which the kinds of this fruit are divided are *freestones* and *clingstones* (*melts* and *pavies*, of the English); the flesh of the former parting freely from the stone, that of the latter adhering.

Next to this, the strongest natural distinction is found in the *leaves* of the peach. At the base of the leaves of certain kinds are always found small *glands*, either round and regular, or oblong and irregular, while the leaves of certain other kinds have no glands, but are more deeply cut or *serrated* on the margin. These peculiarities of the foilage are constant, and they aid us greatly in recognizing a variety by forming three distinct classes, viz:—



Characters in the leaves of peaches.

1. Leaves serrated and *without glands*, a. 2. Leaves with small round or *globose glands*, b. 3. Leaves with large, irregular, *reniform glands*, c.

This distinction of leaves is valuable, because it not only assists us when we have the fruit before us, but it may be referred to, for the sake of verifying an opinion, at any time during the season of foliage.

There is also another class of characteristics to be found in the *blossoms*, which is constant and valuable, though not so much so as that of the leaves, because it can only be referred to for a few days in the spring. The blossoms afford two well-marked subdivisions: 1st. Large flowers, always red in the centre, and pale at the margin; 2d. Small flowers, tinged with dark at the margin.*

The most desirable peaches for market-growers in this country are very early and very late kinds. These command double the price in market of kinds ripening at the middle season. For New England and the North only the earliest kinds are desirable, as the late ones seldom mature well.

In describing peaches we have embodied their character as Freestones or Clingstones in the text descriptive.

RAISING PEACHES IN POTS. The uncertainty of peach culture in the open air has become so common in many sections where once the crop was as sure as that of the apple, that many persons are resorting to orchard houses, or artificial in-door culture, both for supply of families and also as a profitable item of fruit-growing for market.

“Two modes are adopted: one without fire-heat, the crop maturing a little earlier than in common orchards; the other, where by the use of fire-heat the fruit is obtained two or three months earlier than in open ground.” The former mode has been successfully prosecuted by Messrs. Ellwanger and Barry, Rochester, N. Y.; and the following, written by P. Barry and published in Thomas’ *American Fruit Culturist*, we copy:

“We have now fruiting in wooden boxes, ten by ten inches, fifty-three varieties of peaches, eleven varieties of nectarines, and seven of apricots.

“*Age, Potting, and Soil.* The trees are now three years from the bud. They were taken up in the fall of 1861; heeled-in and covered during winter; potted early in spring—March, I think; soil a mixture of about three parts yellow sandy loam and one part of old hot-bed manure.

“*Summer Care.* After potting they were kept in a cool

* Lindley makes a third division, embracing a few sorts with blossoms of an intermediate size. But it is of no practical value, as any doubt as to which of the two divisions any blossom belongs is immediately set at rest by the *color* of the blossom.

house, partly covered with glass, until they had made shoots four or five inches long, and the danger of cold weather over. They were then plunged to the rim of the boxes in an open border until the fall. They were carefully watered when necessary during summer, and the shoots kept as much as possible in uniform vigor by pinching.

“*Pruning.* When potted the yearling trees were cut back to six or eight inches, and in some cases to four inches, or only two or three buds above the union of bud and stock, the object being to grow them in the form of bushes. We now find that those cut back farthest are the best trees. [Fig. 350 represents the yearling tree; Fig. 351 the same, cut back; Fig. 352 the tree set in a pot; and Fig. 353, the same after a year’s growth.]



Fig. 350.

Fig. 351.

Fig. 352.

Fig. 353.

“*Wintering.* On the approach of very cold weather, or just before the freezing of the ground so as to prevent outdoor work, they were removed to a shed, where they were plunged, as they had been during summer, up to the edges of the tubs.

“*Spring Treatment.* On the return of mild spring weather abundance of air was admitted, and they remained there till 1st May, when they were placed under glass, the buds at this time being about to expand. Here they were kept till the 15th of June, at which time the fruits were set, and all danger of cold to affect the foliage past.

“*Ventilation and Watering.* During the period they were under glass, May 1st to June 15th, the principal points of

management were VENTILATION, which was ample, and WATERING—the latter being one of the most important points in the treatment of all trees and plants in pots. Careless watering will ruin any plant, no matter how skilfully or carefully other points may be managed. DAILY watering is necessary, and, as soon as out of bloom, a free use of the syringe night and morning.

“*Summer Treatment.* On the 15th June, when all danger of cold was over, and the fruits set, they were removed from the glass covering and plunged in an open but sheltered border, and mulched with old hot-bed manure. Since that time they have received no care but watering, except an occasional pinch to regulate the growth of shoots.

“There has not been a single leaf curled on any one of all these trees, showing conclusively that the curl is due to unfavorable changes of weather. Each tree now is a bush about two and a half feet high, and occupies about three feet square of space.

“The first winter we had potted trees we kept them in a cellar, but most of the buds dropped, and we changed to the cool dry shed, the boxes plunged, and this has been successful.”

In houses where fire-heat is used, and the fruit brought forward so as to ripen in May and onward, the pots are either immersed in beds of tan bark over the flues or heating pipes, or placed on platforms or shelves, the pot containing the tree inside of one, two, or three sizes larger, and the space between filled with moss; this serves to keep the roots at a more even temperature than would be the case were they to stand without this double potting. The trees are generally prepared by training one or two years before being brought into fruit, forming a head at about one foot to sixteen or eighteen inches of stem. This is done by a systematic system of pinching or summer pruning, removing the end of each shoot as fast as it grows to form three or four leaves. This pinching gives to the head a compact round form, and supplies it with numerous spurs or bearing shoots. The trees or pots are kept in the house all winter, and the thermometer in no instance allowed to go below zero, as the buds are more easily affected than those of out-door culture. It is usual to commence heating by artificial means about the middle of January, increasing it as the season advances and the natural growing season and influence of the sun's rays are increased, giving all the time attention to reducing the temperature at night and increasing it by day, as in the natural life out of doors. Great heat may be maintained in a peach-house, but it must be always accompanied by abundant watering, or the

trees will be liable to drop their fruit before mature. Some growers place their trees in warm, sheltered situations out of doors a few days before fall ripening, believing it affects and increases the flavor of the fruit.

Growing peaches in pots without the aid of glass structures or fire-heat has also been successfully practised. The trees are prepared, pruned, and grown the same as for house culture, and during the growing season the pots are plunged in the open ground in a warm, sheltered position in the garden, due attention being given to watering. Just before the approach of severe winter, say about the middle of November, they are removed into a cool, light cellar or pit-frame, there to remain during winter. In spring they are returned to the garden, and should there be any sign of frost or cold, to injure the blooms, they are protected by means of a cloth awning, arranged so that it can be drawn over them at a moment's notice.

VARIETIES.

The varieties of peach are almost innumerable, new seedlings being produced in this country with great facility, and, after being heralded for a season, are suffered to pass out of existence, and their places occupied with still later productions. A few of the old sorts remain as good to-day as when this work was first written, and occasionally a new variety is found of superior merits. In the following pages descriptive we have endeavored to record all of much value, omitting many which are inferior, and others perhaps that, although good, were not sufficiently so to make them desirable, and therefore they are rare to be found in any collection.

ALEXANDRA.

Alexandra Noblesse.

Seedling Noblesse.

This variety was raised by Thomas Rivers, from the Old Noblesse, and, unlike the old variety, the tree is not subject to mildew. Glands globose. Flowers large.

Fruit of the largest size, round, and marked with a deep suture. Skin covered with a rough down, pale, with a few clusters of red dots on the side next the sun. Flesh white, quite pale at the stone, tender, melting, juicy, rich, vinous. Freestone. Early in August. (Hogg.)

AMELIA.

Stroman's Carolina.
Orangeburg.

Razyer's June.
Sally's Peach.

Nonesuch of North Carolina.

This Peach originated with Mr. Stroman, in Orangeburg

District, S. C., and is one of the best of Southern peaches. Glands reniform. Flowers small.

Fruit large, roundish oblong. Suture large and deep, extending nearly round. Skin pale whitish yellow, shaded and marbled with crimson in the sun, downy. Flesh white, juicy, melting, sweet, rich, vinous. Freestone. Last of August. Ripens at the South with Early York.

COLE'S EARLY RED.

An American Peach, which is a very fruitful and excellent variety for market culture. Leaves with globose glands. Flowers small.

Fruit of medium size, roundish, with but little suture. Skin pale in the shade, but nearly all covered with red, becoming dark red on the sunny side. Flesh melting, juicy, rich, and very sprightly. Beginning to the middle of August. Freestone.

COLUMBIA.

Indian Peach.

Pace.

Mulatto.

The Columbia is a singular and peculiar Peach. It was raised by Mr. Coxe, the author of the first American work on fruit-trees, from a seed brought from Georgia. It is a very excellent fruit, which every amateur will desire to have in his garden. The tree is not a very rapid grower, and bears only moderate crops, being, of course, all the less subject to speedy decay. The young wood is purple. Leaves with reniform glands. Flowers small.

Fruit large, globular, broad and much depressed, the suture distinct, extending half way round. Skin rough and rather thick, dull dingy red, sprinkled with spots and streaks of darker red. Flesh bright yellow, of the texture, as Coxe remarks, of a very ripe pine-apple, rich, juicy, and of very excellent flavor. Ripens from the beginning to the middle of September. Freestone.

COOLEGE'S FAVORITE.

Cooledge's Early Red Rareripec.

This most popular early New England Peach was raised from seed by Mr. J. Cooledge, of Watertown, Mass. It is unusually productive, and a very bright-colored handsome Peach, of excellent quality; and its hardiness renders it valuable at the North. Leaves with globose glands. Flowers small.

Fruit large, roundish (the suture prominent at the top only), but rather the largest on one side. Skin clear, smooth,

white, with a fine crimsoned mottled cheek. Flesh very melting and juicy, with a rich, sweet, and high flavor. Middle of August. Freestone.

CRAWFORD'S EARLY.

Early Crawford.

Crawford's Early Melocoton.

This is the most splendid of all early yellow-fleshed Peaches, and is scarcely surpassed by any other variety in size and beauty of appearance. As a market fruit it is perhaps the most popular of the day. It was originated by William Crawford, Esq., of Middletown, N. J. The tree is vigorous, very fruitful, and hardy. Leaves with globose glands. Flowers small.

Fruit very large, oblong, the swollen point at the top prominent; the suture shallow. Skin yellow, with a fine red cheek. Flesh yellow, melting, sweet, rich, and very excellent. It ripens here the last week in August. Freestone.

CRAWFORD'S LATE.

Crawford's Superb Malacatune.

Crawford's Late Melocoton.

Crawford's Late Melocoton, from the same source as the foregoing, is one of the most magnificent American Peaches. We think it deserving of universal cultivation. As a splendid market fruit it is unrivalled, and its size and beauty will give it a place in every garden. Leaves with globose glands. Flowers small.

Fruit very large, roundish, with a shallow but distinct suture. Skin yellow, with a fine dark-red cheek. Flesh deep yellow, but red at the stone, juicy and melting, with a very rich and excellent vinous flavor. Ripens from the 20th to the last of September. Freestone.

EARLY ALBERT.

Raised by Thomas Rivers, of Sawbridgeworth, England. Tree thrifty, vigorous, and productive. An early variety of promise. Glands reniform. Flowers small.

Fruit medium, roundish oval, slightly compressed, suture medium or rather large, ending at apex, which is a little sunk, and has a small nipple, skin downy, whitish yellow, shaded with light and dark red nearly over the whole surface, quite dark in the sun. Flesh white, slightly red at the stone, juicy, melting, sweet, rich, and slightly vinous. Very good. Separates from the stone, which is small. Ripens the last of August.

EARLY ALFRED.

This was also raised by Mr. Rivers, from seed of Hunt's Tawney Nectarine, and is an excellent early peach, of vigorous growth and productive. Glands globose. Flowers large.

Fruit medium, roundish, slightly depressed, one side sometimes a little elevated, suture medium, extending a little beyond the apex, which is very small. Skin white, nearly covered with light red, and deep rich red where exposed to the sun. Flesh white, slightly tinged with red at the stone, juicy, melting, sweet, slightly vinous, and rich. Very good. Separates freely at the stone. Ripens the middle or last of August.

EARLY NEWINGTON FREESTONE.

Newington Peach.
Early Newington.

Smith's Early Newington.
Smith's Newington.

This is a large and exceedingly high-flavored early Peach; indeed we consider it without a superior at its season. It is quite distinct from the other Newingtons, which are clings, and rather late, while this is early and generally parts from the stone, though it frequently happens that some of the fruit on the same tree adheres partially or wholly to the stone; and this peculiarity (common, so far as we know, to but one other kind) is one of its constant characteristics. The tree is only a moderate bearer. Leaves with globose glands. Flowers small.

Fruit rather large, round, with a distinct suture, and one-half the fruit always the larger. Skin pale yellowish white, dotted and streaked with red, the cheek a rich red. Flesh white, but red at the stone, to which many particles adhere. If not fully ripe it has the habit of a cling. Flesh juicy, melting, with a rich vinous flavor. Ripens directly after the Early York, about the 24th of August.

EARLY RIVERS.

Raised by Thomas Rivers, England, and is a few days earlier than the Albert or Alfred, and quite equal to them in flavor. The tree is thrifty, healthy, and productive. Glands reniform. Flowers large.

Fruit medium, roundish inclining to oblong, slightly compressed, suture slight, ending at the apex, which is a little sunk, and has a very small nipple. Skin creamy white, shaded with light red in the sun, cavity deep. Flesh white to the stone, juicy, melting, sweet, rich, refreshing, slightly vinous flavor. Very good. Separates freely from the stone. Ripens the middle of August.

EARLY TILLOTSON.

The Early Tillotson was first introduced to notice by J. J. Thomas, of Macedon, Wayne Co. It is considered a native of that part of the State.

This has not succeeded well here, and most cultivators at the North have discontinued it. It mildews badly, grows slowly, and is not productive. At the South it is one of the very best early peaches, and in many localities it has proved fine. Leaves deeply serrated, without glands. Flowers small.

Fruit of medium size, round. Skin nearly covered with red, the ground color, pale yellowish white, being thickly dotted with red, and the exposed cheek being a dark red. Flesh whitish, but red at the stone, to which, though a free-stone, it partially adheres, melting, juicy, with a rich, highly excellent flavor. It ripens the middle of August.

EARLY YORK.

Early Purple.

Pourprée Hâtive.

Serrate Early York.

The Early York has long been the most popular of early Peaches in this country. It is at least a week earlier than the (true) Royal George, more melting and juicy, though not quite so rich, and deserves a place in every garden. In unfavorable soil, the ends of the branches are a little liable to mildew; but the tree is very hardy and productive. There are one or two newer seedlings raised from this, and bearing the same name, in New Jersey, which are rather more thrifty for the orchard, but do not possess the high flavor of the old kind. They are easily known from it by the absence of glands in the leaves and by the large flowers of the true sort. It is quite distinct from the Red Rareripe, which is large, broader, deeply marked with a suture, later in ripening, and richer flavored. Leaves serrated, without glands. Flowers large.

Fruit of medium size, roundish, inclining a little to ovate, with a slight suture only. Skin very thin, pale red, thickly dotted over a pale ground in the shade, but quite dark red in the sun. Flesh greenish white, remarkably tender and melting, full of rich, sprightly juice. Ripens about the 18th of August.

FOSTER.

Originated with J. T. Foster, of Medford, Mass. Tree said to be hardy, vigorous, and productive, the fruit large, handsome, and brings a high price in market.

Fruit slightly flattened, with a slight suture, stem moderately depressed. Flesh yellow, very rich and juicy, with a pleasant subacid flavor. Freestone of medium size. Color of the fruit a deep orange red, becoming very dark red on the exposed side. Ripe from the middle to the last of September. (Jour. of Hort.)

FRUITLAND.

Fruitland Seedling.

A new variety, originated at Augusta, Ga.

Fruit large, obovate to a point, greenish white, with a pale mottled red cheek. Flesh greenish white, very juicy, vinous, a little red at the stone. Freestone. Early September. (P. J. Berckman's Cat.)

GEORGE THE FOURTH.

This is certainly the most popular Peach for garden culture in the United States. It is large, bears regular and moderate crops, is of the highest flavor, and the tree is unusually hardy and vigorous, succeeding well in all parts of the country. No garden should be without it. The original tree stood in the garden of Mr. Gill, Broad street, New York. Leaves large, with globose glands, often obscure. Flowers small.

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, very juicy, with a remarkably rich, luscious flavor. Ripens the last of August. Freestone.

GROSSE MIGNONNE.

Royal Kensington.	Neil's Early Purple.
Grimwood's Royal George.	Johnson's Early Purple.
————— New Royal George.	Mignonne.
Large French Mignonne.	Veloutée de Merlet.
French Mignonne.	Pourprée de Normandie.
Swiss Mignonne.	La Royale.
Purple Avant.	Pourprée Hâtive.
Early Purple Avant.	Ronald's Seedling Galande.
Early May.	Royal Sovereign.
Early Vineyard.	Superb Royal.
	Vineuse de Fromentin.

The Grosse Mignonne is certainly the "world-renowned" of Peaches. It is everywhere esteemed as one of the most

delicious of varieties. Leaves with globose glands. Flowers large. -

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. Freestone.

HALE'S EARLY.

Early German.

This very early and profitable market Peach was originated in Summit Co., O., by a German, and was first distributed under the name Early German. The tree is quite hardy and productive, maturing the earliest of any good sort. Leaves with globose glands. Flowers large.

Fruit medium size, nearly round. Skin greenish, mostly covered and mottled with red when ripe. Flesh white, melting, juicy, rich, sweet. Freestone. Last of July.

HEATH.

Heath Clingstone. Fine Heath. White English. Red Heath.

The most superb and most delicious of all late Clingstones. It seldom ripens in New England, but here, and to the southward, it is one of the most valuable kinds, of very large size, and the very finest flavor.

Coxe informs us that this is a seedling produced in Maryland from a stone brought by Mr. Daniel Heath from the Mediterranean; and it is frequently still propagated from the stone, without variation. The tree is vigorous, long-lived, and moderately productive; with the *shortening-in* mode of pruning, the fruit is always large and fine, otherwise often poor. This tree is well deserving of a place on the espalier rail, or wall, at the North. Leaves nearly smooth on the edges, with reniform glands. Flowers small.

Fruit very large, oblong, narrowing to both ends, and terminating at the top with a large swollen point; the suture distinct on one side. Skin downy, cream-colored white, with a faint blush or tinge of red in the sun, or a brownish cheek. Flesh greenish white, very tender and melting, exceedingly juicy, with the richest, highest, and most luscious flavor, surpassed by no other variety. It adheres very closely to the stone. It ripens in October, and frequently keeps for a month after being gathered.

HONEY.

De Montigny.

This is undoubtedly a variety that reproduces itself from seed with great exactness. The one grown mostly in this country was raised by Charles Downing, many years since, from seed brought from China and presented to him.

Hogg describes a Honey as having originated at the "Jardin des Plantes," and from Chinese seed. Glands reniform. Flowers large.

Fruit small, oval, compressed, with a pretty deep suture along one side, and turning the point to the opposite side, giving it the appearance of a beak. Skin whitish yellow, washed and marbled with fine red in the sun. Flesh creamy white, fine, juicy, melting, with a peculiar honeyed, rich, delicious sweet flavor. Freestone. Last of August.

LA GRANGE.

The La Grange is a white freestone Peach, of very late maturity, large size, and fine flavor. It was originated from seed in the garden of Mr. John Hulse, Burlington, N. J.

Its late period of maturity, its color, its productiveness, and size, have given it quite a reputation among the extensive growers of New Jersey, and it is undoubtedly a most valuable fruit, not only for the table, but for preserving at the most desirable period for this purpose, late in the season. Leaves with reniform glands. Flowers small.

Fruit large, oblong, shaped somewhat like the Heath Cling. Skin greenish white, with occasionally some red on the sunny side. Flesh pale, juicy, melting, very rich, sweet, high-flavored, and delicious. Last of September and beginning of October. Freestone.

LARGE EARLY YORK.

Honest John.

New York Rareripec.

A valuable variety, so much like Haines' Early and Walter's Early that it is difficult to decide whether they are not identical. Leaves with globose glands. Flowers small.

Fruit above medium, roundish. Skin whitish, with marblings and dots of red, clear rich red cheek in the sun. Flesh almost white, fine-grained, juicy, rich, mild, excellent. Freestone. Last of August.

LARGE WHITE CLINGSTONE.

New York White Clingstone.

Williamson's New York.

Selby's Cling.

The Large White Clingstone is one of the most popular of

this class of Peaches. We think it superior to the Catherine and old Newington, and only surpassed in flavor by the Old-mixon Cling and the Heath Cling.

This variety was raised by David Williamson, in New York. The light color and excellent quality of this fruit render it the greatest favorite for preserving in brandy or sugar. It bears regular and good crops. Leaves with globose glands. Flowers small.

Fruit large, round, the suture slight, and the swollen point at the top small. Skin white (inclining to yellow only when over-ripe), dotted with red on the sunny side, or with a light-red check when fully exposed. Flesh whitish, tender, very melting, full of juice, which is very sweet, luscious, and high-flavored. Beginning and Middle of September.

LATE ADMIRABLE.

La Royale.	Judd's Melting.	
Pêche Royale.	Motteux's,	
Téton de Venus.	- Pourprée Tardive,	} <i>incorrectly</i> } <i>of some.</i>
French Bourdine.	Late Purple,	

“The Late Admirable” is one of those delicious sorts that, originating a long time ago in France, have received the approval of the best cultivators everywhere. It is hardy and productive in this climate. Leaves with globose glands. Flowers small.

Fruit very large, roundish, inclining to oval, with a bold suture dividing the fruit pretty deeply all round, and a small, acute, swollen point at the top. Skin pale yellowish green, with a pale red cheek, marbled with darker red. Flesh greenish white, but red at the stone, very juicy, melting, and of delicate, exquisite flavor. Middle of September.

LATE RED RARERIPE.

Prince's Red Rareripec.

This American fruit is one of the finest of Peaches. Its large size, and its productiveness and vigor, unite to recommend it to universal favor. The rather *grayish* appearance of the fruit serves to distinguish it, at first sight, from all others. Leaves with globose glands. Flowers small.

Fruit large and heavy, roundish oval. Suture depressed only at the top, where the swollen point is distinctly sunken. Skin downy, pale grayish yellow, thickly marbled and covered with reddish spots; the cheek dull, deep red, distinctly mottled with fawn-colored specks. Flesh white, but deep red at the stone, very juicy, melting, and of rich, high flavor. First to the 10th of September. Freestone.

LEMON CLINGSTONE.

Kennedy's Carolina.	Long Yellow Pine-apple.
Kennedy's Lemon Clingstone.	Pine-apple Clingstone.
Largest Lemon.	Yellow Pine-apple.

Allison.

The Lemon Clingstone is one of the largest and most beautiful of all the yellow-fleshed clings. It is originally a native of South Carolina. There are now many seedlings reproduced from it. This is a very productive, hardy tree. Leaves long, with reniform glands. Flowers small.

Fruit large, oblong, narrowed at the top, and having a large, projecting, swollen point, much like that of a lemon. Skin fine yellow, with a dark brownish-red cheek. Flesh firm, yellow, slightly red at the stone, adhering firmly, with a rich, sprightly, vinous, subacid flavor. Middle and last of September.

LORD PALMERSTON.

This is another of Thomas Rivers' new sorts, grown, as he says, from seed of the Princess of Wales, and resembling in size its grandparent, the Monstrous Pavie of Pomponne. Glands globose. Flowers large.

Fruit very large. Skin whitish, with a pink cheek. Flesh firm, yet melting, juicy, and rich. Middle to end of September.

MORRIS'S RED RARERIPE.

Morris Red.	Red Rareripe.	Large Red Rareripe.
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This very popular and well-known American Peach has been justly esteemed for its acknowledged good flavor, beauty, and productiveness. Leaves with small globose glands. Flowers small.

Fruit large, roundish, a little depressed at the top, with a moderately well-marked suture. Skin fine pale greenish white, a little dotted, and with a lively, rich red cheek. Flesh pale greenish white, quite red at the stone, very melting and juicy, with a sweet and rich flavor. Last of August. Freestone.

MORRIS'S WHITE RARERIPE.

Morris's White.	White Melocoton.
White Rareripe.	Cole's White Melocoton.
Luscious White Rareripe.	Freestone Heath.
Lady Ann Steward.	Morris's White Freestone.

Morris's White Rareripe, a native, is the most popular and well-known white Peach, and is everywhere cultivated in this country, either under this or some of the other names quoted above. It is a rich fruit in a warm climate, but is

not quite so high flavored at the North or East. The tree is vigorous and healthy, and bears fair crops. In some sections tender and variable in quality. Leaves with reniform glands. Flowers small.

Fruit rather large, oval. Suture only of moderate depth, swollen point small. Skin rather downy, greenish white on all sides at first, but white with a creamy tint when fully ripe, and, when fully exposed, sometimes with a slightly purple cheek. Flesh white to the stone, a little firm, melting, juicy, sweet, and rich. Middle of September.

MOUNTAIN ROSE.

This new peach is said to have originated in Morris Co., New Jersey. Tree vigorous and very productive. It ripens at the same time as Large Early York, is more highly colored, but not quite as rich. Glands globose. Flowers small.

Fruit large, roundish, slightly compressed. Suture distinct, extending a little beyond the apex. Skin whitish, nearly covered with light and dark rich red. Flesh white, slightly stained at the stone, juicy, sweet, slightly vinous. Separates freely from the stone.

NOBLESSE.

Vanguard. Mellish's Favorite. Lord Montague's Noblesse.

An English Peach, esteemed wherever known as one of the largest and most valuable varieties. Leaves serrated, without glands. Flowers large.

Fruit large, roundish oblong, a little narrowed at the top, and terminated by an acute swollen point. Skin slightly downy, pale green throughout, marked on the cheek with delicate red, clouded with darker red. Flesh pale greenish white to the stone, melting, very juicy. Last of August. Freestone.

OLDMIXON CLINGSTONE.

Oldmixon Cling.

The Oldmixon Clingstone is certainly one of the highest flavored of all Peaches known in this country, where it is raised in perfection, and should have a place in every good garden. Indeed we consider this, the Large White Cling, and the Heath Cling, as being the sorts among the most desirable of this class of Peaches for small collections. Leaves with globose glands. Flowers small.

Fruit large, roundish oval. The suture distinct only at

the top, on one side of which the fruit is slightly enlarged. Skin yellowish white dotted with red, or with a red cheek, varying from pale to lively red. Flesh pale white, very melting and juicy, with an exceedingly rich, luscious, high flavor. First of September.

OLDMIXON FREESTONE.

Oldmixon Clearstone.

A large American Peach, of late maturity and rich flavor. It was, we believe, raised either from a stone of the Catherine Cling or the Oldmixon Cling, the latter having been brought to this country many years ago by Sir John Oldmixon. It bears good crops, and is a valuable variety for market or garden. Leaves with globose glands. Flowers small.

Fruit large, roundish or slightly oval, one side swollen, and the suture visible only at the top. Cavity but slightly sunk at the stalk. Skin pale yellowish white, marbled with red, the cheek a deep red. Flesh white, but quite red at the stone, tender, with an excellent rich, sugary, and vinous flavor. Beginning of September.

OLD NEWINGTON.

Newington.

Large Newington.

A celebrated English Clingstone, which has been in cultivation more than two hundred years, and still is perhaps the best in the English climate. Although excellent, it is not so generally esteemed here as the Large White Cling and Oldmixon Clingstone. Leaves serrated, without glands. Flowers large.

Fruit large, roundish, the suture slight. Skin pale yellowish white, with a fine red cheek, marked with streaks of darker red. Flesh pale yellowish white, deep red at the stone, to which it always adheres very firmly; melting, juicy, and rich. Ripens about the 15th of September.

PRESIDENT.

One of the best of our Peaches, and a capital variety. Originated, several years ago, on Long Island. Leaves with globose glands. Flowers small.

Fruit large, roundish oval, the suture shallow. Skin very downy, pale yellowish green, with a dull red cheek. Flesh white, but deep red at the stone, very juicy, melting, rich, and high-flavored. Stone very rough. Middle of September. Freestone.

PRESIDENT CHURCH.

Raised by the Rev. A. Church, President of Franklin College, Ga. Glands reniform.

Fruit large, roundish, inclining to oval. Suture shallow, often a mere line, with a small point at the apex, which is rarely depressed. Skin pale red in the shade, beautifully mottled and washed with dark red in the sun. Flesh white, pale red at the stone, very juicy, melting. Freestone. Ripe middle September.

PRINCE OF WALES.

Raised by Thomas Rivers, England, from the seed of Pitmaston Orange Nectarine. Tree vigorous and productive. Glands reniform. Flowers small.

Fruit medium, roundish, a little inclining to oval, one side often enlarged, suture distinct, extending a little beyond the apex. Skin whitish or creamy white, shaded and mottled with deep red in the sun. Flesh white, red at the stone, juicy, melting, sweet. Very good. Separates freely from the stone. Ripens middle of September.

PRINCESS OF WALES.

Raised by Thomas Rivers, England, from seed of Pavie de Pompone peach. The tree is a thrifty, vigorous grower, and an abundant bearer. Glands globose. Flowers large.

Fruit medium or above, roundish, narrowing a little to the apex, which has often a slight nipple, suture slight, extending a little beyond the apex. Skin creamy white, shaded with dark red where exposed. Flesh whitish, red at the stone, juicy, melting, sweet, rich. Very good. Separates from the stone. Ripens the last of September.

RED-CHEEK MELOCOTON.*

Malagatune.	Yellow Malocoton.
Malacatune.	Yellow Malagatune.
Hogg's Melocoton.	Red-Cheek Malocoton.

The Melocoton (or Malagatune, as it is commonly called) is almost too well known to need description. Almost every orchard and garden in the country contains it, and hundreds of thousands of bushels of the fruit are raised and sent to market in this country every year. It is a beautiful and fine fruit in favorable seasons, though in unfavorable ones the acid frequently predominates somewhat in its flavor. It is an American seedling, and is constantly reproducing itself

* *Melocoton* is the Spanish for Peach.

under new forms, most of the varieties in this section having, directly or indirectly, been raised from it; the finest and most popular at the present time being Crawford's Early and Late Melocotons, both greatly superior, in every respect, to the original Melocoton.

Pettit's Imperial, Middleton's Imperial, Scott's Nonpareil, and Tice, are seedlings of this variety, but not sufficiently distinct and valuable to merit cultivation. Leaves with globose glands. Flowers small.

Fruit large, roundish oval, with a swollen point at the top. Skin yellow, with a deep red cheek. Flesh deep yellow, red at the stone, juicy, melting, with a good, rich, vinous flavor. First of September. Freestone.

REEVES' FAVORITE.

Raised by Samuel Reeves, Salem, N. J. A hardy, vigorous, and productive kind. Glands globose. Flowers small.

Fruit large, roundish, inclining to oval, with a swollen point. Skin yellow, with a fine red cheek. Flesh deep yellow, red at the stone, juicy, melting, with a good, vinous flavor. Freestone. Middle of September.

RICHMOND.

Raised by Dr. E. W. Sylvester, of Lyons, N. Y., who writes that the tree is vigorous and very productive, and ripens a few days later than Crawford's Early, is less acid, and a promising market variety. Glands reniform.

Fruit medium to large, roundish, slightly compressed. Suture slight, but distinct, ending at the apex, which is a little swollen. Skin fine yellow, shaded and mottled with dark rich red. Flesh yellow, a little red at the stone, juicy, melting, sweet, vinous. Very good. Separates from the stone, which is of medium size. Ripe last of September.

ROYAL GEORGE.

Early Royal George.	Red Magdalen.
Millet's Mignonne.	Madeleine Rouge à Petite Fleur.
Lockyer's Mignonne.	French Chancellor, incorrectly, of some.
Griffin's Mignonne.	Early Bourdine, " "
Superb.	Double Swalsh, " "

Few of the early Peaches surpass in flavor and beauty the Royal George. It is one of the finest European varieties. It is a regular and moderate bearer. Leaves serrated, without glands. Flowers small.

Fruit above the middle size, or rather large, globular,

broad, and depressed, the suture deep and broad at the top, and extending round two-thirds of the fruit. Skin pale or white, thickly sprinkled with red dots, and the cheek of a broad, rich, deep red, slightly marbled. Flesh whitish, but very red at the stone, melting, juicy, very rich, and of the highest flavor. From the 20th to the last of August. Freestone.

SCOTT'S EARLY RED.

Scott's Early Red is a variety of a very excellent flavor, and a prolific bearer, which was received from New Jersey. Leaves with obscure globose glands. Flowers small.

Fruit of medium size, roundish, a little depressed, the suture distinctly marked, but not deep. Skin pale greenish white, but much covered with red, which is mottled with fawn-colored dots. Flesh whitish, very juicy, with a rich and luscious flavor. Middle of August. Freestone.

SMITH'S NEWINGTON.

Early Newington. Smith's Early Newington. Early Newington.

This is one of the best early Clingstone Peaches. The Early Newington of our gardens as generally known (see Early Newington Freestone), is earlier and a very much finer variety, with reniform glands; being a partial Clingstone, but most frequently parting from the flesh, has quite supplanted it. Leaves serrated, without glands. Flowers large.

Fruit middle-sized, rather oval, narrower at the top, and one half a little enlarged. Skin pale straw-color, with a lively red cheek streaked with purple. Flesh firm, pale yellow, but light red at the stone, to which it adheres closely; juicy, and of very good quality. Last of August.

SMOCK FREESTONE.

St. George.

This was originated by Mr. Smock, of Middleton, N. J. Leaves with reniform glands. Tree hardy, vigorous, and very productive.

Fruit large, oval, narrowed towards the stalk, and rather compressed on the sides. Skin light orange yellow, mottled with red, or often with a dark-red cheek when fully exposed. Flesh bright yellow, but red at the stone, moderately juicy and rich. Ripens last of September and first of October.

SNOW.

The Snow Peach is a remarkably fair and beautiful fruit,

of American origin. The fruit and blossoms are white, and the foliage and wood of a light green. Leaves with reniform glands. Flowers small.

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. Freestone.

STUMP THE WORLD.

A native of New Jersey, large and showy, and profitable for market growing. Flowers small. Glands globose.

Fruit very large, roundish, a little oblong. Skin creamy white, with a bright red cheek. Suture shallow, rather more than half round. Flesh white, juicy, and high-flavored. Last of September. Freestone.

STURTEVANT.

Raised from seed by E. T. Sturtevant, Cleveland, O., in 1826. It is one of, if not the, best yellow-fleshed Peaches grown.

Fruit medium or above, roundish, compressed. Broad shallow suture half round, followed by a dark line. Skin downy, rich yellow, mostly covered with dark rich red, very dark in the sun. Flesh yellow, red at the stone. Stone very small. Freestone. Last of August to first of September. (Elliott.)

SUSQUEHANNA.

Griffith Malacotune. Griffith. Griffith Mammoth.

Originated with Mr. Griffith, on the banks of the Susquehanna. Tree vigorous, moderately productive. A large, handsome fruit, and a favorite in that section. Flowers small.

Fruit large, nearly globular. Suture half round. Skin rich yellow, with a beautiful red cheek, nearly covering the whole surface. Flesh yellow, sweet, juicy, with a rich vinous flavor. Ripens from the first to the middle of September. Freestone.

TROTH'S EARLY RED.

A New Jersey Peach, valued as an early sort, profitable for market. Glands globose. Flowers small.

Fruit medium, roundish. Skin whitish, bright red in the

sun. Flesh white, red at the stone, juicy, sweet. Freestone. Ripens early in August.

VAN ZANDT'S SUPERB.

Originated in the garden of R. B. Van Zandt, Long Island. Flowers small.

Fruit medium size, oval. Skin nearly smooth, white, delicately marbled with red, giving it a waxen hue; the beauty and smoothness of the skin approximate in appearance to that of a nectarine. Flesh melting and delicious; separates from the stone. Ripens in August.

WARD'S LATE FREE.

A fine late American variety, vigorous and productive, valuable for market. Glands reniform. Flowers small.

Fruit rather large, roundish, inclining to oval. Skin white, with a beautiful crimson cheek. Flesh white, slightly tinged with red at the stone, juicy, melting, rich, and excellent. Freestone. First of October.

WASHINGTON.

Washington Red Freestone.

The Washington is a handsome and very delicious Peach, of American origin. It was named and first introduced to notice by Michael Floy, New York. The fruit ripens late; the tree is vigorous, hardy, and productive, and it is altogether a valuable variety. Leaves with globose glands. Flowers small.

Fruit large, broad, depressed, with a broad, deep suture extending nearly round it. Skin very thin, yellowish white, with a deep crimson cheek. Flesh pale yellowish white, very tender, juicy, and melting, with a sweet, rich, and luscious flavor. It often adheres slightly to the stone, which is quite small. Middle of September. Freestone.

YELLOW ALBERGE.

Alberge Jaune.
Pêche Jaune.

Gold-Fleshed.
Yellow Rareripe.
Purple Alberge.

Red Alberge.
Golden Mignonne.

The Yellow Alberge is an old French variety, and one of the earliest of the yellow-fleshed Peaches. It is, no doubt, the original sort from which our Melocotons and Yellow Rareripes have sprung in this country. It has only a second-rate flavor, except in rich, warm soils, and is not comparable

to the Yellow Rareripe in size or quality. Leaves with globose glands. Flowers small.

Fruit of medium size, roundish, with a well-marked furrow running half round. Skin yellow, with a deep purplish-red cheek. Flesh yellow, but deep red at the stone, soft, juicy, sweet, with a pleasant vinous flavor. Middle of August. Freestone.

YELLOW RARERIPE.

Large Yellow Rareripe.
Red and Yellow Rareripe.

Marie Antoinette.
Cutter's Yellow.

One of the finest very early yellow-fleshed Peaches. It is an American seedling, and well deserves the extensive cultivation it receives both in the orchard and garden. Leaves with globose glands. Flowers small.

Fruit large, roundish, the suture slightly depressed, extending more than half round, the swollen point at the top small. Skin deep orange yellow, somewhat dotted with red, the cheek rich red, shaded off in streaks. Flesh deep yellow, but red at the stone, juicy, melting, with a rich and excellent vinous flavor. Ripens from the 25th to the 30th of August. Stone small. Freestone.

CURIOUS OR ORNAMENTAL VARIETIES.

DOUBLE-BLOSSOMED.

Double-Flowering Peach.
Rose-Flowering.

Pêcher à Fleurs Doubles.
Pêcher à Fleurs Semi-Doubles.

The Double-Blossomed Peach is, when in full bloom, one of the gayest and most beautiful of fruit-trees, and blooming with its lovely companion, the Double Flowering Cherry, finds a place in all our pleasure-grounds and ornamental plantations. Its flowers are of a lively rose color, nearly full double, and so thickly disposed on the branches as to be very striking and showy. They are produced at the usual season, or a few days later. This sort is rendered more dwarf for shrubberies by budding it upon the Mirabelle or the Cherry Plum stock. The leaves have reniform glands.

The fruit, which is sparingly produced, is roundish oval, pale greenish yellow, faintly tinged with red. Freestone, and of indifferent flavor.

The CRIMSON OR CAMELLIA-FLOWERED, with large double-flowers of a rich crimson hue, especially attractive and showy, the CARNATION-FLOWERED, with flowers striped like a carnation, and the VARIEGATED-FLOWERED, with flowers of differ-

ent hues on the same tree, are among the more recent introductions, and, grouped with the older varieties, are very effective.

CHAPTER XXVII.

THE PEAR.

Pyrus communis, L. *Rosacæ*, of botanists.
Poirier, of the French; *Birnebaum*, German; *Peer*, Dutch; *Pero*, Italian; and *Pera*, Spanish.

THE Pear is undeniably the favorite fruit of modern times and modern cultivators. Indeed, we believe the Pear of modern times, thanks to the science and skill of horticulturists, is quite a different morsel for the palate from the pear of two or three centuries ago. In its wild state it is one of the most austere of all fruits, and a *choke-pear* of our fields, really a great improvement on the wild type, seizes one's throat with such an unmerciful gripe as to leave behind it no soothing remembrances of nectar and ambrosia.

So long ago as the earliest time of the Romans the pear was considerably cultivated. It was common in Syria, Egypt, and Greece, and from the latter country was transplanted into Italy. "Theophrastus speaks of the productiveness of the old pear-trees, and Virgil mentions some pears which he received from Cato. Pliny in his 15th book describes the varieties in cultivation in his time as exceedingly numerous; and mentions a number which were named after the countries from which they were received. Of all pears, he says, the Costumine is the most delicate and agreeable. The Falernian Pear was esteemed for its juice; and the Tibernian, because it was preferred by the Emperor Tiberius. There were 'proud pears,' which were so called because they ripened early and would not keep, and 'winter pears,' pears for baking, as at the present day." None of these old Roman varieties have been handed down to us, and we might believe some of them approached the buttery lusciousness of our modern pears, did not Pliny pithily add, most unfortunately for their reputation, "all pears whatsoever are but a heavy meat, unless they are well boiled or baked."

In fact, the really delicious qualities of this fruit were not developed until about the seventeenth century. And within the last sixty years the pear, subjected to constant produc-

tion from seed by Van Mons and his followers, and to hybridizing or crossing by Mr. Knight and other English cultivators, appears at length to have reached almost the summit of perfection in beauty, duration, and flavor. Of Professor Van Mons and his labors of a whole life, almost *devoted to pears*, we have already spoken in our first chapter. From among the 80,000 seedlings raised by himself, and the many thousands reared by other zealous cultivators abroad, especially in Belgium—the Eden of the pear-tree—there have been selected a large number of varieties of high excellence. In this country we are continually adding to the number, as, in our newer soil, the pear, following the natural laws of successive reproduction, is constantly appearing in new seedling forms. The high flavor of the Seckel Pear, an American variety, as yet unsurpassed in this respect by any European sort, proves the natural congeniality of the climate of the Northern States to this fruit.

The pear-tree is not a native of North America, but was introduced from the other continent. In Europe, Western Asia, and China it grows wild, in company with the apple, in hedges and woody wastes. In its wild state it is hardier and longer lived than the apple, making a taller and more pyramidal head, and becoming thick in its trunk. There are trees on record abroad of great size and age for fruit-trees. M. Bosc mentions several which are known to be near 400 years old. There is a very extraordinary tree in Holme Lacy, Herefordshire, England—a perry pear—from which were made, more than once, 15 hogsheads of perry in a single year. In 1805 it covered more than half an acre of land, the branches bending down and taking root, and, in turn, producing others in the same way. Loudon, in his work on trees, says that it is still in fine health, though reduced in size.

One of the most remarkable pear-trees in this country is growing in Illinois, about ten miles north of Vincennes. It is not believed to be more than forty years old, having been planted by Mrs. Ockletree, about 1805. The girth of its trunk one foot above the ground is *twelve feet*, and at nine feet from the ground, *six and a half feet*; and its branches extend over an area ninety-four feet in diameter. In 1834 it yielded 184 bushels of pears; in 1840 it yielded 140 bushels. It is enormously productive always; the fruit is pretty large, ripening in early autumn, and is of tolerable flavor.

The tree came into bearing at the fifteenth year from its planting, but grafts from it produce in about four or five years. Like the Dix, it is almost thornless, and it is remarkable that no blight of any kind has ever affected it.

The Stuyvesant Pear-Tree, which was destroyed in 1867, was originally planted by the old Governor of the Dutch colony of New York, more than two hundred years ago, on what was once his farm, but is now part of the city, quite thickly covered with houses.

Along the St. Clair river, below Detroit, and on the banks of the Mississippi, near St. Louis, are found many large old pear-trees vying in health and vigor with those of recent planting.

USES. The great value of the Pear is as a dessert fruit. Next to this, it is highly esteemed for baking, stewing, preserving, and marmalades. In France and Belgium the fruit is very generally dried in ovens, or much in the same way as we do the apple, when it is quite an important article of food.

Dessert pears should have a melting, soft texture, and a sugary, aromatic juice. Kitchen pears, for baking or stewing, should be large, with firm and crisp flesh, moderately juicy.

The juice of the pear, fermented, is called *Perry*. This is made precisely in the same way as cider, and it is richer, and more esteemed by many persons. In the midland counties of England, and in various parts of France and Germany, what are called Perry Pears—very hardy productive sorts, having an austere juice—are largely cultivated for this purpose. In several places in our Eastern States, we understand, perry is now annually made in considerable quantities.

The fruit should be ground directly after being gathered, and requires rather more isinglass (say $1\frac{1}{2}$ oz. to a barrel) to fine it, on racking, than cider. In suitable soil the yield of perry to the acre is usually about one-third more than that of cider.

The wood of the Pear-tree is heavy and fine-grained, and makes, when stained black, an excellent imitation of ebony. It is largely employed by turners for making joiners' tools. The leaves will dye yellow.

GATHERING AND KEEPING THE FRUIT. The pear is a peculiar fruit in one respect, which should always be 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.

So important is the ripening of pears in the house, that most amateurs of this fruit find it to their advantage to have a small room set apart and fitted up with shelves in tiers, to be used solely as a *fruit-room*.

In absence of any room specially devoted to the purpose, shallow drawers, say four inches deep, and from one and a half to two feet in diameter, should be procured, and into the bottom of each lay a soft woollen cloth, then a layer of pears, but so that they may not touch each other; then over them lay another soft woollen cloth, and place the drawers in a cool dry room. In a period varying from three days to as many weeks, according to the variety, the fruit will be found to have ripened to a delicious richness, and to have taken on a high golden color, seldom or never obtained when allowed to ripen on the tree. Some persons use the common husks called “shorts,” from the flouring-mills, to cover the pears in place of the woollen cloths, and with perhaps equally good results, but it is not as neat or convenient a practice.

Many sorts which, ripened in the sun and open air, are rather dry, when ripened within doors are most abundantly melting and juicy. They will also last for a considerably longer period if ripened in this way—maturing gradually, as wanted for use, and being thus beyond the risk of loss or injury by violent storms or high winds.

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 *keys*, *barrels*, or *small boxes*, and placed in a cool, dry room, free from frost. Some varieties, as the D’Aremberg, will ripen finely with no other care than placing them in barrels in the cellar, like apples. But 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. Many sorts that are comparatively tough, if ripened in a cold apartment, become very melting, buttery, and juicy when allowed to mature in a room kept at the temperature of 60 or 70 degrees.

PROPAGATION. The finer sorts of pears are continued or increased by grafting and budding, and the stocks on which to work are either seedlings or suckers. Sucker stocks have

usually such indifferent roots, they are so liable to produce suckers continually themselves, and are so much less healthy than seedlings, that they are now seldom used by good cultivators; though, if quite young and thrifty, they will often make good stocks.

Seedlings, however, are by far the best stocks for the pear in all cases; and seedlings from strong-growing, healthy pears, of common quality—such as grow about most farmers' gardens—are preferable for stocks to those raised from the best varieties, being more hardy and vigorous.

As it is usually found more difficult to raise a good supply of seedling pear-stocks in this country than of any other fruit-tree, we will here remark that it is absolutely necessary, to insure success, that two points be observed. The first is, to clean and sow the seed as soon as may be after the fruit is well matured; the second, to sow it only in deep rich soil. It should be previously trenched—if not naturally deep—at least twenty inches or two feet deep, and enriched with manure or compost mixed with ashes. This will give an abundant supply of nutriment to the young seedlings the first year, without which they become starved and parched, after a few inches' growth, by our hot and dry summer, when they frequently fall a prey to the aphid and other insects at the root and top. A mellow, rich soil, whose depth insures a supply of moisture, will give strong seedlings, which are always, at two years' growth, fit to go into the nursery-rows for budding; while a dry, thin soil will seldom produce good stocks, even in half a dozen years.

The seeds should be sown precisely like those of the apple, in broad drills, and the treatment of the stocks, when planted in the rows for budding, is quite similar. Budding is almost universally preferred by us for propagating the pear, and this tree takes so readily that very few failures can happen to an experienced hand. About the first of August, in this latitude, is the proper season for performing this operation.

We may add here, that one-year-old pear seedlings are often winter-killed when the autumn has not been such as to ripen the wood thoroughly. A few branches of evergreens, or some slight covering laid along the rows will prevent this. Or they may be laid in by the heels in a sheltered place.

The *thorn* makes very good stocks for the pear, except that if grafted above ground the tree is often apt to be broken off at the point of union by high winds. This is obviated by grafting a little below the surface. Grafting on the thorn is a very useful practice for strong clayey soils, as on such stocks the pear may be grown with success, when it would

not otherwise thrive. It also comes rather earlier into bearing. The *mountain ash* is thought by some to be a valuable stock for light sandy soils, but care should be taken that the graft or bud be inserted low down near the crown of the stock, so that when transplanted the whole of the stock can be covered with soil, otherwise the borer will soon destroy it. The pear is sometimes budded on the apple, but it is then usually very short-lived.

For rendering the pear *dwarf*, the Quince stock is almost universally used, as the pear unites readily with it, becomes quite dwarf in habit, and bears very early. Some large-growing pears—as the Duchess of Angoulême—extremely liable to be blown off the tree, bear much better on the quince stock, and others are considerably improved in flavor by it. The dwarf pear, however, it must be confessed, rather belongs to the small garden of the amateur than to the orchardist, or him who desires to have regular large crops and long-lived trees. The dwarf tree is usually short-lived, seldom enduring more than fifteen or twenty years in bearing—but it is a pretty and economical way of growing a good many sorts, and getting fruit speedily, in a small garden.*

The pear, not being very abundantly supplied with fibrous roots, should never be transplanted, of large size, from the nursery. Small thrifty plants, five or six feet high, are much to be preferred.

SOIL, SITUATION, AND CULTURE. The best soil for this fruit-tree is a *strong loam* of moderate depth on a dry subsoil. The pear will, indeed, adapt itself to as great a variety of soils as any fruit-tree, but in unfavorable soils it is more liable to suffer from disease than any other. Soils that are wet during any considerable portion of the year, are entirely unfit for the pear-tree; and soils that are over-rich and deep, like some of the Western alluvials, force the tree into such over-luxuriant growth that its wood does not ripen, and is liable to be killed by winter blight. Soils that are too light, on the other hand, may be improved by trenching if the subsoil is heavier, or by top-dressing with heavy muck and river mud if it is not.

In a climate rather cold for the pear, or on a cold soil, it

* Whether the Pear can be successfully cultivated on the Quince for market is yet a debatable question; some growers, owing perhaps to soil and climate, having succeeded satisfactorily, while others have entirely failed. That dwarfs are a great acquisition to the garden where large standards are inadmissible is unquestioned. We believe the promise of some varieties on quince warrants the expectation that they will be found profitable for general cultivation.

is advantageous to plant on a Southern slope; but in the Middle States, in warm soils, we do not consider a decidedly Southern exposure so good as other rather cooler ones.

The pear succeeds so well as an open standard, and requires so little care for pruning—less, indeed, in the latter respect than any other fruit-tree—that training is seldom thought of except for dwarfs, or in the gardens of the curious or skilful. The system of *quenouille* or *distaff* training, an interesting mode of rendering trees very productive in a small space, we have already fully described in p. 40, as well as root-pruning for the same purpose in p. 36.

The manner of growing and training dwarfs in this country, on a large scale, for orchards, is, however, more as bushes or low-headed trees than as pyramids, *quenouille*, or *espalier*; and while the same general principles are maintained, it is necessary to head back the shoot more severely; and unless time can be given in the summer season to checking the growth, and forming a thick, round, open head by means of summer pinching, then, in order to maintain health and vigor in dwarfs, they must be annually shortened back from one-half to two-thirds of the preceding year's growth. The best time for this is immediately at the close of winter.

In orchard culture the pear is usually planted about thirty feet distant each way; in fruit-gardens, where the heads are somewhat kept in by pruning, twenty feet is considered sufficient by many.

Pear-trees in a bearing state, where the growth is no longer luxuriant, should have, *every autumn*, a moderate top-dressing of manure, to keep them in good condition. This, as it promotes steady and regular growth, is far preferable to occasional heavy manuring.

DISEASES. As a drawback to the otherwise easy cultivation of this fine fruit, the pear-tree is, unfortunately, liable to a very serious disease called the *pear-tree blight* or *fire blight*, appearing irregularly, and in most parts of the country; sometimes in succeeding seasons, and again only after a lapse of several years; attacking sometimes only the extremities of the limbs, and at other times destroying the whole tree; producing occasionally little damage to a few branches, but too often also destroying, in a day or two, an entire large tree; this disease has been, at different times, the terror and despair of pear-growers. Some parts of the country have been nearly free from it, while others have suffered so much as almost to deter persons from extending the cultivation of this fine fruit. For nearly a hundred years its existence has been remarked in this country, and all notions of its character and origin have

been so vague as to lead to little practical assistance in removing or remedying the evil.

Careful observations for several years past, and repeated comparison of facts with accurate observers in various parts of the country, have led us to the following conclusions:

1st. That what is popularly called the pear blight, is, in fact, two distinct diseases.

2d. That one of these is caused by an insect, and the other by sudden freezing and thawing of the sap in unfavorable autumns. The first we shall therefore call the *insect blight*, and the second the *frozen-sap blight*.

1. THE INSECT BLIGHT. The symptoms of the *insect blight* are as follows: In the month of June or July, when the tree is in full luxuriance of growth, shoots at the extremities of the branches, and often extending down two seasons' growth, are observed suddenly to turn brown. In two or three days the leaves become quite black and dry, and the wood so shrivelled and hard as to be cut with difficulty with a knife. If the branch is allowed to remain, the disease sometimes extends a short distance farther down the stem, but usually not much farther than the point where the insect had made his lodgment. The insect which causes this blight was first discovered by the Hon. John Lowell, of Boston, in 1816, and was described by Professor Peck under the name of *Scolytus pyri*. It is very minute, being scarcely one-tenth of an inch long; and it escapes from the branch almost as soon as, by the withering of the leaves, we are aware of its attack; hence it is so rarely seen by careless observers. In the perfect state it is a very small beetle, deep brown, with legs of a paler color. Its thorax is short, convex, rough in front, and studded with erect bristles. The wing-covers are marked with rows of punctured points, between which are also rows of bristles, and they appear cut off very obliquely behind.

This insect deposits its egg some time in July or August, either behind or below a bud. Whether the egg hatches at once, we are not aware, but the following spring the small grub or larva bores through the sap-wood or tender alburnum, beginning at the root of the bud, and burrows toward the centre of the stem. Around this centre or pith it forms a circular passage, sometimes devouring it altogether. By thus perforating, sawing off, or girdling, internally, a considerable portion of the vessels which convey the ascending sap, at the very period when the rapid growth of the leaves calls for the largest supply of fluid from the roots, the growth and the vitality of the branch are checked, and finally extinguished. The larva about this time completes both its trans-

formation and its passage out, and, in the beetle form, emerges with wings into the air, to seek out new positions for laying its eggs and continuing its species. The small passage where it makes its exit may now more easily be discovered, below or by the side of the bud, resembling a hole bored with a needle or pin.

It is well to remark here that the attack of this blight insect is not confined to the Pear, but in some parts of the country we have observed it preying upon the Apple and the Quince in the same manner. In the latter tree, the shoots that were girdled were shorter, and at the extremities of the branches only; not leading, therefore, to such serious consequences as in the Pear.

The ravages of the *insect blight*, we are inclined to think, do not extend much below the point where the insect has deposited its eggs—a material point of difference from the *frozen-sap blight*, which often poisons the system of the whole tree if allowed to remain, or if originally very extensive.

The remedy for the insect blight is very distinct. It is that originally suggested by Mr. Lowell, which we and many others have pursued with entire success, when the other form of the disease was not also present. The remedy consists, *at the very first indications of the existence of the enemy*, in cutting off and burning the diseased branch, a foot below the lowest mark of discoloration. The insect is usually to be found at the bottom of this blackened point, and it is very important that the branches be removed early, as the *Scolytus* is now about emerging from his burrow, and will speedily escape us, to multiply his mischief elsewhere. If there is much appearance of the insect blight, the tree should be examined every noon, so long as there are any indications of disease, and the amputated branches carried at once to the fire.

2. THE FROZEN-SAP BLIGHT. We give this term to the most formidable phase of this disease that affects the pear-tree. Though it is by ordinary observers often confounded in its effects with the insect blight, yet it has strongly characteristic marks, and is far more fatal in its effects.

The symptoms of the *frozen-sap blight* are the following: First. The appearance, at the season of winter or spring pruning, of a *thick clammy sap*, of a sticky nature, which exudes from the wounds made by the knife; the ordinary cut showing a clean and smooth surface.

Second. The appearance in the spring, on the bark of the trunk or branches, often a considerable distance from the extremities, of black, shrivelled, dead patches of bark.

Third. In early summer months the disease fully manifests itself by the extremities shrivelling, turning black, and decaying, as if suddenly killed. If these diseased parts are cut off, the inner bark and heart-wood will be found dark and discolored some distance below where it is fresh and green outside. If the tree is slightly affected only, it may pass off with the loss of a few branches; but if it has been seriously tainted, the disease, if not arrested, may, sooner or later, be carried through the whole system of the tree, which will gradually decline or entirely perish.

To explain the nature of this disease we must first premise that, in every tree, there are two currents of sap carried on: 1st, the upward current of sap, which rises through the outer wood (or *alburnum*), to be digested by the leaves; 2d, the downward current, which descends through the inner bark (or *liber*), forming a deposit of new wood on its passage down.*

Now let us suppose, anterior to a blight season, a very sudden and early winter succeeding a damp and warm autumn.† The summer having been dry, the growth of trees was completed early, but this excess of dampness in autumn forces the trees into a vigorous second growth, which continues late. While the sap-vessels are still filled with their fluids, a sharp and sudden freezing takes place, or is, perhaps, repeated several times, followed, in the daytime, by bright sun. The descending current of sap becomes thick and clammy, so as to descend with difficulty; it chokes up the sap-vessels, freezes and thaws again, loses its vitality, and becomes dark and discolored, and in some cases so poisonous as to destroy the leaves of other plants when applied to them. Here, along the inner bark, it lodges, and remains in a thick, sticky state all winter. If it happens to flow down till it meets with any obstruction, and remains in any considerable quantity, it freezes again beneath the bark, ruptures and destroys the sap-vessels, and the bark and some of the wood beneath it shrivels and dies.

In the ensuing spring the upward current of sap rises through its ordinary channel,—the outer wood or *alburnum*,—the leaves expand, and, for some time, nearly all the upward current being taken up to form leaves and new shoots, the tree

* Being distributed towards the centre of the stem by the medullary rays which communicate from the inner bark to the pith.

† Which always happens previously to a summer when the blight is very prevalent, and will be remembered by all as having been especially the case in the autumn of 1843, which preceded the extensive blight of the next season.

appears flourishing. Toward the beginning of summer, however, the leaves commence sending the downward current of sap to increase the woody matter of the stem. This current, it will be remembered, has to pass downward through the inner bark or *liber*, along which still remain portions of the poisoned sap, arrested in its course the previous autumn. This poison is diluted, and taken up by the new downward current, distributed toward the pith and along the new layers of alburnum, thus tainting all the neighboring parts. Should any of the adjacent sap-vessels have been ruptured by frost, so that the poison thus becomes mixed with the still ascending current of sap, the branch above it immediately turns black and dies, precisely as if poison were introduced under the bark. And very frequently it is accompanied with precisely the odor of decaying frost-bitten vegetation.*

The foregoing is the worst form of the disease, and it takes place when the poisoned sap, stagnated under the bark in spots, remains through the winter in a thick, semi-fluid state, so as to be capable of being taken up in the descending current of the next summer. When, on the other hand, it collects in sufficient quantity to freeze again, burst the sap-vessels, and afterwards dry out by the influence of the sun and wind, it leaves the patches of dead bark which we have already described. As part of the woody channels which convey the ascending sap probably remain entire and uninjured, the tree or branch will perhaps continue to grow the whole season and bear fruit, as if nothing had happened to it, drying down to the shrivelled spots of bark the next spring. The effect in this case is precisely that of girdling only, and the branch or tree will die after a time, but not suddenly.

From what we have said, it is easy to infer that it would not be difficult, on the occurrence of such an autumn, when sudden congelation takes place in unripened wood, to predict a blight season for the following summer. Such has several

* We do not know that this form of blight is common in Europe, but the following extract from the celebrated work of Duhamel on fruit-trees, published in 1768, would seem to indicate something very similar a long time ago.

“The sap corrupted by putrid water, or the excess of manure, bursts the cellular membranes in some places, extends itself between the wood and the bark, which it separates, and carries its poisonous acrid influence to all the neighboring parts, like a gangrene. When it attacks the small branches they should be cut off; if it appears in the large branches or body of the tree, all the cankered parts must be cut out down to the sound wood, and the wound covered with composition. If the evil be produced by manure or stagnant water (and it may be produced by other causes), the old earth must be removed from the roots and fresh soil put in its place, and means taken to draw off the

times been done, and its fulfilment may be looked for with certainty in all trees that had not previously ripened their wood.*

So also it would and does naturally follow, that trees in a damp, rich soil are much more liable to the frozen-sap blight than those upon a drier soil. In a soil over-moist or too rich, the pear is always liable to make late second growths, and its wood will often be caught unripened by an early winter. For this reason this form of blight is vastly more extensive and destructive in the deep rich soils of the Western States than in the drier and poorer soils of the East. And this will always be the case in over-rich soils, unless the trees are checked in their luxuriance by root-pruning.

Again, those varieties of the pear which have the habit of maturing their wood early, are very rarely affected with the frozen-sap blight. But late-growing sorts are always more or less liable to it, especially when the trees are young, and the excessive growth is not reduced by fruit-bearing. Every nurseryman knows that there are certain late-growing sorts which are always more liable to this blight in the nursery. Among these we have particularly noticed the *Passe Colmar* and the *Forelle*, though when these sorts become bearing trees they are not more liable than many others. The *Seckel*

water from the roots. But if the disease has made much progress on the trunk, the tree is lost."—*Traité des Arbres Fruitiérs*, vol. 11, p. 100.

* Since the above was written, we have had the pleasure of seeing a highly interesting article by the Rev. H. W. Beecher, in Indiana, one of the most intelligent observers in the country. Mr. Beecher not only agrees in the main with us, but he fortifies our opinion with a number of additional facts of great value. We shall extract some of this testimony, which is vouched for by Mr. B., and for the publication of which the cultivators of pears owe him many thanks.

"Mr. R. Ragan, of Putnam Co., Ind., has for more than twelve years suspected that this disease originated in the fall previous to the summer in which it declares itself. During the last winter Mr. Ragan predicted the blight, as will be remembered by some of his acquaintances in Wayne Co., and in his pear-orchards he marked the trees that would suffer, and pointed to the spot which would be the seat of the disease, and his prognostications were strictly verified. Out of his orchard of 200 pear-trees, during the previous blight of 1832, only four escaped, and those had been transplanted, and had, therefore, made little or no growth.

"Mr. White, a nurseryman near Mooresville, Ind., in an orchard of over 150 trees, had not a single case of blight in the year 1844, though all around him its ravages were felt. What were the facts in this case? His orchard is planted on a mould-like piece of ground, is high, of a sandy, gravelly soil; earlier by a week than nursery soils in this country; and in the summer of 1843, his trees grew through the summer, ripened and shed their leaves early in the fall, and during the warm spell made no second growth."

pear is less subject to blight than others, which we attribute entirely to its habit of making short-jointed shoots, and ripening its wood very early.

To distinguish the blight of the frozen-sap from that caused by the attack of the *Scolytus pyri* is not difficult. The effects of the latter cease below the spot where the insect has perforated and eaten its burrow in the branch. The former spreads gradually down the branch, which, when dissected, shows the marks of the poison in the discoloration of the inner bark and the pith, extending down some distance below the external marks of injury. If the poison becomes largely diffused in the tree, it will sometimes die outright in a day or two; but if it is only slightly present, it will often entirely recover. The presence of black, dry, shrivelled spots of bark on the branches, or soft sappy spots, as well as the appearance of thick clammy sap in winter or spring pruning, are the infallible signs of the frozen-sap blight.

The most successful remedies for this disastrous blight, it is very evident, are chiefly preventive ones. It is, of course, impossible for us to avoid the occasional occurrence of rainy, warm autumns, which have a tendency to urge the trees into late second growth. The principal means of escaping the danger really lies in always studiously avoiding a wet soil for the fruit-tree. Very level or hollow surfaces, where heavy early autumnal rains are apt to lie and saturate the ground, should also be shunned. And any summer top-dressing or enriching calculated to stimulate the tree into late growth is pernicious. A rich, dry soil is, on the whole, the best, because there the tree will make a good growth in time to ripen fully its wood, and will not be likely to make second growth. A rich, wet soil will, on the contrary, serve continually to stimulate the tree to new growth. It is in accordance with this that many persons have remarked, that those pear-trees growing in common meadow land were free from blight in seasons when those in the rich garden soils were continually suffering from it.

The first point, then, should be to secure a rich, but dry, well-drained soil. Cold aspects and soils should be avoided, as likely to retard the growth and ripening of the wood.

The second is to reject, in blighted districts, such varieties as have the habit of making wood late, and choosing rather those of early habit, which ripen the wood fully before autumn.

Severe summer-pruning, should it be followed by an early winter, is likely to induce blight, and should therefore be avoided. Indeed, we think the pear should always be pruned in winter or early spring.

As a remedy for blight actually existing in a tree, we know of no other but that of freely cutting out the diseased branches at the earliest moment after it appears. The amputation should be continued as far down as the least sign of discoloration and consequent poisoning is perceptible, and it should not be neglected a single day after it manifests itself. A still better remedy, when we are led to suspect, during the winter, that it is likely to break out in the ensuing summer, is that of carefully looking over the trees before the buds swell, and cutting out all branches that show the discolored or soft sappy spots of bark that are the first symptoms of the disease.

Finally, as a preventive, when it is evident, from the nature of the season and soil, that a late autumnal growth will take place, we recommend laying bare the roots of the trees for two or three weeks. Root-pruning will always check any tendency to over-luxuriance in particular sorts, or in young bearing trees, and is therefore a valuable assistance when the disease is feared. And the use of lime in strong soils, as a fertilizer, instead of manure, is worthy of extensive trial, because lime has a tendency to throw all fruit-trees into the production of short jointed fruit-spurs, instead of the luxuriant woody shoots induced by animal manure.

In gardens where, from the natural dampness of the soil or locality, it is nearly impossible to escape blight, we recommend that mode of dwarfing the growth of the trees—conical standards, or *quenouilles*, described in the section on pruning. This mode can scarcely fail to secure a good crop in any soil or climate where the pear-tree will flourish.

After the blight, the other diseases which affect the pear-tree are of little moment. They are chiefly the same as those to which the apple is liable, the same insects occasionally affecting both trees, and we therefore refer our readers to the section on the apple-tree.

There is, however, a *slug-worm*, which occasionally does great damage on the leaves of the pear-tree, which it sometimes entirely destroys. This slug is the *Selandria cerasi* of Harris. It appears on the upper side of the leaves of the pear-tree, from the middle of June to the middle of July. It is nearly half an inch long when fully grown, olive-colored, tapering from the head to the tail, not much unlike in shape a miniature tadpole. The best destructive for this insect is ashes, plaster, dry dust, or quicklime, sifted or sprinkled over the leaves, early in the morning.*

* Many theories and speculative opinions have been promulgated during the past twenty or more years since these remarks on blight were written, but, so far as we can learn, nothing conclusive is yet

VARIETIES.

The varieties of pear have so multiplied within the last thirty years that they may almost be considered endless. Of the new varieties, Belgium has produced the greatest number of high quality; England and France many of excellence; and, lastly, quite a number of valuable sorts have originated in this country, to which some additions are made annually. The latter, as a matter of course, are found even more generally adapted to our climate than any foreign sorts. But we believe the climate of the Middle States is so nearly like that of Belgium, that the pear is grown here as a standard to as great perfection as in any other country.

More than one thousand kinds of pears, collected from all parts of the world, have been fruited here, but only a small proportion of these have been found of first-rate quality, and a very large number of them are of little or no value. The great difficulty seems to be, to decide which are the really valuable sorts, worth universal cultivation. We shall not, perhaps, arrive at this point, in this country, for several years; not until all the most deserving sorts have had repeated trials, and the difficulty is always increased by the fact of the difference of climate and soil, and the continuous increase of new varieties. A variety may prove of superior merit in one locality and quite indifferent in another, owing to the influence of soil and climate. This, however, is true only to a very limited extent, as the fact that most sorts of the first character receive nearly the same praise in Belgium, England, and all parts of this country, clearly proves. High flavor, handsome appearance, productiveness, and uniformly good flavor in all seasons—these are the criterions of the first class of pears.*

Most of the finer varieties of pears have not the necessary known. There are many persons holding the views here expressed, while others support a theory of atmospheric fungoid blight with equally good reasoning.

* The most successful cultivator of pears in this country, whose collection comprises hundreds of varieties, lately assured us that if he were asked to name all the sorts that he considered of *unvarying and unquestionable excellence* in all respects, he could not count more than twenty! It may, then, be asked, why do all cultivate so large a variety? We answer, because the quality of many is yet not fully decided; again, there is a great difference in taste, as to the merits of a given sort; there are also some sorts so productive, or handsome, &c., that they are highly esteemed, though only second-rate. In a work like the present we are also obliged to describe many sorts of second quality, in order to assist in identifying them, as they are all ready in general cultivation.

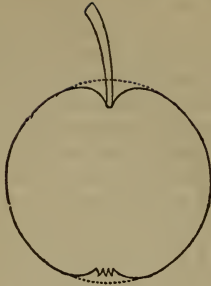
hardihood to enable them to resist, perfectly uninjured, the violent atmospheric changes of our climate, except under favorable circumstances; consequently the fruit is more or less variable in quality; and this is more particularly true of some that come to us from abroad with promise of the highest excellence, and to pronounce an abiding judgment upon their merits requires many years' experience and careful observation under different circumstances and in various localities. And it must be borne in mind, that although young trees give fruit of nearly or quite full size and beauty, yet perfection of flavor is only to be expected from trees of more mature age. The inference is not legitimate that a variety which exhibits great excellence in Belgium, or some of the districts of France, will exhibit generally in all localities in the United States the same excellence; but the supposition is fair, and borne out by some experience, that those which possess excellence of a particular character in an eminent degree in Europe, will generally exhibit the same in particular localities in this country. We would instance such vigorous growers, with pretty solid flesh, as the following:—Belle Lucrative, Rostiezer, Duchess d'Angoulême, Beurré Hardy, &c. To produce satisfactory results in the cultivation of pears, some of its wants must always be complied with, such as good depth of soil, sufficient drainage, and proper enrichment.

In describing pears, we shall, as usual, designate the size by comparison, as follows:—Large, as the Beurré Diel or Bartlett; medium, as the Doyenné or Virgalieu; small, as the Seckel.

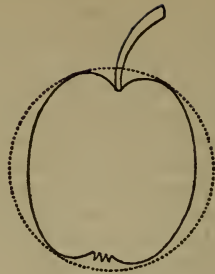
With regard to form, these are so numerous and complicated that it is difficult to determine upon any terms that can be always preserved; but with a view to unity, and with a belief that they are the best now in use, we have adopted those established by the Massachusetts Horticultural Society. (See pages 438 and 439.)

As with apples and other fruits, we continue the alphabetical system of arrangement, it being the most readily applicable for general use; and, as with apples, have, in designating the quality of flesh, continued the terms adopted by the American Pomological Society, as "*best*," "*very good*," and "*good*." The latter term, although in many cases having reference only to the quality of the fruit as a dessert pear, may be often found attached to one of great value for cooking, or highly profitable for market.

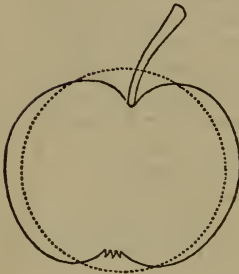
SIMPLE FORMS.



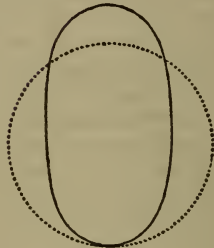
Globular.



Ovate.



Oblate.



Oblong.

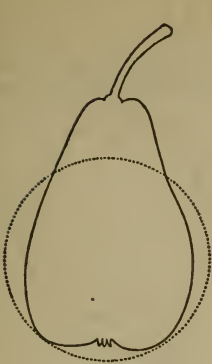
COMPOUND FORMS.



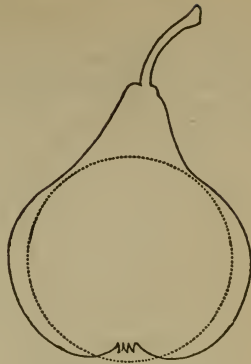
Globular, obtuse pyriform.



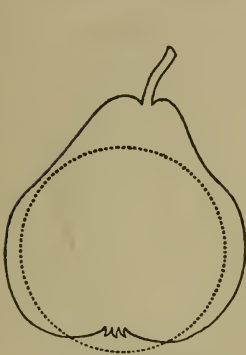
Globular, acute pyriform.

COMPOUND FORMS—*Continued.*

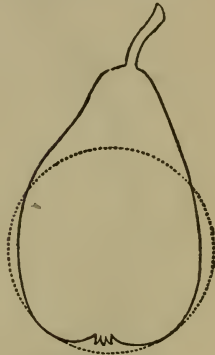
Ovate, pyriform.



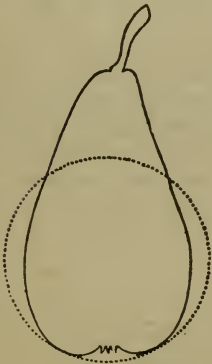
Obovate, acute pyriform.



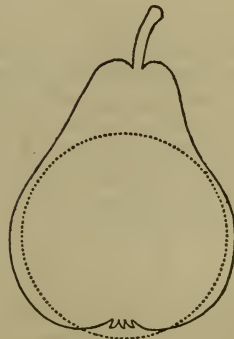
Obovate, obtuse pyriform.



Oblong pyriform.



Oblong, ovate pyriform.



Oblong, obovate pyriform.

ABBOTT.

Origin, Providence, R. I., on the farm of Mrs. Thomas Abbott. A vigorous grower, and the fruit, although not of first quality, is uniformly good and beautiful. Young wood reddish olive.



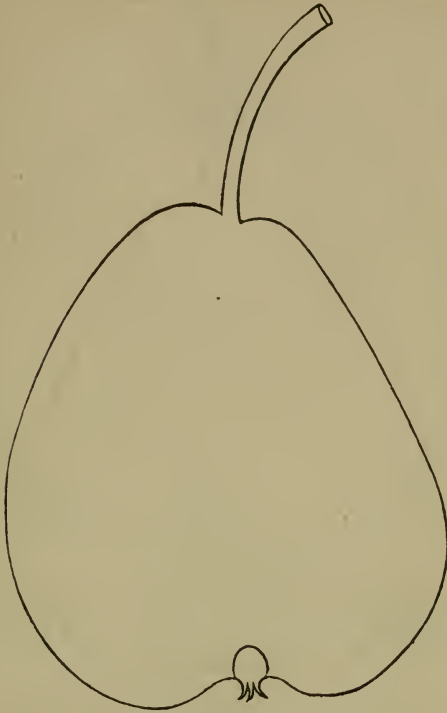
Abbott.

Fruit of medium size, oblong obovate pyriform. Skin yellowish, considerably shaded with crimson, sprinkled with gray and crimson dots, and having a few russet patches. Stalk medium, inserted in a slight depression or small cavity surrounded by russet. Calyx open, with long segments, in a broad open basin. Flesh, white, granular, buttery, juicy, melting. Flavor sweet, pleasant, and perfumed. Ripens last of September.

ALEXANDER.

Origin, town of Alexander, N. Y., Tree moderate growth, productive. Young wood light olive brown.

Fruit medium, obovate obtuse pyriform, somewhat one-sided. Skin yellowish green, dotted, netted, and splashed with russet. Stalk slender, rather long, curved, inserted in a small cavity. Calyx small, closed. Basin medium, corrugated.



Alexander.

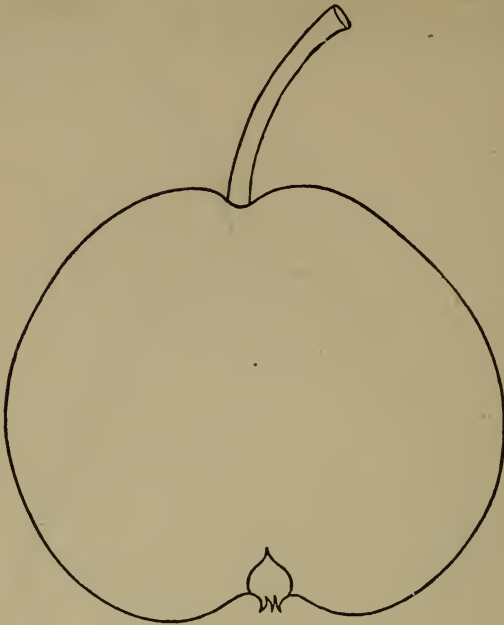
Flesh yellowish, a little coarse and gritty, very juicy, melting, sugary, slightly aromatic, and rich. Very good. Ripe last of September and early October.

ALEXANDRE LAMBRE.

One of Van Mons' seedlings. Tree vigorous, spreading. Branches long, slender. Very productive.

Fruit medium, oblate, inclining to obtuse pyriform. Skin pale yellow, often a shade of brownish red, partially netted and patched with russet and many russet dots. Stalk long, inclined, inserted in a small cavity, sometimes thinly russeted.

Calyx half closed. Basin medium, a little uneven. Flesh yellowish, sometimes tinged with pink, a little coarse at the core,



Alexandre Lambre.

juicy, melting, sweet, slightly musky. Very good. December, January.

ANANAS D'ÉTÉ.

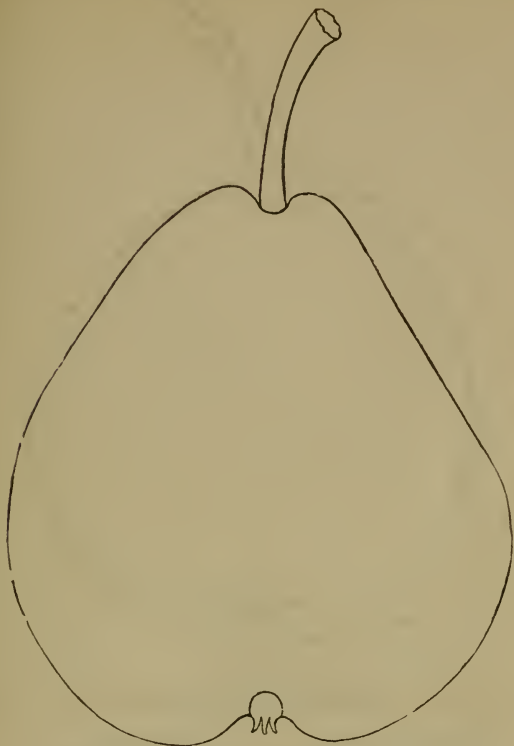
Ananas (of Manning and of Leroy).
Du Bouchet.
Favori Musqué.

Ananas Français.
Summer Pine-apple.

An old variety, from Holland, which here is one of our best late summer or early autumn pears. Tree very vigorous. Young shoots strong, of a rich reddish-yellowish brown, with prominent sharp-pointed buds, and oblong white specks.

Fruit medium or rather large, pyriform, or occasionally obtuse at the stalk. Skin pale yellow, with a little brown on one side, and much covered with large, rough, brown russet dots. Stalk an inch and a quarter long, inserted sometimes in a blunt cavity, sometimes without depression, by the side of a lip. Calyx open, with short divisions. Basin shallow. Flesh

fine-grained, buttery, and melting, with a sweet, perfumed, and high flavor. Very good. September and October.

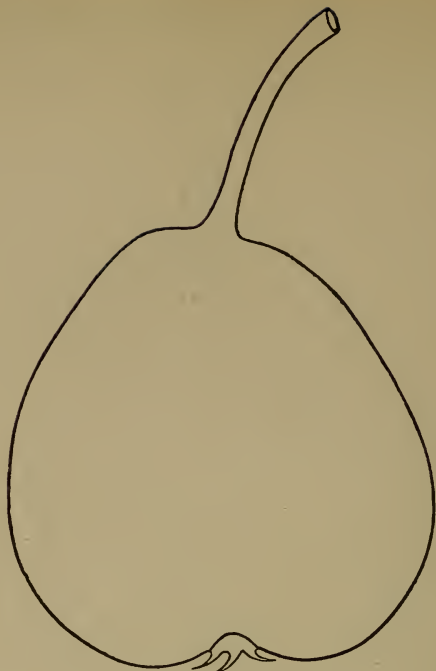


Ananas d'Été

AUGUSTUS DANA.

An American Pear, originated with Francis Dana, Boston, Mass. The tree is a good but not strong or a handsome grower. Young shoots of a light reddish brown color.

Fruit medium, or below, varying in form from acute pyriform to obtuse pyriform. Skin pale yellow, sometimes brownish red in the sun, netted and patched with russet and russet dots. Stalk long, slender, inclined, curved, and set with slight depression, sometimes small cavity. Calyx open. Flesh whitish, a little coarse, juicy, melting, sweet, slightly aromatic. Very good. October.



Augustus Dana.

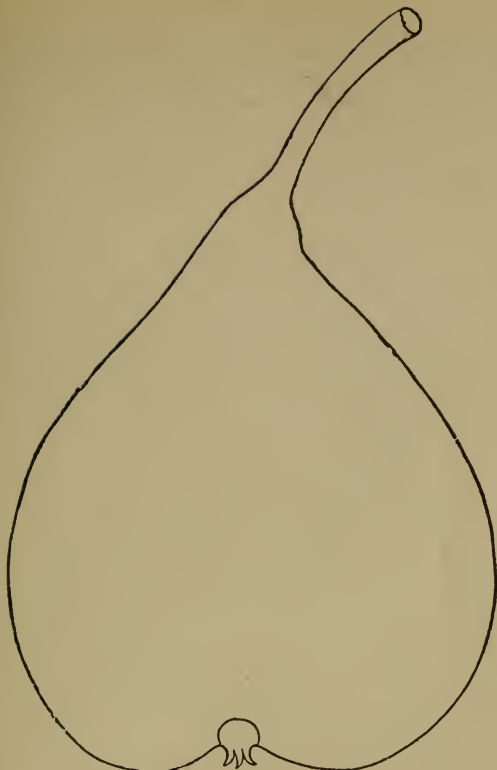
BARONNE DE MELLO.

Adèle de St. Denis.
Adèle de St. Cerras.

St. Cerran.
Beurré Van Mons.

A Belgian Pear, first described by Bivort, in the Album of Pomology. Tree hardy, vigorous grower, productive, and retains its foliage well and late. Young wood light olive brown with many specks.

Fruit medium, irregular in form, generally roundish acute pyriform. Skin yellowish, nearly covered with brown russet, and thickly sprinkled with russet dots. Stalk long, curved, inclined, fleshy at base, and often with a lip. Calyx partially closed. Basin shallow, uneven. Segments short, erect. Flesh whitish, a little coarse, juicy, melting, vinous subacid. Very good. October.



Baronne de Mello.

BARTLETT, OR WILLIAMS' BONCHRÉTIEN

Bartlett, of all American gardens.

Williams' Bonchrétien.

Clement Doyenné.

Poire Guillaume, of the French.

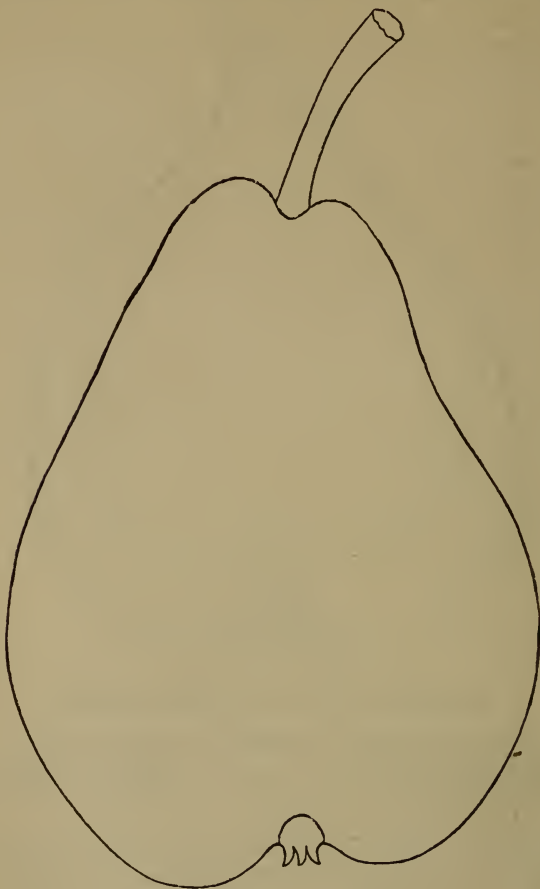
Barnett's William.

Bonchrétien Barnett.

Delavault.

This noble pear is, justly, one of the most popular of all the summer varieties. Its size, beauty, and excellence entitle it to this estimation, apart from the fact that it bears very early, regularly, and abundantly. It is an English variety, originated about 1770, in Berkshire, and was afterward propagated by a London grower by the name of Williams. When first introduced to this country its name was lost, and having been cultivated and disseminated by Enoch Bartlett Esq., of Dorchester, near Boston, it became so uni-

versally known as the *Bartlett* Pear, that it is impossible to dispossess it now. It suits our climate admirably, ripening better here than in England, and has the unusual property of maturing perfectly in the house, even if it is picked before it



Bartlett, or Williams' Bronchrétien.

is full-grown. It has no competitor as a summer market fruit. The tree grows upright, with thrifty, yellowish brown shoots, and narrow, folded leaves.

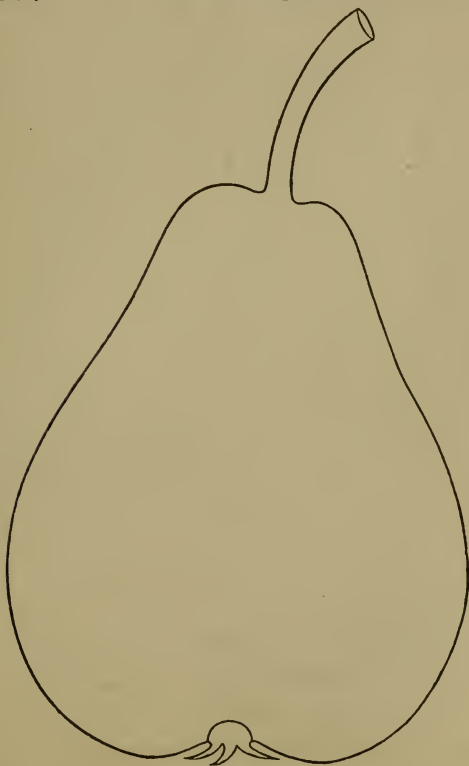
Fruit of large size, oblong, obtuse pyriform. Surface uneven. Skin very thin and smooth, clear yellow (with a soft

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 cavity. Calyx open. Segments short, erect, set in a very shallow, obscurely plaited basin. Flesh white, and exceedingly fine-grained and buttery; it is full of juice, sweet, with a highly perfumed vinous flavor. (In damp or unfavorable soils it is sometimes slightly acid.) Ripens from last of August to middle and last of September.

BELLE ÉPINE DUMAS.

Duc de Bourdeaux.
Épine du Rochoir.
Épine de Limoges.
Épine Dumas.
Beurré de Rochoir.
Du Mas.

Beurré Rochechourt.
Beurré St. Louis.
Colmar de Lot.
Comte de Limoges.
Emile de Rochois.
Épine de Rochechourt.

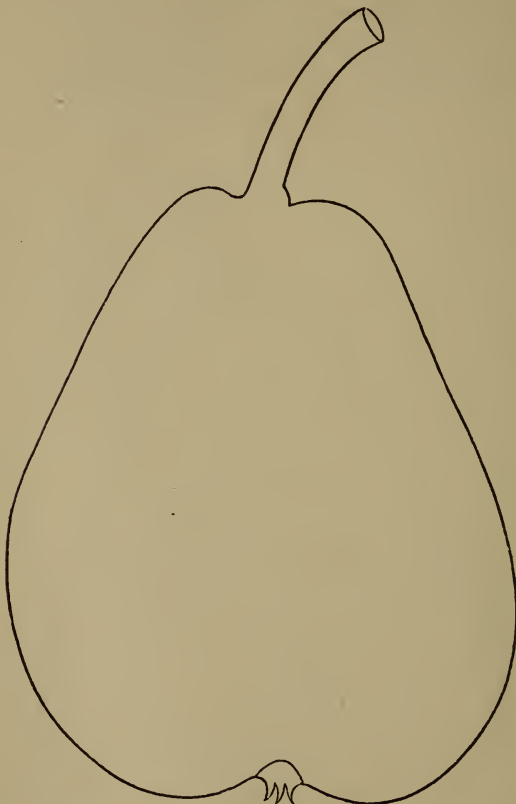


Belle Épine Dumas.

Of French origin. Tree vigorous, pyramidal form, good bearer. Young wood dull yellow brown, with sharp-pointed buds.

Fruit medium to large, oblong, obtuse pyriform. Skin green, becoming greenish yellow when ripe, with small russet brown dots. Stalk long, set in a very small depression. Calyx large, open, in a shallow, regular basin. Flesh white, buttery, half melting, juicy, sweet, and of a peculiar flavor. Very good. November and December.

BERGEN.



Bergen.

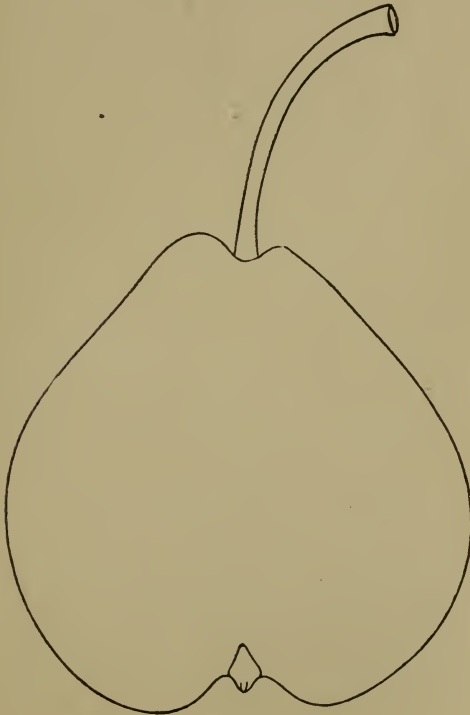
A chance seedling found in a hedge on land formerly belonging to Simon Bergen, of New Utrecht, Long Island.

Tree moderately vigorous, upright. Young wood reddish, an early and good bearer, but not profuse.

Fruit large, elongated, obtuse pyriform, often with sides not symmetric, angular. Skin waxen, lemon yellow, finely shaded with crimson and fawn where exposed to the sun, and thickly sprinkled with brown and crimson dots. Stalk long, rather stout, curved, inserted in a moderate depression by a fleshy ring. Calyx small, open. Segments stiff. Basin small, surrounded by a wavy border. Flesh whitish, veined with yellow, a little coarse and gritty, buttery, juicy, melting, with a sweet aromatic flavor. Good to very good. Ripe last of September and beginning of October.

BERRIAYS.

Poire de Berriays.



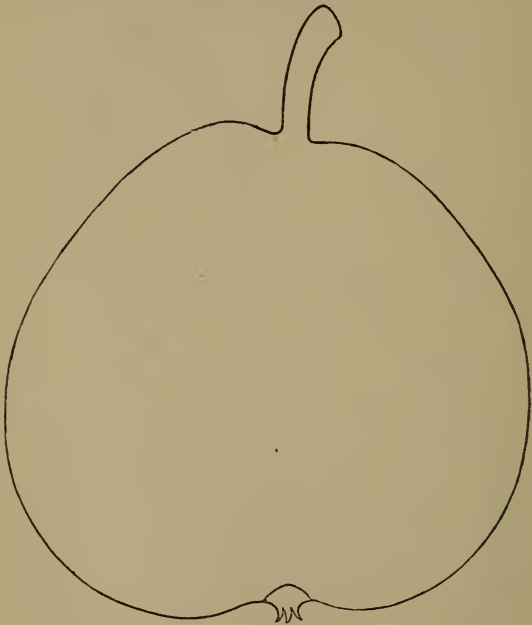
Berriays.

This is a new French variety, obtained from seed in 1861, by M. Boisbunel. Tree moderately vigorous, productive. Young shoots reddish.

Fruit medium, surface a little uneven, roundish, inclining to obtuse pyriform. Skin pale greenish yellow, sometimes a shade of brown in the sun, and thickly sprinkled with brown and green dots. Stalk long, set in a small cavity. Calyx closed. Basin quite deep, corrugated. Flesh white, half fine, juicy, melting, sweet, slightly perfumed. Good to very good. September.

BEURRÉ AUGUSTE BENOIST.

Beurré Benoist.	Benoist.	Beurré Benoist Nouveau.
Auguste Benoist.	Doyenne Benoist.	



Beurré Auguste Benoist.

A chance seedling found at Brissac, France. Tree moderately vigorous, spreading, very productive. Young wood reddish, with sharp spur-like buds.

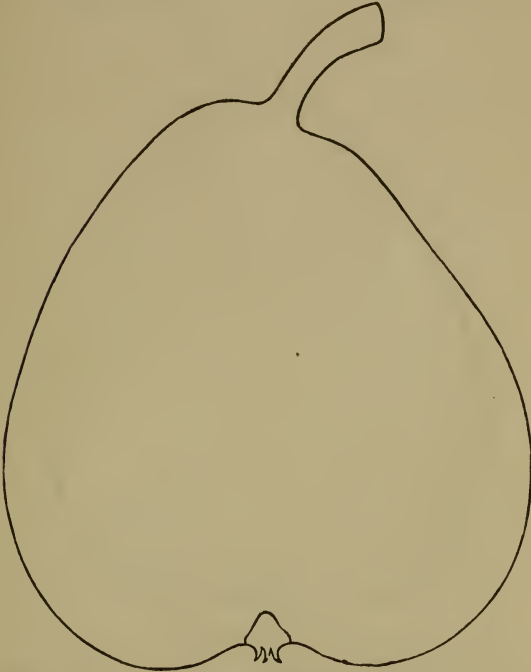
Fruit medium roundish, sometimes roundish inclining to acute pyriform. Skin fine yellow, some nettings and patches

of russet and many russet dots. Stalk short and rather stout in a shallow cavity, sometimes joined to the fruit by a fleshy ring or lip. Calyx half open, basin shallow, uneven. Flesh white, fine, juicy, melting, sugary, slightly vinous, perfumed. Very good. Ripe end of September.

BUERRÉ BACHELIER.

Bachelier.

Chevalier.



Beurré Bachelier.

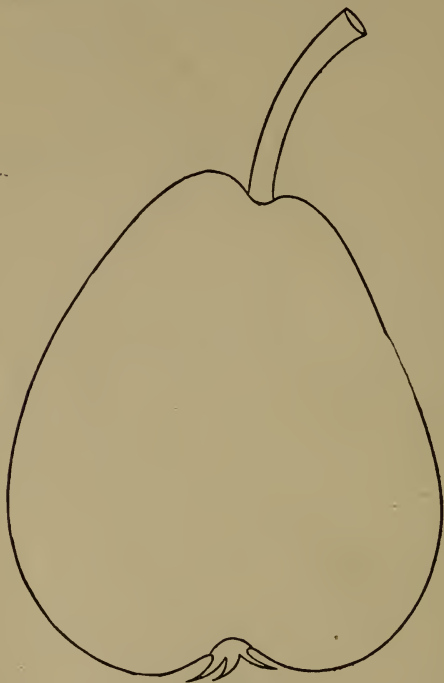
A French Pear, raised by Louis F. Bachelier. Tree vigorous, productive. Young wood rich dark brown.

Fruit medium or above, roundish, obovate obtuse pyriform. Skin greenish yellow, with brown dots and patch of russet next the stalk. Stalk short, much inclined in a moderate depression by a lip. Sometimes small cavity. Calyx partially closed, set in a shallow basin. Flesh yellowish, fine, buttery, juicy, melting, with a sweet, slightly aromatic flavor. Very good. November and December.

BEURRÉ BERCKMANS.

Alexandre Berckmans.

One of Major Esperen's seedlings, dedicated to M. Louis Berckmans, once a colaborer in pomology. Tree vigorous, upright, very productive. Young wood very stout, blunt at ends, yellowish olive.



Beurré Berckmans.

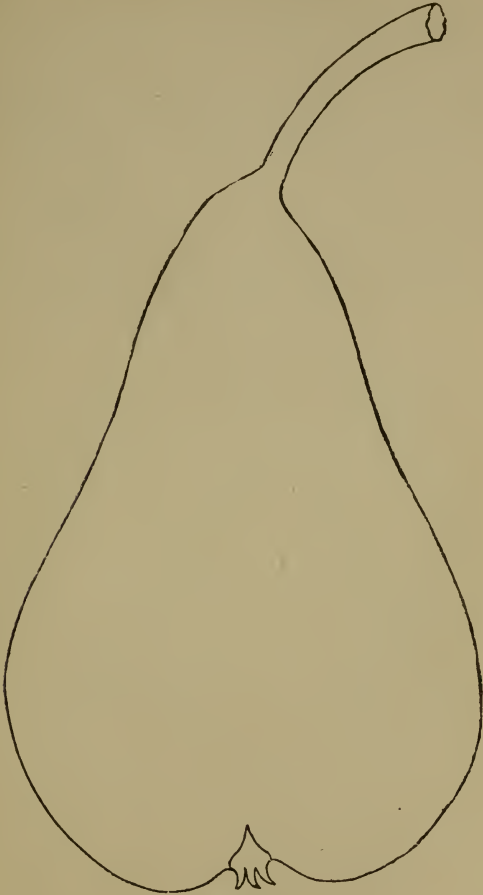
Fruit medium, obovate, obtuse pyriform. Skin pale yellow, sometimes a shade of red in the sun, partially netted and patched with russet, especially around the stem and calyx, and many minute russet dots. Stalk of medium length and thickness, inclined, inserted in a small cavity. Calyx large, open; basin broad, shallow, uneven. Flesh whitish yellow, juicy, melting, sugary, rich, slightly aromatic. Very good. October, November.

BEURRÉ BOSCH.

Beuré d'Apremont.
Bosc's Flaschenbirne.

Calebasse Bosc.
Cannelle.

The Beurré Bosc is a Pear to which we give our unqualified praise. It is large, handsome, a regular bearer, always perfect, and of the highest flavor. It bears singly, and not in clusters, looking as if thinned on the tree, whence it is always

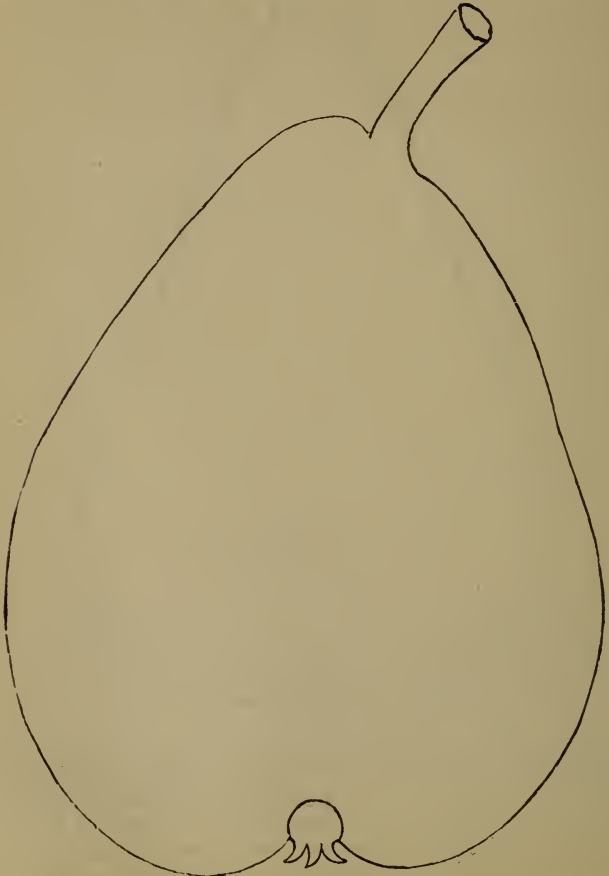


Beurré Bosc.

of fine size. It was raised in 1807, by Van Mons, and named Callebasse Bosc, in honor of M. Bosc, a distinguished Belgian cultivator. Having also been received at the garden of the Horticultural Society of London under the name of Beurré Bosc, Mr. Thompson thought it best to retain this name, as

less likely to lead to a confusion with the Calebasse, a distinct fruit. The tree grows vigorously. Shoots long, brownish olive.

Fruit large, pyriform, a little uneven, often tapering long and gradually into the stalk. Skin pretty smooth, dark yellow, a good deal covered with streaks and dots of cinnamon russet, and sometimes slightly touched with red on one side. Stalk one to two inches long, rather slender, curved, inclined, joined to the fruit without cavity. Calyx half open, short, set in a very shallow basin. Flesh white, melting, very buttery, with a rich, delicious, and slightly perfumed flavor. Best. Ripens gradually from the last of September to the last of October.



Beurré Clairgeau.

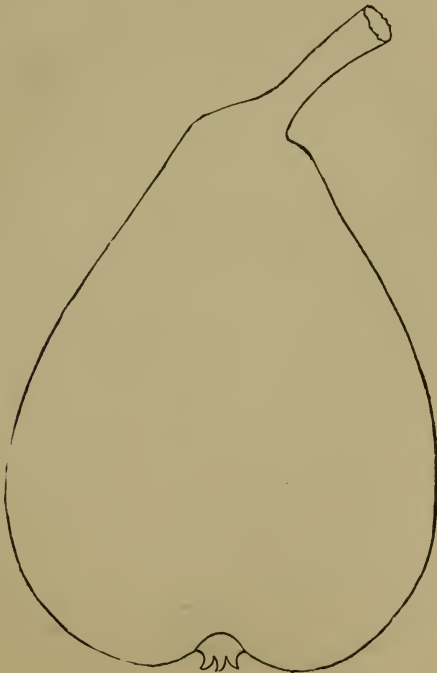
BEURRÉ CLAIRGEAU.

Clairgeau.

Clairgeau de Nantes.

Raised by Pierre Clairgeau, of Nantes, France. Tree very vigorous, forming a beautiful pyramid. Young wood reddish brown, very productive. The size, early bearing, productiveness, and beauty of this Pear render it a profitable market sort.

Fruit large, pyriform, but with unequal sides. Skin warm yellow, inclining to fawn, shaded with orange and crimson, thickly covered with russet dots, and sometimes sprinkled with russet. Stalk short, stout, and fleshy, inserted by a lip at an inclination almost without depression; when the lip is absent the cavity is uneven. Calyx open. Segments stiff, in a shallow furrowed basin. Flesh yellowish, buttery, juicy, somewhat granular, with a sugary, perfumed, vinous flavor. Good. October to January.



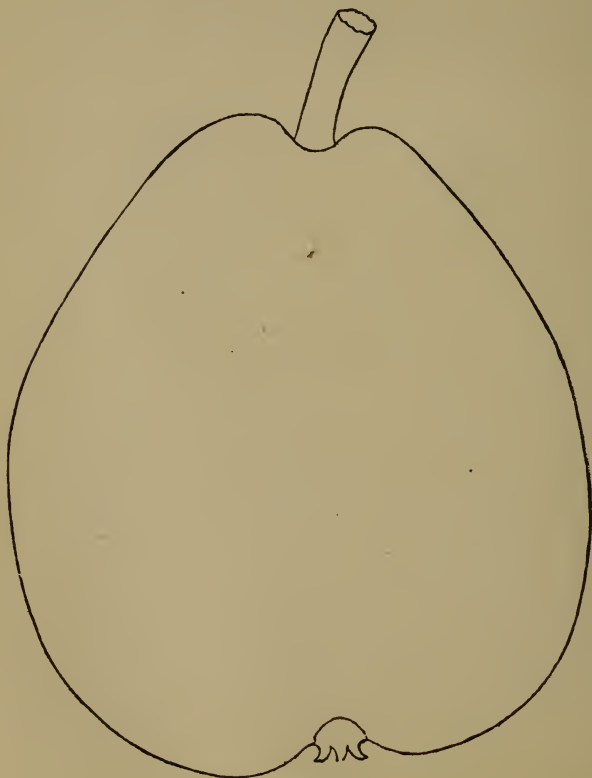
Beurré d'Albret.

BEURRÉ D'ALBRET.

Poire d'Albret.
Dalbret.

Beurré Delbret.
Calebasse d'Albret.

A French variety, one of Van Mons' seedlings. Tree vigorous and productive. Young wood reddish. Fruit medium or above, elongated pyriform, narrowing to the stalk. Skin yellow, mostly covered with thin cinnamon russet. Stalk short, thick, inclined fleshy at its insertion by a lip. Calyx small, open, or partially closed. Basin small and uneven. Flesh greenish white, fine, exceedingly juicy, buttery, melting, with a rich vinous flavor, highly perfumed. Very good. October.



Beurré d'Anjou.

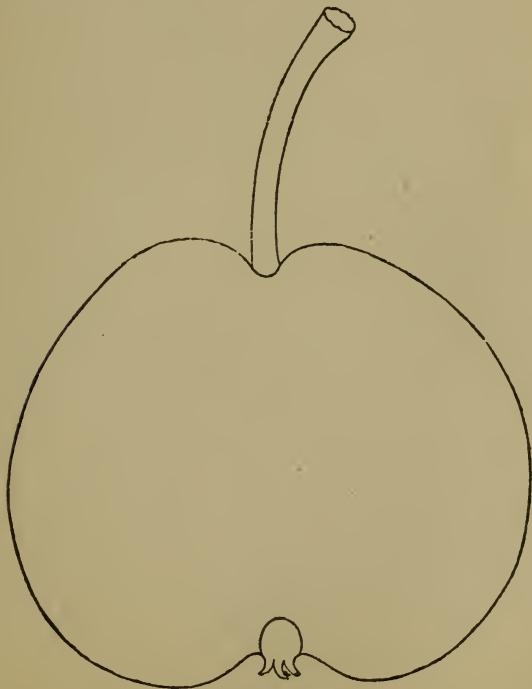
BEURRÉ D'ANJOU.

Ne Plus Meuris of the French.

A noble fruit, said to be of French origin, one of the best and most valuable late Pears either for dessert or market. Tree vigorous. Young shoots yellowish brown, sufficiently productive.

Fruit large, roundish obovate, obtuse pyriform. Stem short, thick, and fleshy, inserted in a cavity, surrounded by russet. Calyx very small, open, stiff, in an exceedingly small basin, surrounded by russet. Skin greenish, sprinkled with russet, sometimes shaded with dull crimson, and sprinkled thickly with brown and crimson dots. Flesh whitish, not very fine, melting, juicy, with a brisk vinous flavor, pleasantly perfumed. Very good to best. October, November.

This is one of the most profitable varieties for orcharding, bearing abundantly and evenly, whether grown on quince or pear stocks.



Beurrié de Brigras.

BEURRÉ DE BRIGNAIS.

Des Nonnes. Poire des Nonnes. Nun's Pear. De Nonne.

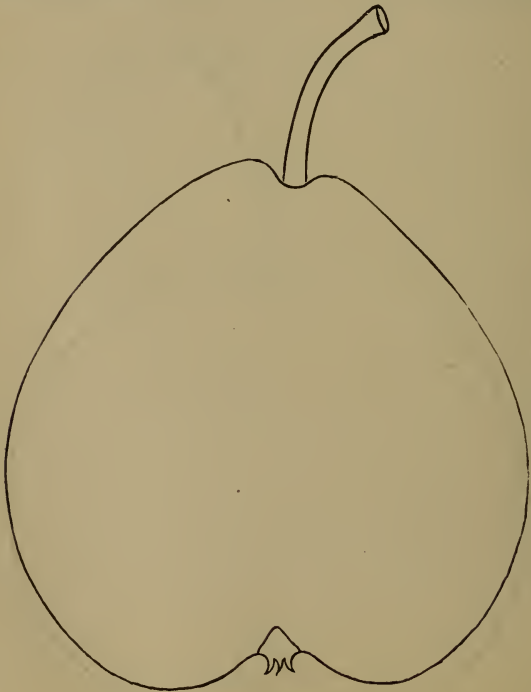
A valuable variety, the origin of which we cannot learn. Tree vigorous, hardy, upright, an early bearer, and productive. Young wood rich dark yellowish brown.

Fruit medium, roundish oblate. Skin greenish, with numerous gray dots. Stalk long, curved, inserted in a narrow, uneven cavity. Calyx closed. Basin shallow, corrugated. Flesh white, juicy, melting, sweet, with a brisk, perfumed, high flavor. Very good. Ripe middle and last of September. Core small, continues a long time ere it decays.

BEURRÉ DEFAIS.

Beurré Audusson d'Hiver.

Beurré Defays.



Beurré Defais.

Originated with Francis Defays, at Angers, France. Tree productive, and a strong, vigorous grower. Young shoots rich clear reddish brown, with a large pointed bud at end.

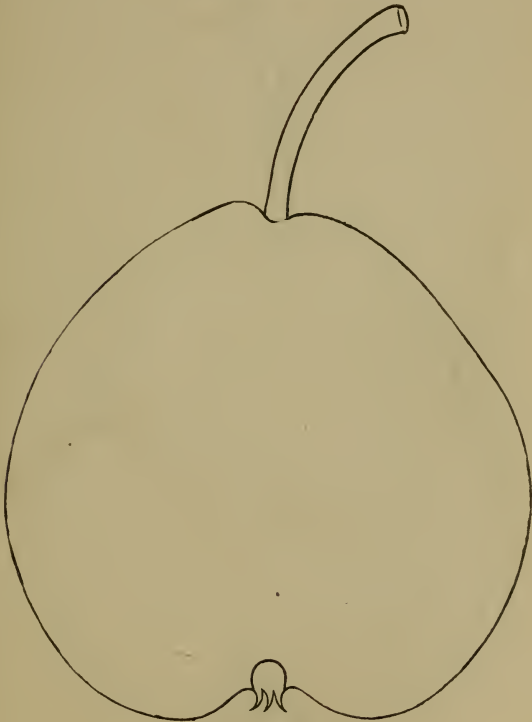
Fruit rather large, roundish inclining, to obtuse pyriform. Skin pale yellow, slightly netted with russet, and a few russet dots. Stalk varying in length, set in a narrow cavity. Calyx small, partially open, basin abrupt, deep furrowed. Flesh whitish yellow, juicy, melting, sweet, slightly vinous. Very good. November and February.

BEURRÉ DE KONING.

Buerré Konink.

Beurré de Conick.
Auguste de Maraise.

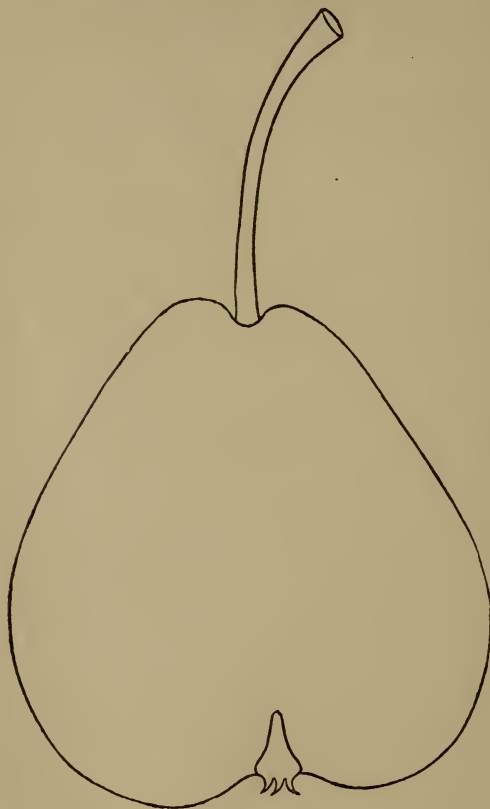
Beurré Conning.



Beurré de Koning.

A Belgian Pear, one of Van Mons' seedlings. Tree moderately vigorous, very productive. Young shoots slender, olive reddish yellow.

Fruit medium, roundish, inclining to obtuse pyriform. Skin yellowish green, partially netted and patched with russet, especially around the stalk and calyx, and many rather large russet dots. Stalk long, curved, inclined, inserted in a slight depression, or small cavity, calyx open, basin rather abrupt, uneven. Flesh whitish, buttery, juicy, melting, sweet, slightly aromatic. Very good. October.



Beurré de Montgeron.

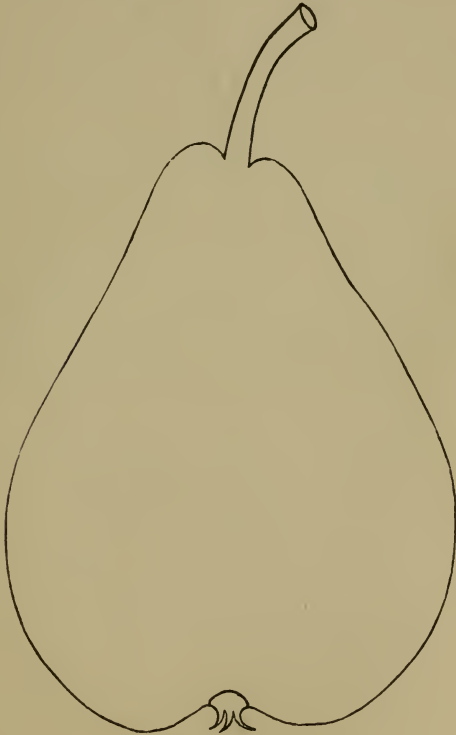
BEURRÉ DE MONTGERON.

New Frederick of Wurtemberg.
Beurré de Montigeron.

De Montgeron.
King of Wurtemberg.

A variety obtained by M. Guyot, of Villeneuve, in 1830. Tree vigorous, moderately productive. Young wood dull yellow brown.

Fruit medium, broad pyriform. Skin yellow, shaded with fine rich red in the sun, and sprinkled with minute light brown dots. Stalk long, curved, inclined, inserted in a small cavity. Calyx open. Basin medium, furrowed. Flesh whitish yellow, juicy, melting, with a pleasant vinous flavor. Good to very good. Last of August and September.



Beurré de Nantes.

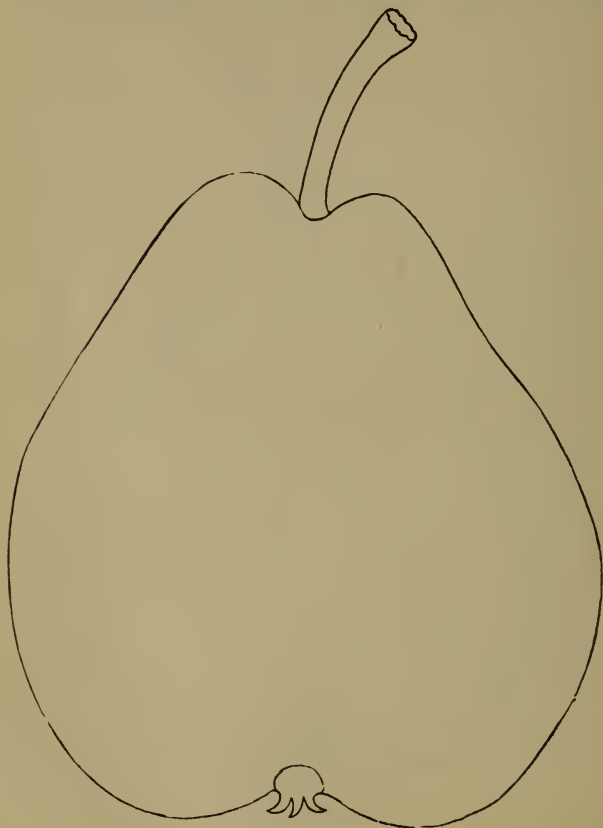
BUERRÉ DE NANTES.

Beurré Nantais.

Beurré Blanc de Nantes.

Raised by François Maisonneuve, at Nantes, France. Tree very vigorous, upright, healthy, and comes early into bearing, very productive. Young wood olive.

Fruit rather large, elongated, pyriform. Skin pale yellow, somewhat waxy, slight nettings of russet and many brown and green dots. Stalk medium length and thickness, a little inclined, inserted in a slight depression by a lip, sometimes small cavity. Calyx open; basin medium, uneven. Flesh white, juicy, melting, sweet, rather rich, pleasantly perfumed. Very good. October.



Beurré Diel.

BEURRÉ DIEL.

Diel's Butterbirne.	Dillen.	Beurré de Gelle.
Diel.	Des Trois Tours.	Dillen d'Hiver.
Dorothée Royale.	Mabille.	Dry Toren.
Grosse Dorothée.	Beurré d'Yelle.	Gracioli d'Hiver.
Sylvanghe vert d'hiver.	De Melon.	Fourcroy
Beurré Royale.	Melon de Kops.	Guillaume de Nassau.
Dorothée Royale.	Beurré Magnifique.	Beurré Vert.
Gros Dillen.	Beurré Incomparable.	

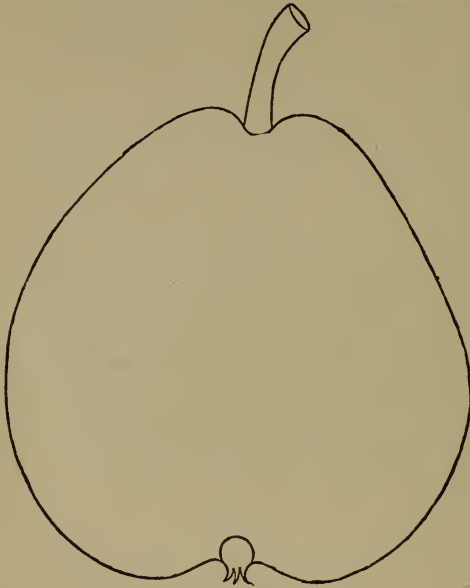
A chance seedling near Brussels, Belgium, dedicated by Van Mons, and named in honor of his friend Dr. Augustus Frederick Adrien Diel, a distinguished German pomologist. Its vigor, productiveness, and beauty have made it already a general favorite with our planters. It is in every respect a first-rate fruit in favorable situations, but on very young trees and in cold soils it is apt to be rather coarse and astringent. The tree has long, very stout, twisting branches, and is uncommonly vigorous. Young shoots reddish yellow grayish brown.

Fruit large, varying from obovate to obtuse pyriform. Skin rather thick, lemon yellow, becoming orange yellow, marked with large brown dots, and marblings of russet. Stalk an inch to an inch and three-quarters long, stout, curved, set in a rather uneven cavity. Calyx nearly closed, and placed in a slightly furrowed basin. Flesh yellowish white, a little coarse-grained, especially at the core, but rich, sugary, half melting, and, in good specimens, buttery and delicious. Very good. In eating, in this country, from September to December, if picked and ripened in the house.

BEURRÉ GENS.

A Belgian Pear. One of Van Mons' seedlings. Tree vigorous and productive. Young wood yellowish brown.

Fruit medium, roundish, inclining to obtuse pyriform. Skin pale greenish yellow, sometimes a shade of bright red in the sun, slight nettings of russet and many russet dots. Stalk short, inserted in a small cavity, calyx half open; basin medium, smooth. Flesh white, fine, juicy, melting, sweet, rich, aromatic. Very good. October.



Beurré Gens.

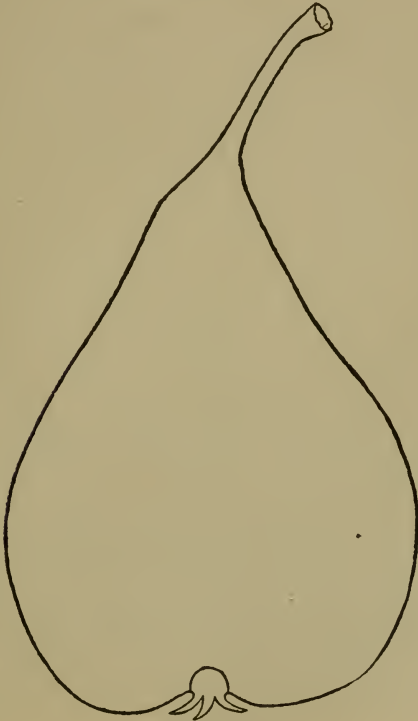
BEURRÉ GIFFARD.

Poire Giffard.

Giffart.

A chance seedling, originated with M. Giffard, Angers, France. Tree of moderate growth, spreading with slender reddish-colored shoots.

Fruit medium in size, pyriform, tapering to the stem, which is rather long. Skin greenish yellow, marbled with red on the sunny side. Calyx closed. Segments stiff, set in a very small basin. Flesh white, melting, juicy, with an excellent vinous flavor, delightfully perfumed. An early Pear of value, but requires to be gathered early, and does not continue long. Very good. Ripening middle of August.

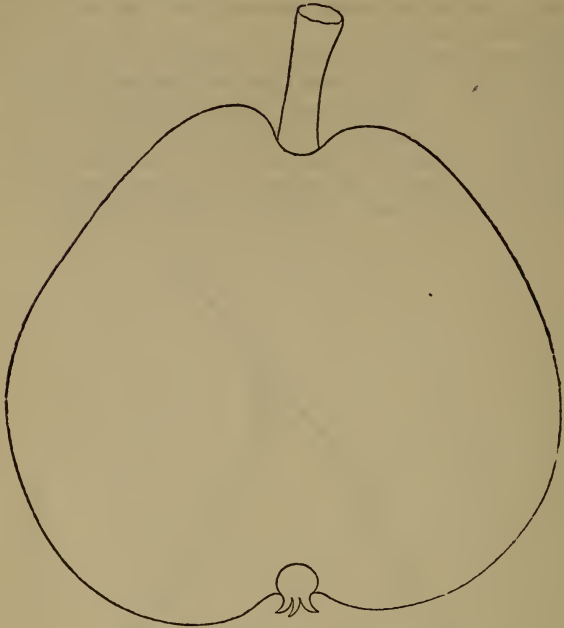


Beurré Giffard.

BEURRÉ GRIS D'HIVER NOUVEAU.

Beurré Gris d'Hiver.
 _____ de Luçon.
 _____ Supérieur

Beurré de Fontenay.
 _____ d'Hiver.
 _____ de Luçon.



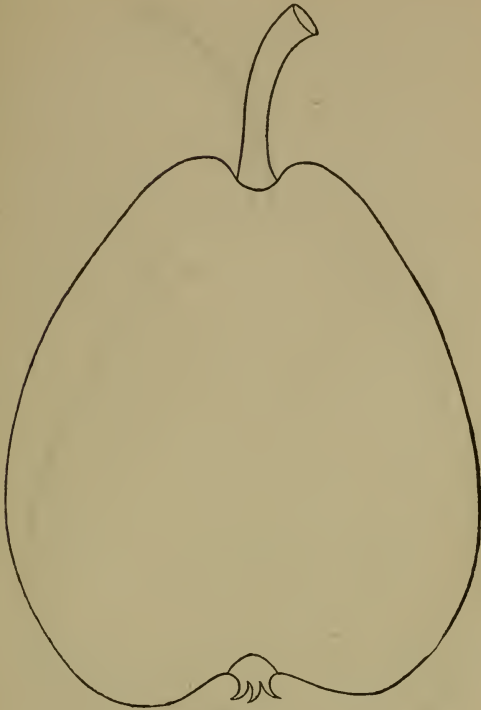
Beurré Gris d'Hiver Nouveau.

Tree moderately vigorous, productive. Young wood dark yellowish-reddish brown.

Fruit medium, roundish obtuse pyriform. Skin golden russet, with a fine sunny cheek, and sprinkled with dots. Stalk very stout, rather short, inclined, sometimes inserted in a large cavity, at others with a lip. Calyx very small and open. Segments small, slightly recurved. Basin shallow, uneven. Flesh somewhat granular, juicy, buttery, melting. Flavor rich and sugary, with a very peculiar aroma. Very good. November, February.

BEURRÉ HARDY.

A French variety raised by M. Jamins, France. Tree vigorous, productive. Young wood dark grayish olive brown.

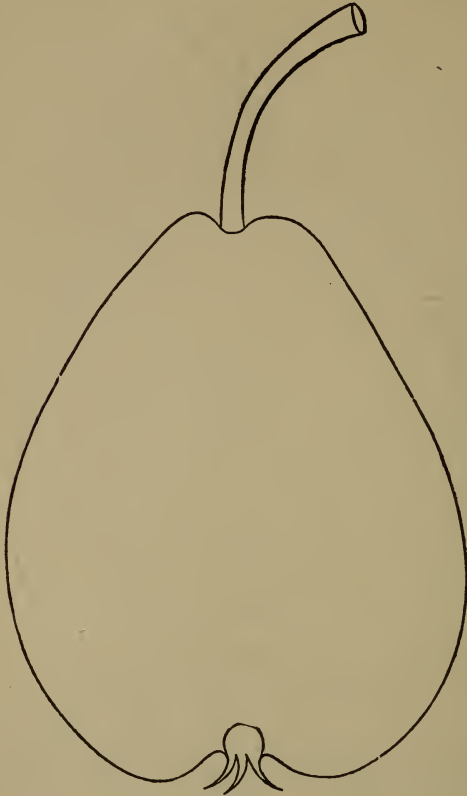


Beurré Hardy.

Fruit large, obovate obtuse pyriform. Skin greenish, covered with light russet, considerably shaded with brownish red, and sprinkled with brown dots. Stalk about an inch long, a little swollen at its insertion, at an inclination, in a small, rather uneven cavity. Calyx open. Segments long, recurved in a broad, shallow basin. Flesh yellowish, half fine, buttery, melting, juicy, sweet, slightly vinous, and highly perfumed. Very good. September and October.

BEURRÉ LEON LE CLERC.

A foreign variety of unknown origin. Tree vigorous, upright, productive. Young wood yellow brown.

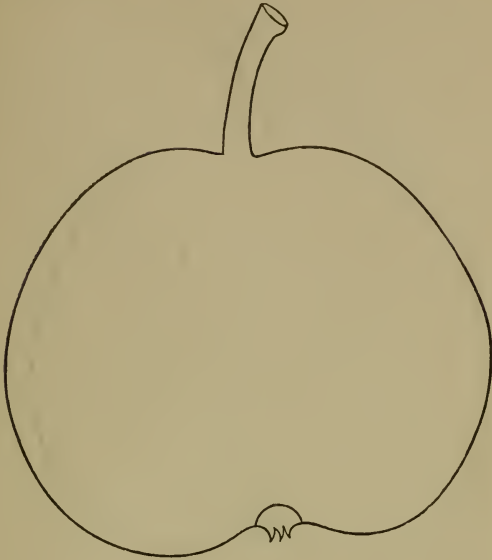


Beurré Leon le Clerc.

Fruit medium or above, roundish oblong obtuse pyriform. Skin pale yellow, slightly netted and patched with russet, and many russet dots. Stalk rather long, curved. Cavity small. Calyx open. Segments broad and long. Basin abrupt, furrowed. Flesh whitish, fine, juicy, buttery, half melting, sweet, pleasant, aromatic. Very good. October.

BEURRÉ MAUXION.

Of foreign origin. Tree moderately vigorous. Young wood smooth reddish.



Beurré Mauxion.

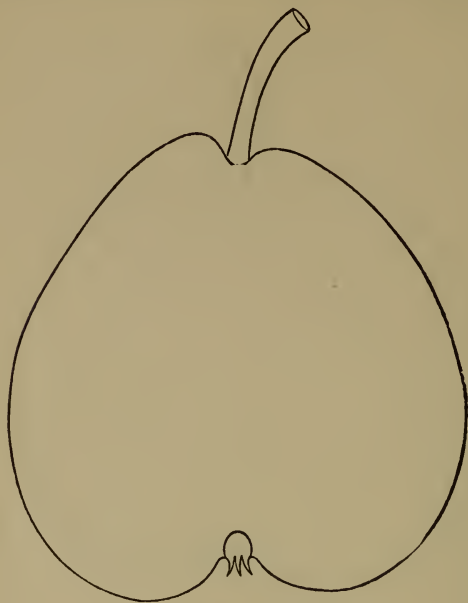
Fruit medium, roundish, oblate. Skin yellow, nearly covered with thin light russet. Stalk short, moderately stout, inserted in a shallow cavity, often thinly russeted. Calyx half open, stiff, set in a very shallow basin. Flesh fine, buttery, melting, abounding in juice, sugary, with a spicy vinous flavor, pleasantly perfumed. Very good. Ripe in September.

BEURRÉ MILLET OF ANGERS.

Origin, Angers, France. Tree moderately vigorous and very productive. Young wood yellowish brown.

Fruit medium, roundish, inclining to pyriform. Skin greenish yellow, often brownish red in the sun, covered with russet and thickly sprinkled with minute russet dots. Stalk medium, stout, curved, inserted in a rather small cavity.

Calyx open, set in a deep irregular basin. Flesh whitish, somewhat buttery, juicy, melting, sweet, rich, slightly vinous flavor. Good to very good. November to January.



Beurré Millet of Angers.

BEURRÉ MOIRE.

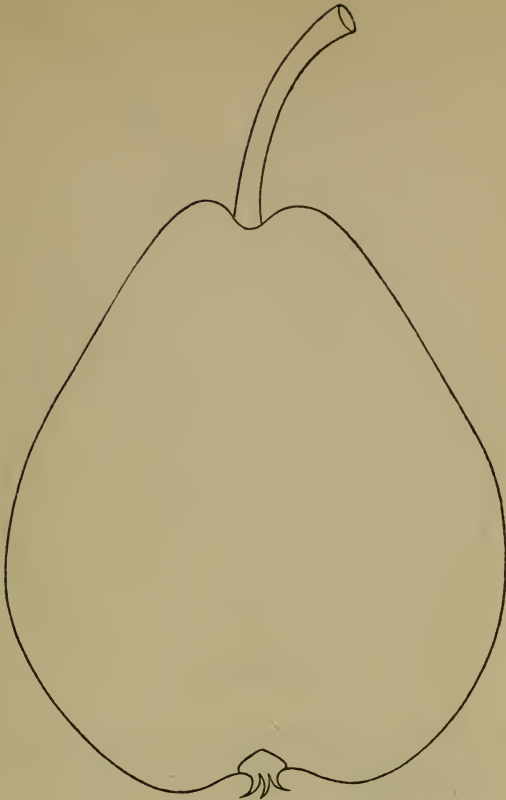
Beurré Moiret.

Moire.

Belle de Moire.

A French Pear which originated at Angers, of vigorous and productive habit. Young wood reddish yellow olive brown.

Fruit large, roundish obtuse pyriform. Skin greenish yellow, profusely sprinkled with yellow dots, sometimes a tinge of red in the sun. Stalk medium length, curved, inserted in a small cavity. Calyx open. Basin shallow. Flesh yellowish, a little granular, buttery, juicy, melting, with a fine rich pleasant flavor, perfumed. Good to very good. October.



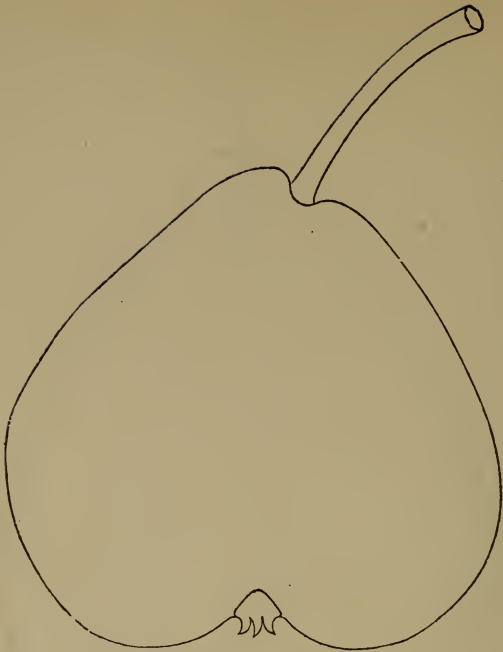
Beurré Moire.

BEURRÉ STERKMANS.

Doyenné Sterkmans. Belle Alliance. Calebasse Sterkmans.
d'Esterkmans. Strekman.

A seedling of M. Sterkman's, of Louvain, Belgium. Tree vigorous, with stout yellowish brown shoots, productive.

Fruit medium, oblate, remotely pyriform. Skin greenish-yellow, slight nettings and patches of russet, a shade of crimson in the sun, and many russet dots. Stalk about an inch long, inclined, inserted in a small, uneven cavity. Calyx open. Segments stiff, set in a broad, uneven basin, slightly



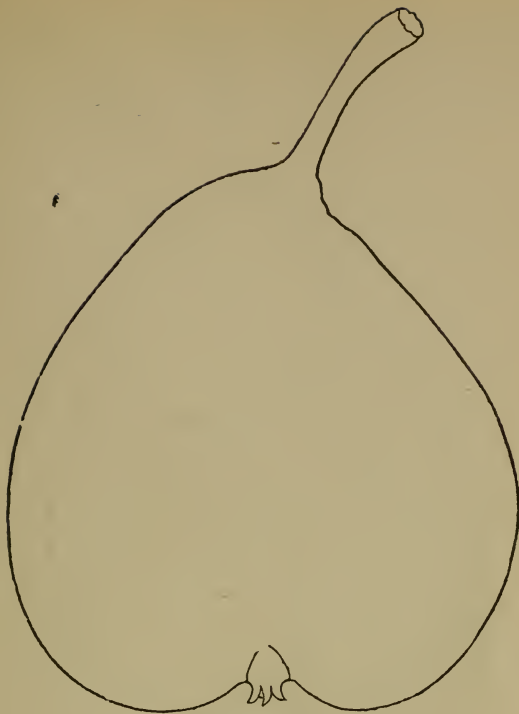
Beurré Sterkmans.

russeted. Flesh yellowish white, fine, very melting, juicy, sugary, vinous, pleasantly perfumed. Good to very good. October and November.

BEURRÉ SUPERFIN.

This really good Pear originated at Angers, France, in 1837. The tree is inclined to be thorny, is very healthy, hardy, and moderately vigorous, not an early, but a good bearer when at full age. Young shoots slender, light yellow brown.

Fruit medium, roundish pyriform. Skin yellow, slightly shaded with crimson on the sunny side, and partially covered with russet, and thickly sprinkled with minute dots. Stalk stout, rather long, inserted without depression by a fleshy enlargement. Calyx partially closed, in an abrupt, small basin.



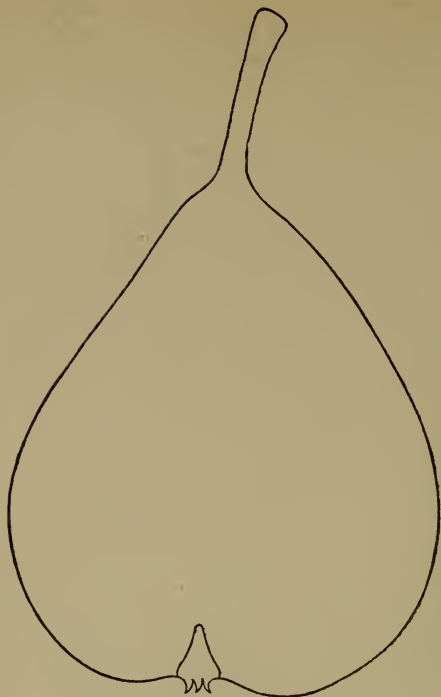
Beurré Superfin.

Flesh exceedingly juicy, buttery, melting, with a brisk vinous or subacid flavor. Very good to best. Ripe all of October.

BEZI DE CAEN.

This is a French pear of recent introduction, and promises to be valuable as a midwinter variety. Young wood dull yellow brown.

Fruit medium, roundish pyriform, somewhat acute, skin greenish yellow, nearly covered with smooth brownish russet and a few dark russet dots. Stalk of medium length and thickness, set without depression. Calyx small, open. Basin



Bezi de Caen.

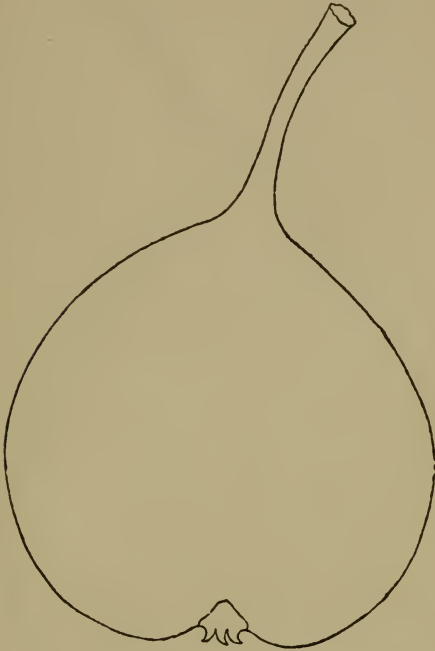
shallow, smooth. Flesh white, fine, melting, juicy, sweet, vinous. Very good December and January.

BLOODGOOD.

Early Beurré.

The Bloodgood is the highest flavored of all early Pears, and deserves a place even in the smallest garden. It was named from the circumstance of its having been brought into notice, about 1835, by the late James Bloodgood, nurseryman, Flushing, L. I. The sort was brought to that nursery as a new variety, without a name, however, by some person on Long Island, unknown to Mr. B., who was never able afterward to trace its history further. The tree is rather short-jointed, with deep reddish brown wood, grows moderately fast, and

bears early and regularly. The fruit, like that of all early pears, is better if ripened in the house. It surpasses every European variety of the same season, and together with the Dearborn's Seedling, another native sort, will supplant all inferior early pears.



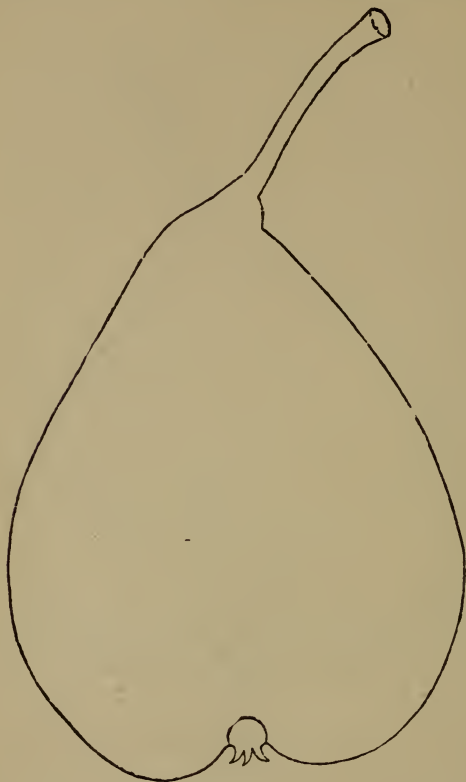
Bloodgood.

Fruit of medium size, turbinated, inclining to obovate, thickening very abruptly into the stalk. Skin yellow, sprinkled with russet dots and network markings, giving it a russety 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 aromatic perfume. Very good. Core small. Ripe from the 5th of July to the 10th of August.

BONNE SOPHIA.

Bonne Saplier.

Fruit medium, acute pyriform. Skin pale greenish yellow with a shade of crimson, a few patches and nettings of russet,



Bonne Sophia.

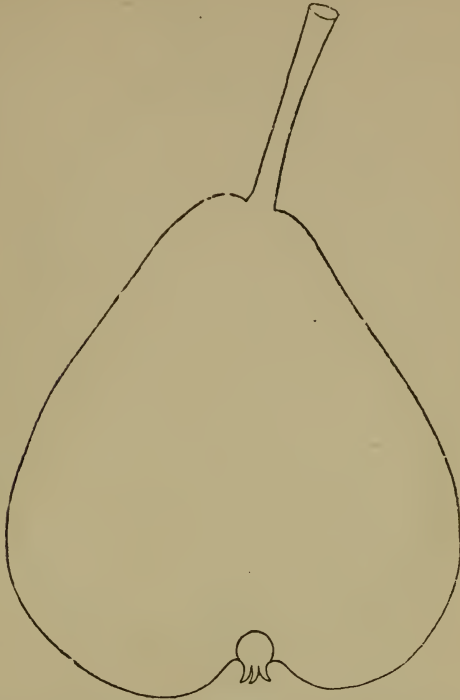
and many small brown dots. Stalk long, inclined, fleshy at insertion. Calyx open. Flesh white, fine, juicy, melting, sweet, slightly perfumed. Very good. New and promising. October.

BRANDYWINE.

Found on the farm of Eli Harvey, on the banks of the

Brandywine, Delaware Co., Pa. Tree vigorous, upright, uniformly productive. Young wood dull yellow brown.

Fruit medium, varying in form from oblate depressed pyriform to elongated pyriform. Skin dull yellowish green, con-



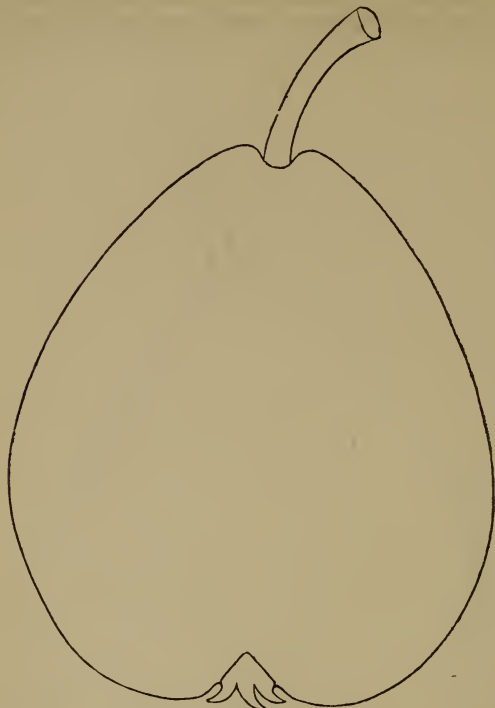
Brandywine.

siderably dotted and somewhat sprinkled with russet, having a warm cheek on the side of the sun. Stalk is fleshy at its junction with the fruit, and generally surrounded by folds or rings. Calyx open. Basin smooth and shallow. Flesh white, juicy, melting, sugary, and vinous, somewhat aromatic. Good to very good. Ripe last of August and first of September.

BRIALMONT.

A Belgian Pear, one of Van Mons' seedlings, of recent introduction and good promise. Young wood olive brown.

Fruit medium, ovate, greenish yellow, or pale yellow at maturity, with traces of russet and many green and brown



Brialmont.

dots. Stalk rather short, set in a small cavity. Calyx open, with long recurved segments. Flesh white, juicy, buttery, melting, pleasant. Very good. October.

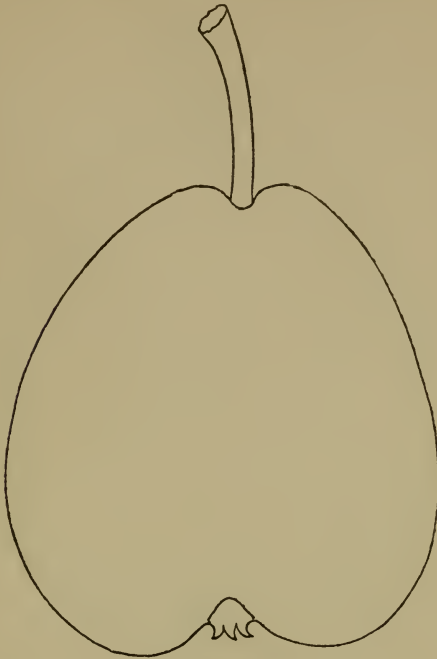
BUFFUM.

Buffam.

The Buffam is a native of Rhode Island, and was raised from seed of White Doyenné, by Buffum, of Newport. It is an *orchard* Pear of the first quality, as it is a very strong, upright grower, with reddish or reddish brown young shoots, bears large, regular crops, and is a very handsome and salable fruit. It is a little variable in quality. We have frequently eaten them so fine as scarcely to be distinguished from the

Doyenné, and again when rather insipid. It may be considered a beautiful and good, though not first-rate variety.

Fruit of medium size, oblong obovate, a little smaller on one side. Skin fair, deep yellow (brownish green at first),



Buffum.

finely suffused over half the fruit, with bright red, sprinkled with small brown dots, or a little russet. Stalk an inch long, inserted in a very slight cavity. Calyx with small segments, and basin of moderate size. Flesh white, buttery, not so juicy as the Doyenné, but sweet, and of excellent flavor. The strong upright reddish brown shoots, and peculiar brownish green appearance of the pear before ripening, distinguish this fruit. Very good. September.

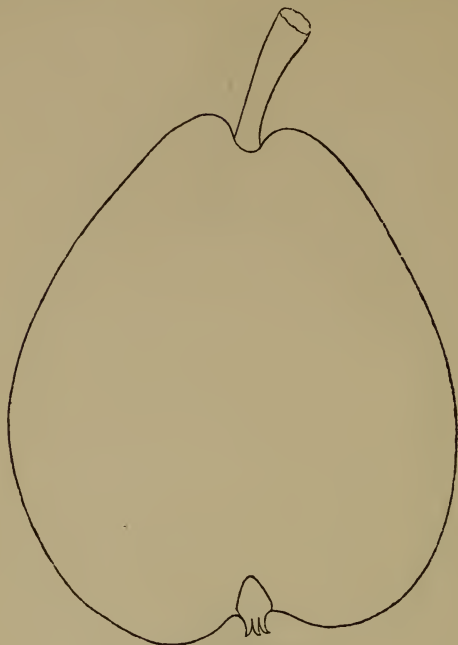
CAEN DE FRANCE.

Doyenné de Bruxelles, erroneously.

A foreign Pear promising great value. Tree a slow

grower, late coming into bearing, but is productive and a fine late variety.

Fruit medium, regular, obovate obtuse pyriform. Skin rough, yellow, overspread with cinnamon russet, and with



Caen de France.

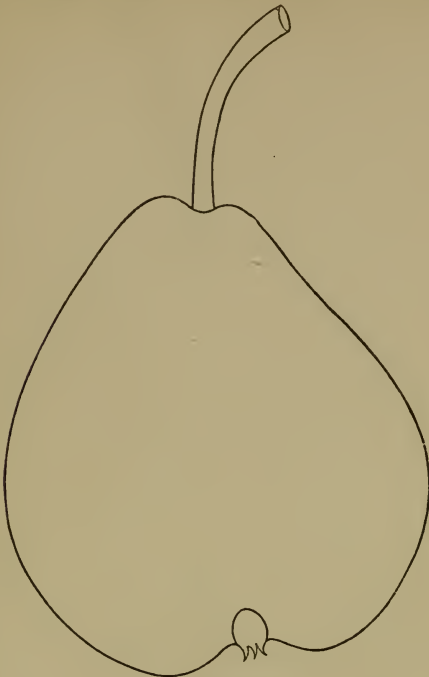
many russet dots. Stalk rather short and stout, a little inclined, and set in a small cavity. Calyx closed, or partially open. Basin rather small, uneven. Flesh whitish, fine-grained, juicy, melting, vinous, slightly aromatic. Very good. December, February.

CATHERINE LAMBRE.

One of the new Belgian Pears that promises to sustain here its foreign reputation. It originated with Van Mons, and was named and introduced by Bivort. The tree is very vigorous and hardy, and a good bearer, with long, strong, dark rich yellow brown shoots.

Fruit medium, roundish pyriform. Skin smooth, greenish

yellow, shaded in the sun with light brownish red, and dotted with bronze specks. Stalk long, curved, inserted in a



Catherine Lambre.

slight depression, or small cavity. Calyx closed. Basin small, corrugated. Flesh whitish, half fine, juicy, melting, sweet, slightly aromatic. Very good. October, November.

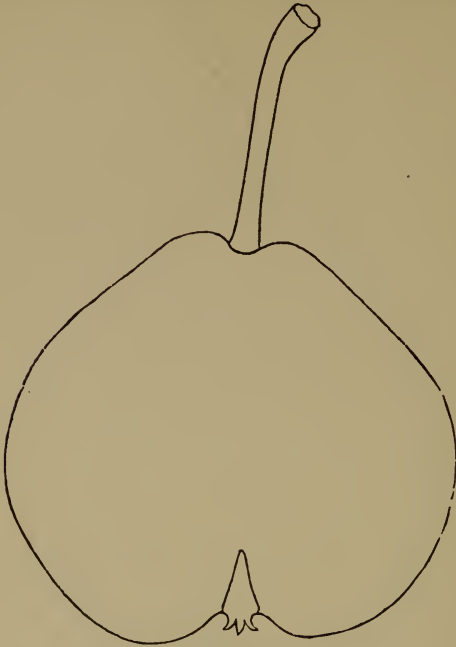
CHURCH.

Clarke.

This really good Pear originated on land belonging to the Trinity Church, at New Rochelle, N. Y.; hence its name. The habit of the Church Pear is somewhat spreading in its growth, uniformly productive, and the fruit unvarying in its quality. Young wood dull yellow, or brown.

Fruit rather below medium size, generally depressed, somewhat angular. Stalk rather long, stout at its insertion, in a small cavity surrounded by russet. Calyx small and closed,

in a broad, rather shallow basin. Skin green, becoming yellow at maturity. Flesh white, very buttery, juicy, melting, with



Church.

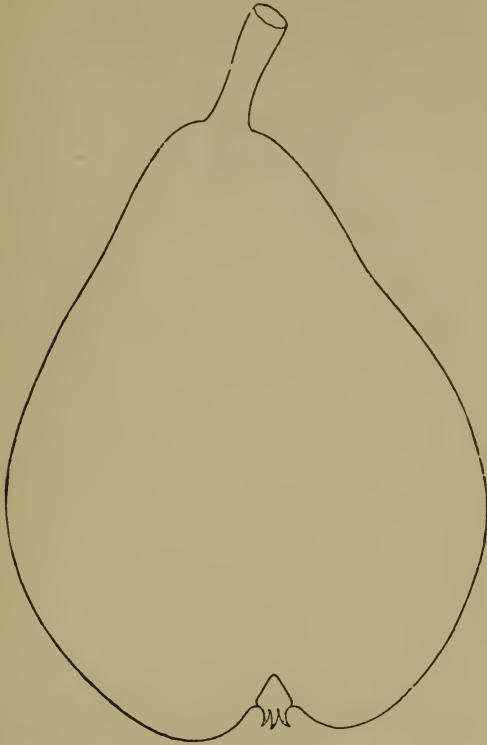
an exceedingly rich, sweet, and highly perfumed flavor. Very good. Core small. Ripens slowly, and continues in use all of September.

CLAPP'S FAVORITE.

This extremely fine and valuable Pear was raised from seed by the late Thaddeus Clapp, of Dorchester, Mass. The tree is an upright spreading, vigorous grower, forming an open, well-shaped head, on which the fruit is evenly distributed and almost uniform in size. Very productive. Young shoots dark reddish brown.

Fruit large, obovate ovate, slightly obtuse pyriform. Surface uneven. Skin thin, pale lemon yellow, marbled and faintly splashed with crimson and fawn when fully exposed to the sun, thickly sprinkled with brown dots, and sometimes

patches and traces of russet. Stalk nearly an inch long, a little inclined, stout, and somewhat fleshy, inserted in a slight depression. Calyx partially closed. Segments stiff, erect.



Clapp's Favorite.

Basin shallow, slightly corrugated. Flesh white, fine-grained, juicy, buttery, melting, rich, sweet, vinous, a little perfumed. Very good. Last of August or early September.

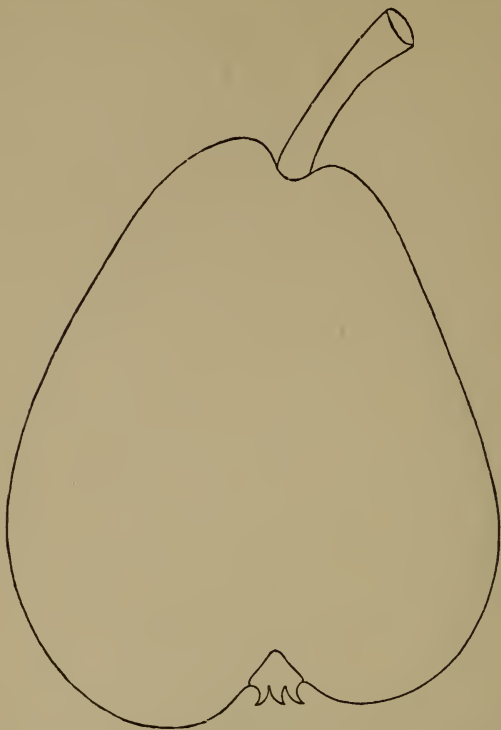
COIT'S BEURRÉ.

Beurré Coit.

Originated with Col. Coit, Collamer, near Cleveland, O. Tree a healthy, good grower, productive. Young wood brownish olive, with rough specks.

Fruit medium, obtuse pyriform. Skin yellow, inclining to

russet, sometimes with a sunny cheek, thickly covered with dots, which become crimson on the exposed side. Stalk short, rather stout, set in a small cavity, sometimes inclined



Coit's Beurré.

by a lip. Calyx large, open. Flesh white, a little coarse, juicy, melting, sweet, rich, vinous. Very good. September, October.

COLUMBIA.

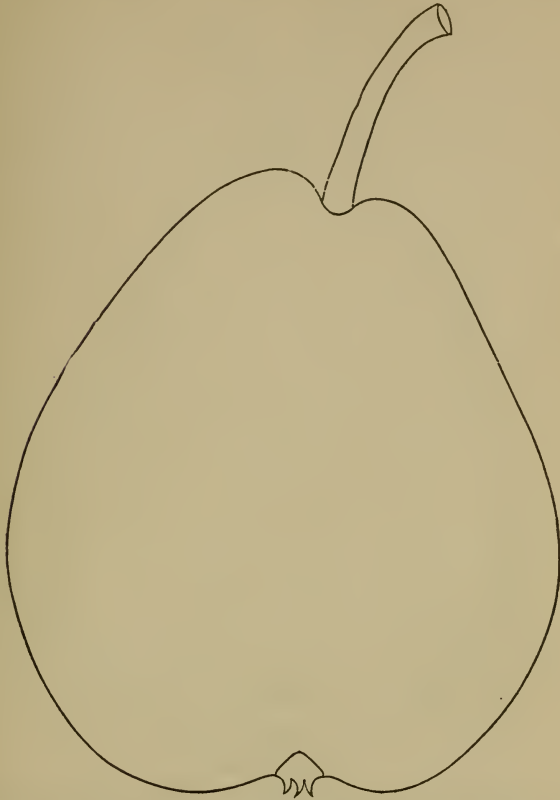
Columbian Virgalieu.

Columbian Virgalouse.

The original tree grows on the farm of Mr. Casser, in Westchester Co., N. Y. The tree grows upright. Young wood stout, upright, olive brown.

Fruit large, regularly formed, obovate, obtuse, usually a little oblong, and always broadest in the middle. Skin smooth and fair pale green in autumn, but when ripe of a

fine golden yellow, with occasionally a soft orange tinge on its cheek, and dotted with small gray dots. Stalk of a narrow depression. Calyx of medium size, partially open, set in a



Columbia.

very shallow basin. Flesh white, not very fine-grained, but melting, juicy, with a sweet aromatic flavor. Good. November to January. Very apt to drop from the tree previous to ripening.

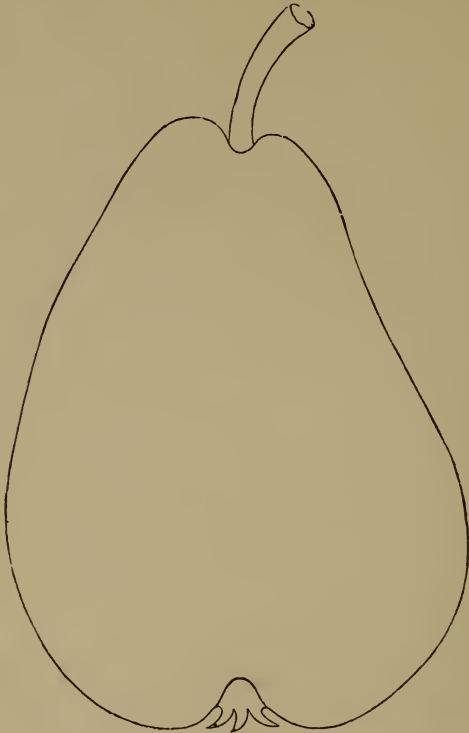
COMTE DE FLANDRE.

St. Jean Baptiste.

St. Jean Baptiste d'Hiver.

One of Van Mons' seedlings. Tree vigorous, productive. Young wood reddish yellow brown.

Fruit large, elongated pyriform, obtuse. Skin yellowish, considerably covered with russet. Stalk rather long, much inclined, and inserted by a lip in a small cavity. Calyx open,



Comte de Flandre.

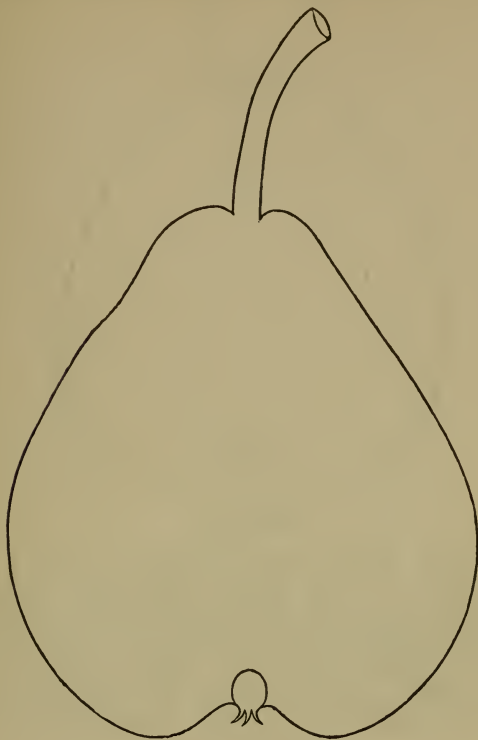
set in a shallow, corrugated basin. Flesh whitish, melting, juicy, sweet, rich, slightly aromatic. Good to very good. October, November.

DALLAS.

Raised by Governor H. W. Edwards, of New Haven, Conn. Tree upright, vigorous. Young wood reddish brown. A profitable pear to grow, as it produces abundantly and keeps long after gathering.

Fruit rather large, roundish, obovate obtuse pyriform. Skin rough, deep yellow, nearly covered with cinnamon rus-

set, often with a shade of rich red in the sun. Stalk long, rather stout, inserted in a slight depression, sometimes in a small cavity, russeted. Calyx half closed; basin somewhat

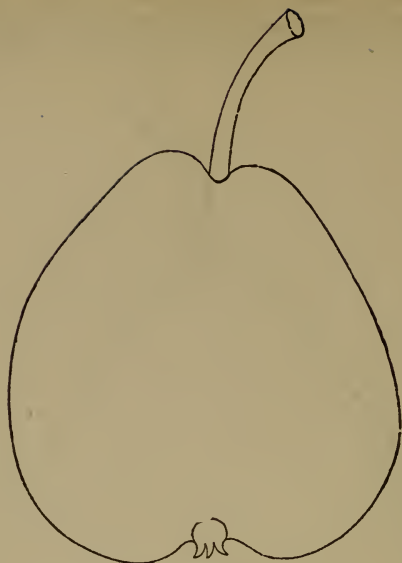


Dallas.

abrupt, slightly corrugated. Flesh yellowish white, a little coarse at the core, juicy, half melting, sweet, aromatic. Very good. October, November.

DANA'S HOVEY.

Raised by Francis Dana, of Roxbury, Mass. Tree vigorous, hardy, and productive. Young wood olive yellow brown, retains its foliage late in season. This is one of the highest-flavored Pears, next to the Seckel, that we have known. It lacks in size for a market variety, but as an amateur sort is one of the most desirable.



Dana's Hovey.

Fruit small, obovate obtuse pyriform, regular. Skin greenish yellow or pale yellow, considerably netted and patched with russet, and sprinkled with many brown dots. Stalk rather short, a little curved, set in a slight cavity, sometimes by a lip. Calyx open. Basin small, uneven, and slightly russeted. Flesh yellowish, juicy, melting, with a sugary, rich, aromatic flavor. Best. November to January.

DEARBORN'S SEEDLING.

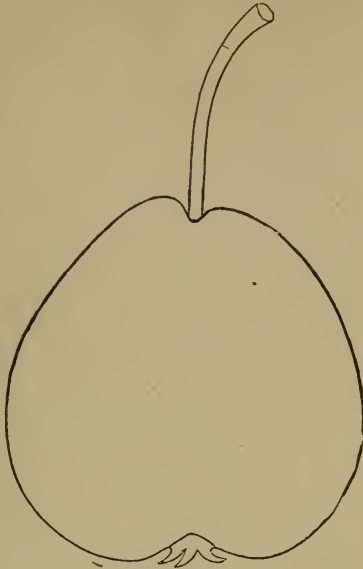
Nones.

Dearborn's Sanding.

A very admirable early Pear, of first quality, raised in 1818, by the Hon H. A. S. Dearborn, of Boston. It bears most abundant crops, and is one of the most desirable early varieties, succeeding the Bloodgood, and preceding the Bartlett. Young shoots long, reddish brown.

Fruit scarcely medium size, roundish pyriform, and very regularly formed. Skin very smooth, clear light yellow, with a few minute dots. Stalk slender, rather more than an

inch long, set with very little depression. Calyx with delicate spreading segments, set in a very shallow basin. Flesh



Dearborn's Seedling.

white, very juicy, and melting, Sweet and sprightly in flavor. Very good. Ripens about the middle of August.

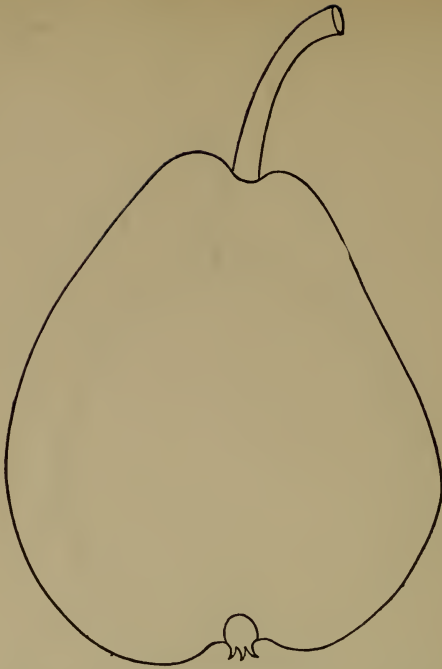
DÉSIRÉE CORNELIS.

Doctor Cornelis.

Cornelis.

Raised by M. Bivort. Tree hardy, vigorous, very productive. Young wood, cinnamon russet brown.

Fruit medium, obovate pyriform, slightly obtuse. Skin fair, pale yellow, almost waxy, with nettings of russet and irregular conspicuous brown dots. Stalk medium, curved, set in a slight cavity. Calyx partially closed. Basin small. Flesh very white, juicy, half melting, sugary. Very good. Early September.



Désirée Cornelis.

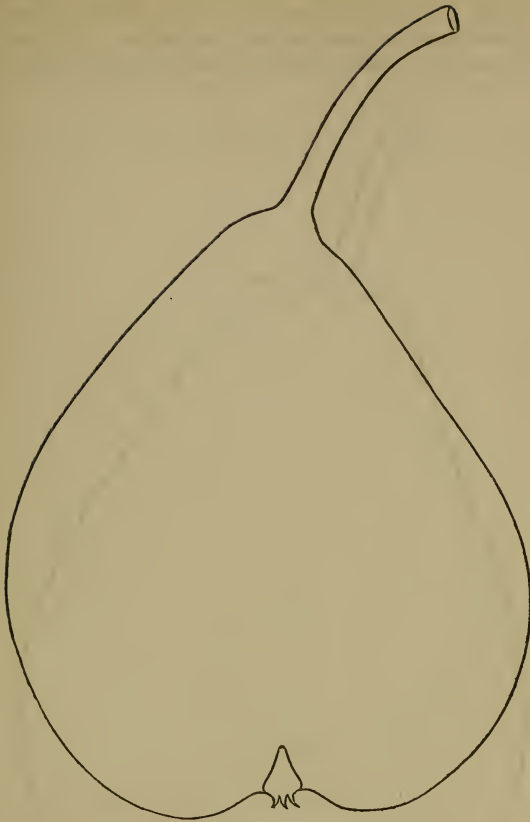
DE TONGRES.

Poire Durandean.

Beurré Durandean.

This fine fruit was raised by M. Durandean, of Tongres, France. Tree vigorous, with long slender branches, pyriform, bears young and abundantly. In some seasons it sheds its leaves early, when the fruit does not ripen completely. Young shoots olive yellow brown.

Fruit large, roundish acute pyriform, slightly irregular. Skin pale yellow, covered with rich cinnamon russet, which becomes crimson on the sun-exposed side. Sprinkled with russet and brown dots. Stalk long, curved, inserted without depression, often by a lip. Calyx small, open, or partially closed. Segments short, erect. Basin medium, uneven. Flesh white, fine, melting, juicy, vinous, rich saccharine. Very good. October.



De Tongres.

DIX.

Lewis, erroneously of the French.

The Dix is, unquestionably, a fruit of the highest excellence, and deserves the attention of all planters. It is one of the hardiest of pear-trees, but the tree does not come into bearing until it has attained considerable size. The young branches are dull olive-yellow brown, upright, and slender. The original tree stands in the garden of Madame Dix, Boston. It bore for the first time in 1826.

Fruit large, oblong, or long pyriform. Skin roughish, fine deep yellow at maturity, marked with distinct russet dots, and sprinkled with russet around the stalk. Calyx small for so large a fruit. Basin narrow, and scarcely at all sunk.



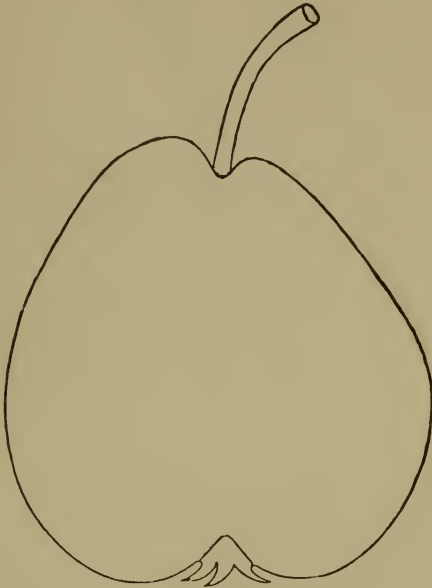
Dix.

Stalk rather stout, short, thicker at each end, set rather obliquely, but with little or no depression. Flesh not very fine-grained, but juicy, rich, sugary, melting, and delicious, with a slight perfume. Very good to best. October and November.

DOCTOR NELIS.

A Belgian variety, originated in 1847, and named and dedicated to a physician. Tree moderately vigorous and productive. Young wood olive yellow brown.

Fruit medium, roundish pyriform, slightly obtuse. Skin greenish yellow, with a shade of red in the sun, somewhat



Doctor Nelis.

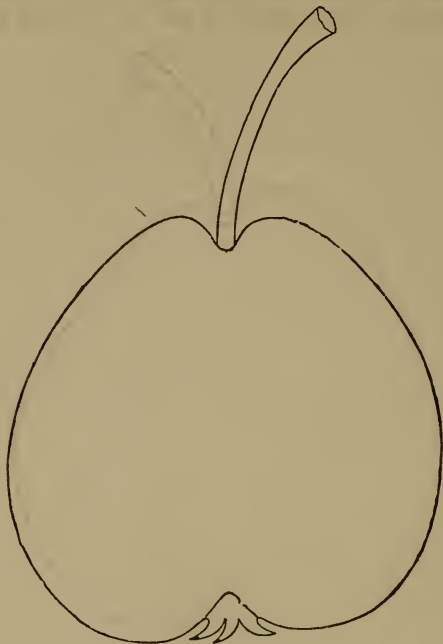
patched and netted with russet, and sprinkled with russet green dots. Stalk short, a little inclined, set in a small, russeted cavity. Calyx large, open. Flesh whitish, juicy, melting, sweet, pleasant, slightly vinous. Very good. Last of September.

DOCTOR REEDER.

Reeder's Seedling.

Raised from seed of the Winter Nelis by Dr. Henry Reeder, Varick, Seneca Co., N. Y. Tree very hardy, healthy, vigorous, spreading, open form, an excellent bearer. Young, shoots warm olive brown.

Fruit small to medium, roundish obtuse pyriform, compressed, often apparently slightly furrowed on one side. Skin yellow, netted and patched with russet nearly over the whole surface, and thickly sprinkled with the russet dots. Stalk long and slender, slightly curved, a little inclined, in a



Doctor Reeder.

small cavity. Calyx large and open. Segments large, lying flat on the fruit. Basin medium, nearly regular. Flesh fine, juicy, melting, buttery, a little granular, very sugary, vinous, with a high musky perfume. Very good to best. November.

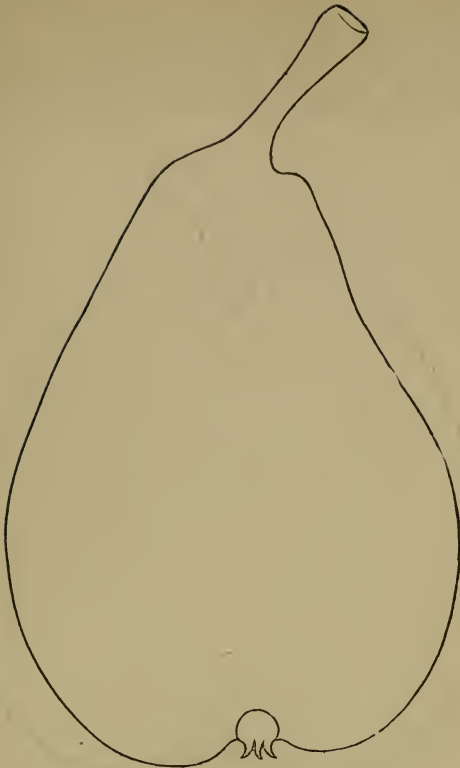
DOYEN DILLEN.

Deacon Dillen.

Doctor Dillen.

One of Van Mons' Pears. Tree vigorous, upright, productive. Young wood olive, yellow brown.

Fruit rather large, oblong pyriform. Skin fine yellow, inclining to russet, thickly sprinkled with russet specks. Stalk short, thick, inserted in a slight depression, sometimes by a



Doyen Dillen.

lip. Calyx small, half open. Basin of moderate depth. Flesh white, juicy, melting, buttery, sweet, and rich. Very good. October, November.

DOYENNÉ BOUSSOCK.

Doyenné Boussouck Nouvelle.
Beurré de Merode.
Double Philippe.
Bossoch.

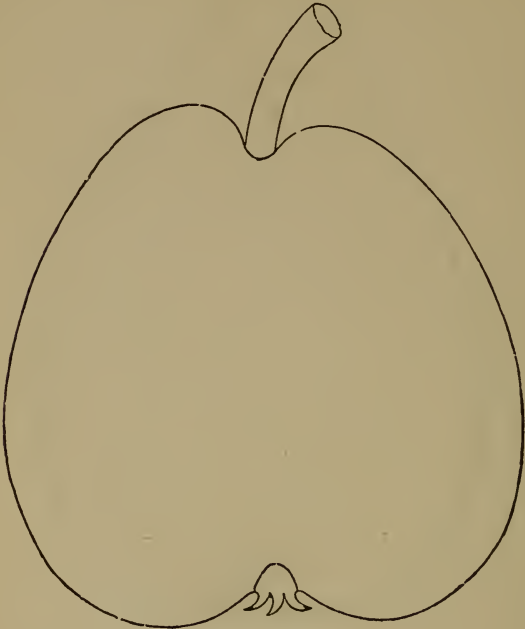
Beurré Boussock
Albertine.
Beurré de Westerloo.
Beurré Magnifique.

Doyenné de Merode.

This Belgian Pear proves one of the most vigorous of trees,

and profitable as a market sort. Tree vigorous, upright, spreading. Young wood dull reddish brown.

Fruit varying in form, obovate inclining to pyriform, or roundish obtuse obovate. Skin rough, deep yellow, netted and clouded with russet, with a warm check. Stalk rather



Doyenné Boussock.

short and stout, inserted in a round cavity. Calyx open. Basin shallow. Flesh buttery, juicy, melting, sweet, aromatic, and excellent. Very good. September and October.

DOYENNÉ D'ALENÇON.

Doyenné d'Hiver d'Alençon.

Doyenné Marbré.

Doyenné Gris d'Hiver Nouveau.

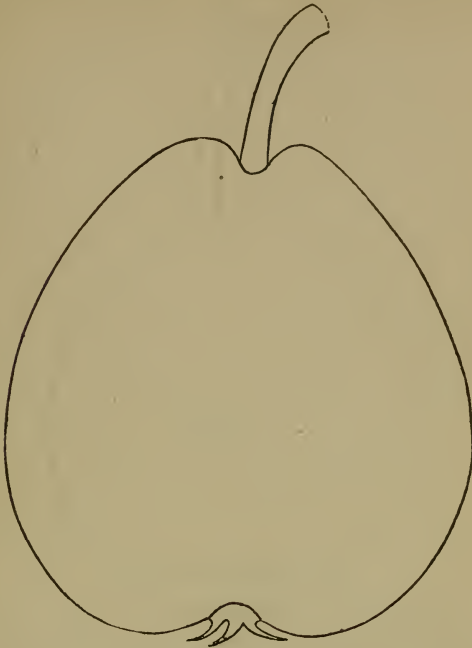
Doyenné d'Hiver Nouveau.

St. Michael d'Hiver.

A foreign Pear, of unknown origin. Tree moderately vigorous and productive. Young shoots dull olive brown.

Fruit medium, roundish oval, inclining to obovate pyriform.

Skin rough, yellow, shaded with dull crimson or carmine, sprinkled, netted, and patched with russet brown dots. Stalk of moderate length, pretty large, inserted in a medium cavity.



Doyenné d'Alençon.

Calyx open. Basin rather shallow, uneven. Flesh yellowish, somewhat granular, buttery, juicy, sugary, very rich, sprightly, and highly perfumed. Very good. December to April.

DOYENNÉ D'ÉTÉ.

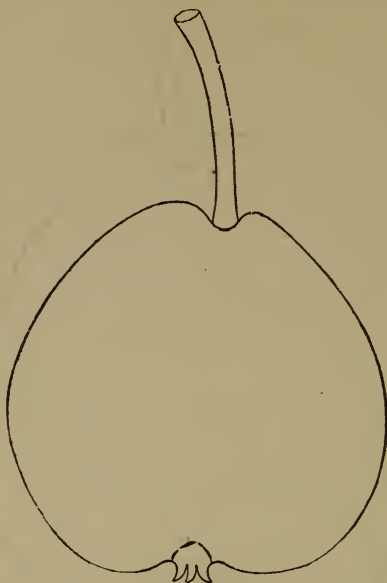
Summer Doyenné.
Doyenné de Juillet.
St. Michael d'Été.

Jolliemont.
Roi Jolimont.
Jolimont.

Jolivet.

One of the Van Mons' seedlings, obtained in 1823. Tree vigorous, upright, an early and abundant bearer. Young shoots reddish yellow brown.

Fruit small, roundish, slightly pyriform. Skin smooth, fine yellow, often shaded with bright red, and covered with numerous gray or russet dots. Stalk rather long and thick, fleshy at its junction with the fruit, almost without depression,



Doyenné d'Été.

Calyx small and open, in a very shallow, slightly corrugated basin. Flesh white, melting, juicy, with a sweet, pleasant flavor. Good to very good. Last of July.

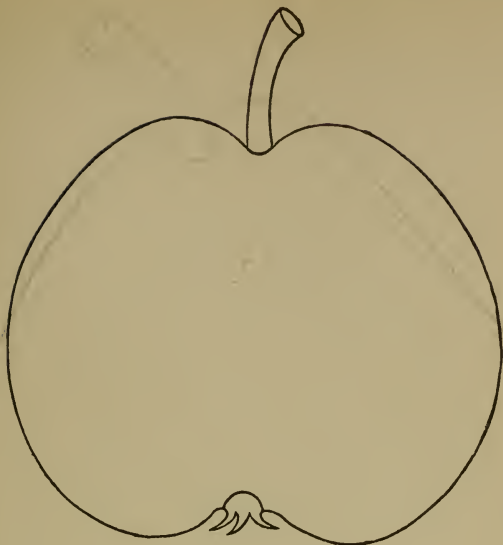
DOYENNÉ DEFAIS.

Defays.

Doyenné d'Affay.

Originated at Angers, France. Tree moderately vigorous. Young wood dull olive brown, with many white specks.

Fruit medium or below, roundish oblate. Skin pale yellow, sometimes a slight shade of red in the sun, traces of russet and sprinkled with brown dots. Stalk short, a little curved, in a broad cavity. Calyx open. Basin abrupt, furrowed. Flesh white, juicy, melting, sweet, pleasant, slightly aromatic. Good to very good. October.

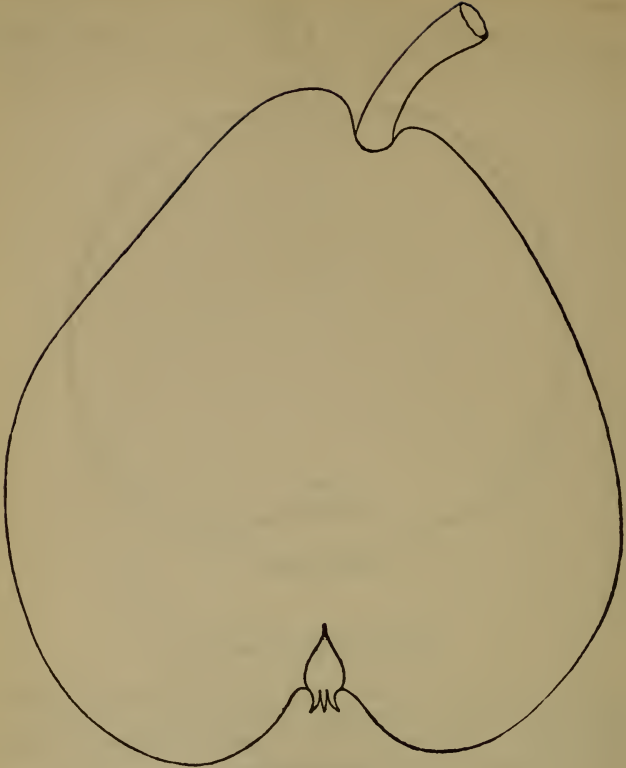


Doyenné Defays.

DOYENNÉ DU COMICE.

A French Pear, of comparatively recent introduction, which originated at Angers, France, and which promises to be of much value. Tree moderately vigorous, upright. Young wood rich warm reddish-yellow brown.

Fruit large, varying, roundish pyriform or broad obtuse pyriform. Skin greenish yellow, becoming fine yellow at maturity, often lightly shaded with crimson and fawn in the sun, slight nettings and patches of russet, and thickly sprinkled with russet dots. Stalk short, stout, inclined, and set in a small cavity, often russeted. Calyx small, open or half closed. Basin large, deep, and uneven. Flesh white, fine, melting, a little buttery, juicy, sweet, rich, slightly aromatic. Very good or best. Core small. October, November.



Doyenné du Comice.

DOYENNÉ GRAY.

Gray Butter Pear.

Gray Deans.

Gray Doyenné.

Red Doyenné.

St. Michel Doré.

Doyenné Galeux.

Doyenné Boussouck, of some.

Doyenné Gris.

Doyenné Rouge.

Doyenné Roux.

Doyenné d'Automne.

Red Beurré, } incorrectly

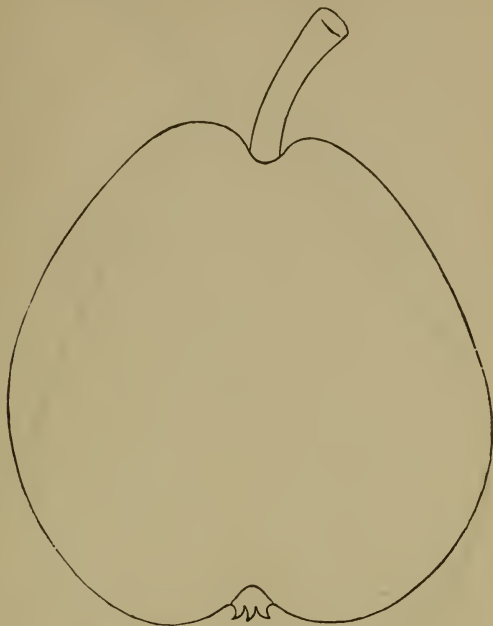
Beurré Rouge, } of some.

Le Beurré.

The Gray Doyenné strongly resembles the White Doyenné in flavor and general appearance, except that its skin is covered all over with a fine, lively cinnamon russet. It is a beautiful Pear, usually keeps a little longer, and is considered

by many rather the finer of the two. Shoots upright, grayish brown.

Fruit of medium size, ovate obovate, but usually a little rounder than the White Doyenné. Skin wholly covered with smooth cinnamon russet (rarely a little ruddy next the



Doyenné Gray.

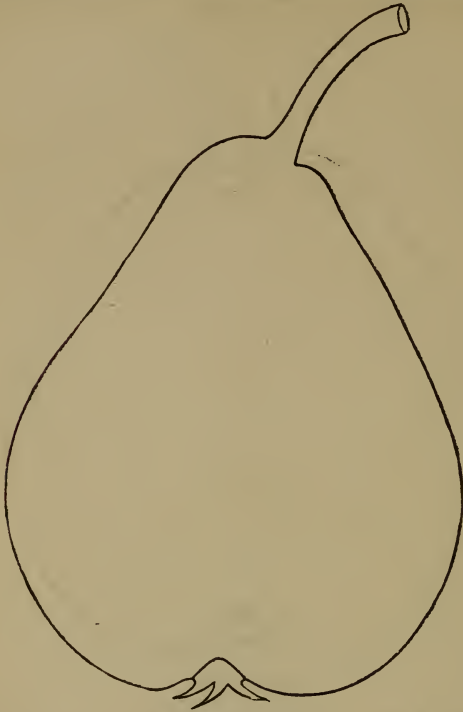
sun). Stalk half to three-fourths of an inch long, curved, set in a narrow, rather deep and abrupt cavity. Calyx small, closed, and placed in a smooth, shallow basin. Flesh white, fine-grained, very buttery, melting, rich, and delicious. Best. Middle of October, and will keep many weeks.

DUC DE BRABANT,

Fondante des Charneuse.	Jamin.	Waterloo.
Miel d'Waterloo.	Beurré Charneuse.	Belle Excellente.
	Beurré de Waterloo.	

A Belgian Pear. Tree hardy, vigorous, productive. Young wood olive-brown grayish.

Fruit large, oblong pyriform, sometimes acute, sometimes obtuse. Skin greenish, shaded with crimson on the sunny side, and thickly sprinkled with greenish dots. Stalk long, curved, and twisted, somewhat fleshy at its insertion, by a



Duc de Brabant.

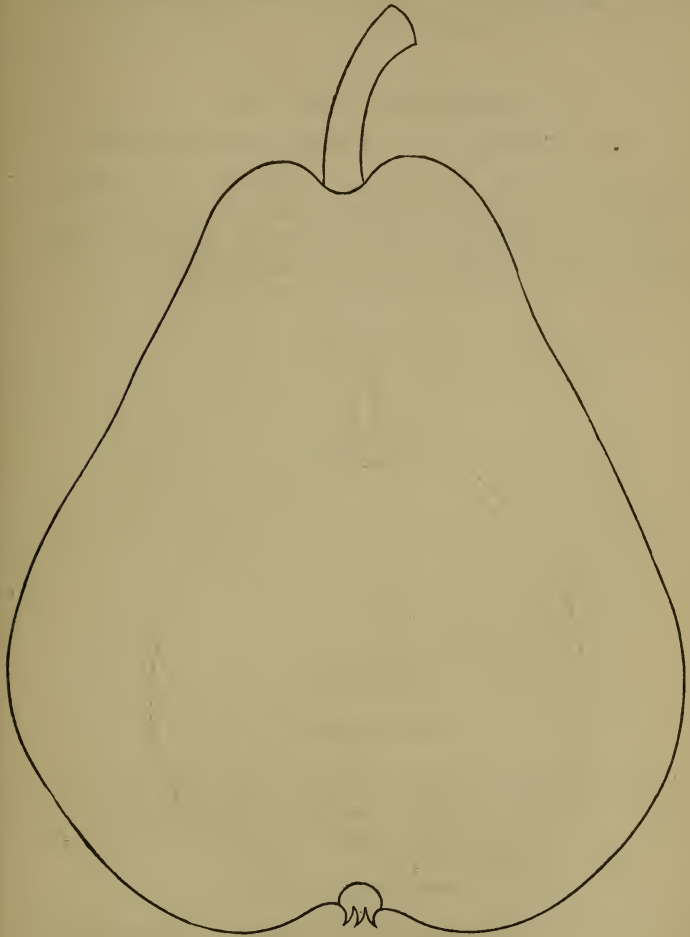
lip, and sometimes in a small cavity. Calyx large and open. Basin shallow and slightly uneven. Flesh whitish green, very juicy, buttery, melting, with a refreshing, vinous flavor. Very good. October, November.

DUCHESSÉ D'ANGOULÈME.

Beurré Soule.

A magnificent large dessert Pear, sometimes weighing a pound and a quarter, named in honor of the Duchess of An-

goulême, and said to be a natural seedling, found in a forest hedge near Angers. When in perfection, it is a most delicious fruit of the highest quality. We are compelled to add, however, that the quality of the fruit is a little uncertain on



Duchesse d'Angoulême.

young standard trees. The tree is a strong grower, the shoots upright, reddish-yellow brown.

Fruit very large, roundish obtuse pyriform. with an un-

even, 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 planted in an irregular cavity. Calyx set in a somewhat knobby basin. Flesh white, buttery, and very juicy, with a rich and very excellent flavor. Very good. October.

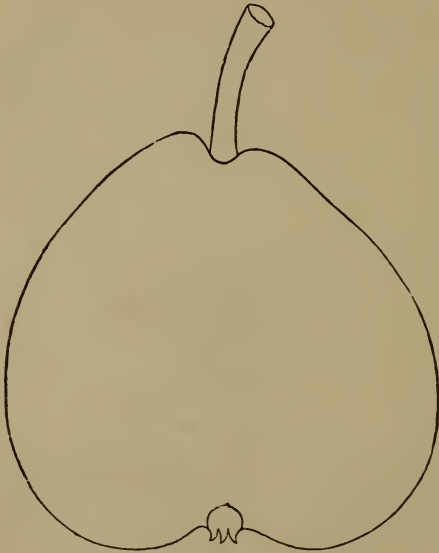
DUCHESSÉ DE BERRY D'ÉTÉ.

Duchesse de Berry.

Duchesse de Berry de Nantes.

Originated at Nantes, France. Tree vigorous, upright, productive. Young wood reddish brown.

Fruit small, roundish oblate, obscurely pyriform. Skin yellow, shaded with light red, nettings and patches of rus-



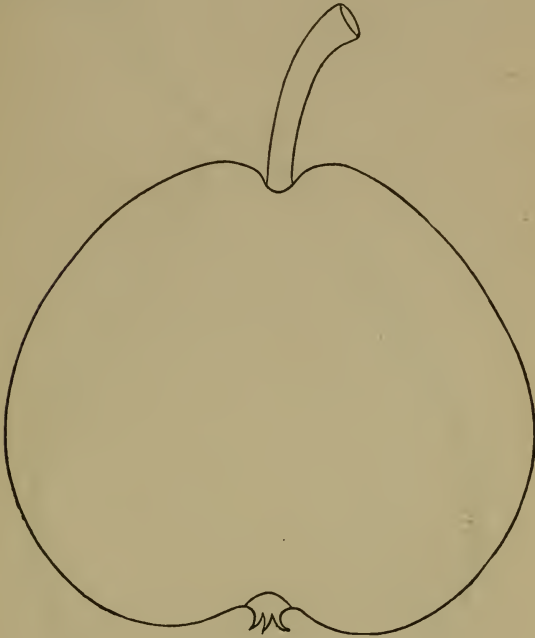
Duchesse de Berry d'Été.

set. Stalk short, inserted in a small cavity. Calyx partially open, set in a broad shallow basin. Flesh juicy, melting, with a good, vinous flavor. Good to very good. Ripens last of August.

DUCHESS DE BOURDEAUX.

Beurré Perrault.

Originated with M. Secher, near Angers, France, in 1850. Tree moderately vigorous, very productive. Young wood dull olive brown.



Duchesse de Bourdeaux.

Fruit medium, roundish, inclining to obtuse pyriform. Skin yellow, sometimes a little red in the sun, netted and traced with russet, and sprinkled with russet dots. Stalk rather long, stout, inserted in a small cavity. Calyx half open. Basin medium, uneven. Flesh white, half fine, moderately juicy, half melting, sweet, pleasant, perfumed. Good to very good. December to February.

DUCHESS D'ORLEANS.

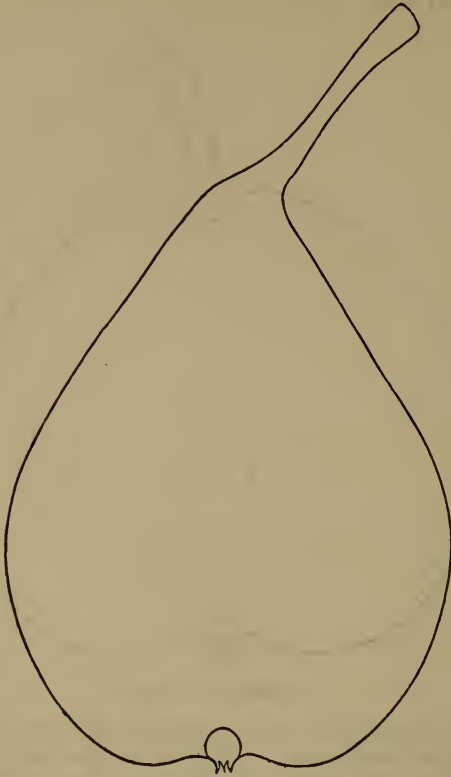
Beurré St. Nicholas.

St. Nicholas.

A French Pear, of which the precise location of origin is

unknown. Tree a good grower, upright, with long-jointed wood. Young shoots dull olive brown, slightly grayish.

Fruit rather above medium, elongated pyriform, narrowing towards the stalk and basin. Skin yellowish green, sometimes a sunny cheek, with brown dots. Stalk long, pretty



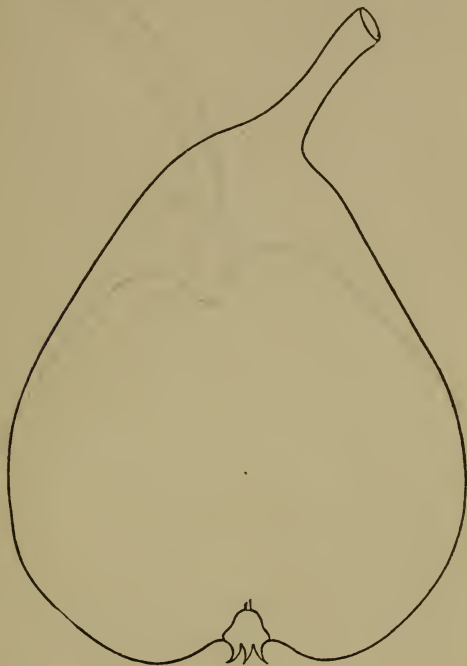
Duchesse d'Orleans.

large, inclined in a slight depression by a lip. Calyx nearly closed, set in a shallow uneven basin. Flesh juicy, melting, slightly aromatic, with a very good flavor. Very good. September, October.

EASTERN BELLE.

Raised by Henry McLaughlin, Bangor, Maine, who says the tree is hardy, vigorous, a regular bearer, and the fruit fair and of excellent quality.

Fruit medium, obovate pyriform, somewhat obtuse. Skin pale yellow, often shaded with light red in the sun, a few nettings and patches of russet, and many russet dots. Stalk

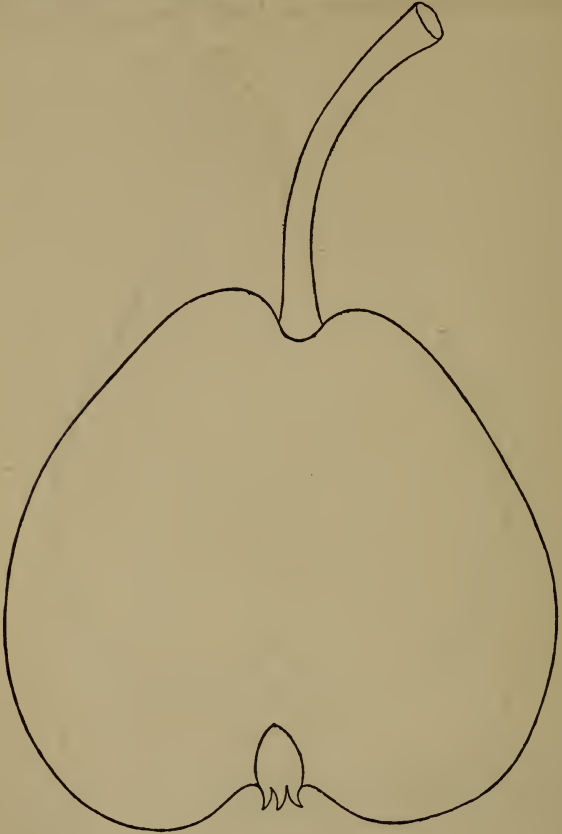


Eastern Belle.

short, stout, inclined, sometimes fleshy at its insertion, and sometimes in a slight depression, much russeted. Calyx open; basin medium, nearly regular, slight russet. Flesh whitish yellow, a little coarse at the core, juicy, half melting, very sweet, rich, slightly aromatic, and a peculiar, slight musky perfume. Very good. September.

EDMONDS.

Origin, town of Brighton, N. Y. A chance seedling on the farm of Eliphalet Edmonds. Tree a strong grower, very productive, requires to be picked early. Young shoots yellowish-reddish brown, with large spots.



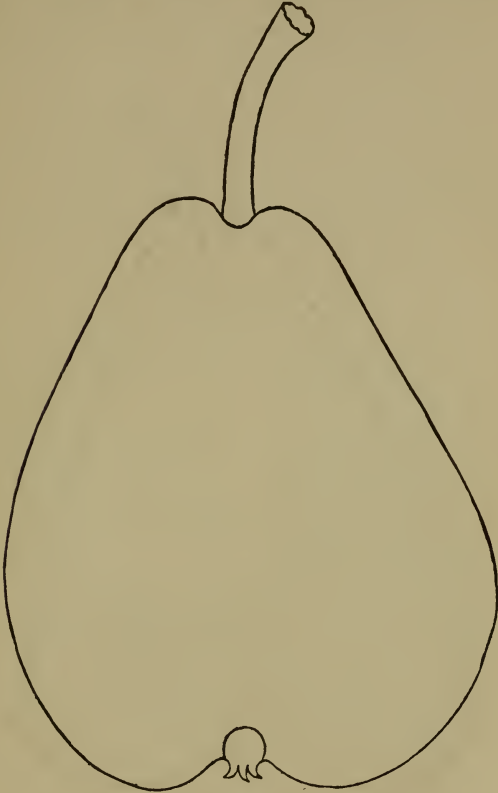
Edmonds.

Fruit rather large, roundish oblate obtuse pyriform. Surface uneven, yellow, bronzed red in sun, and slight nettings of russet and russet dots. Stalk long, inclined, curved, fleshy at insertion. Cavity broad, uneven. Calyx open. Segments short, erect. Basin abrupt, corrugated. Flesh fine-

grained, whitish, juicy, half melting, sweet, with a peculiar nut-like flavor. Very good. September.

ELLIS.

Raised from seed of the Seckel, by Mrs. Sarah H. Ellis, of New Bedford, Mass., in 1843. The tree is a vigorous



ELLIS.

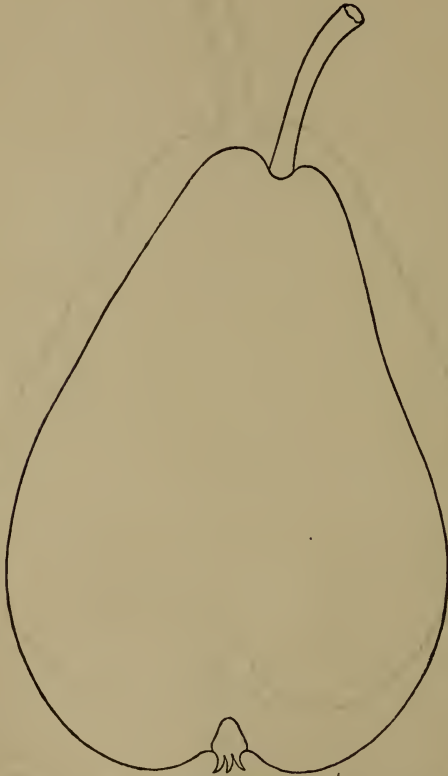
grower, hardy, and prolific. Young shoots dull yellow brown, with long gray specks.

Fruit large, oblong obovate obtuse pyriform. Surface somewhat uneven, greenish yellow, partially patched and netted with russet, and sometimes a shade of crimson in the sun,

many russet dots. Stalk rather long, curved, and set in a small cavity. Calyx open. Segments long, recurved. Basin uneven. Flesh whitish, juicy, melting, sweet, slightly vinous, aromatic. Very good. September and October.

There is another Pear under the name of Ellis, grown in Western New York, entirely distinct.

Fruit medium, acute pyriform, greenish yellow shaded with crimson, red in sun, many small brown dots. Flesh white, juicy, melting, vinous, and often astringent, and disposed to rot at the core. Good. August and early September.



Emile d'Heyst.

EMILE D'HEYST.

This fruit was raised from seed by the late Major Esperen, and dedicated to the son of his friend L. E. Berckmans, of Georgia. It is of Belgian origin, and is one of the very best. The tree is hardy and productive, so much so as to require thinning to obtain full-sized fruit. It holds its foliage quite late in autumn, and holds its fruit well. Tree vigorous, spreading. Young wood olive color.

Fruit large, oblong ovate pyriform, angular and irregular. Skin clear yellow, with brownish orange cheek in sun, netted and patched with russet, and thickly sprinkled with large russet dots. Stalk medium to long, inclined, curved. Cavity slight, often with a lip or fleshy rings at base of stem. Calyx small, closed. Segments short. Basin medium. Somewhat furrowed. Flesh yellowish white, fine-grained, juicy, melting, sweet, slightly vinous and aromatic, rich and excellent. Very good to best. November, December.

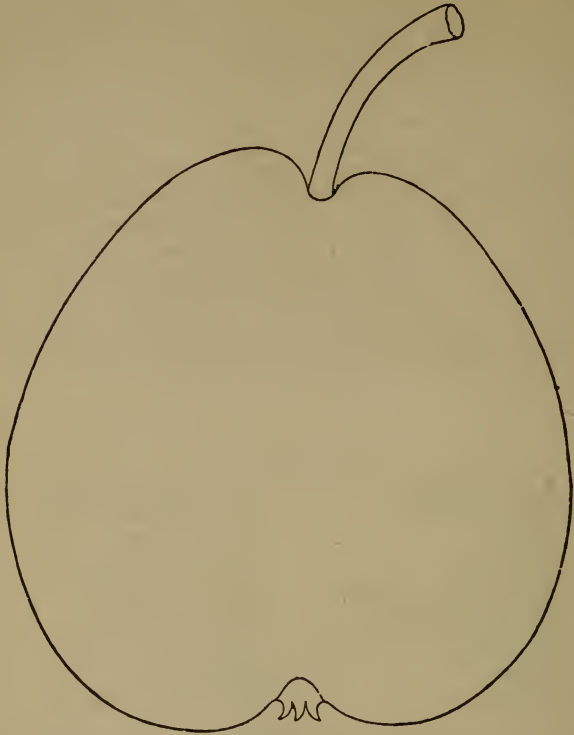
FLEMISH BEAUTY.

Belle de Flandres.	Bergamotte de Flandre.
Bosch Nouvelle.	Beurré Foidard.
Bosch.	Petersilie Peer.
Bosc Sire.	Beurré de Bourgogne.
Poire Davy.	Beurré St. Amour.
Impératrice de France.	Belle des Bois.
Fondante du Bois.	Beurré de Delfinge.
Boschpeer.	Beurré Delfinghem.
Beurré Spence (erroneously).	Beurré Davy.
Brilliant.	Poire de Persil.
Brillante.	Molle Bouche Nouvelle.

An old Pear, supposed of Belgian origin, although foreign authors conflict in regard thereto. The tree is very luxuriant, hardy, and bears early and abundantly; the young shoots upright, reddish olive brown. The fruit requires to be gathered sooner than most pears, even before it parts readily from the tree. If it is then ripened in the house it is always fine, while, if allowed to mature on the tree, it usually becomes soft, flavorless, and decays soon.

Fruit large, roundish obovate obtuse pyriform. Surface a little rough, the ground pale yellow, but mostly covered with marblings and patches of light russet, becoming reddish brown at maturity, on the sunny side. Stalk rather short, from an inch to an inch and a half long, and pretty deeply planted in a peculiarly narrow, round cavity. Calyx short, open, placed in a small round basin. Flesh yellowish white, not very fine-

grained, but juicy, melting, very saccharine and rich, with a slightly musky flavor. Very good. Last of September.



Flemish Beauty.

FONDANTE D'AUTOMNE.

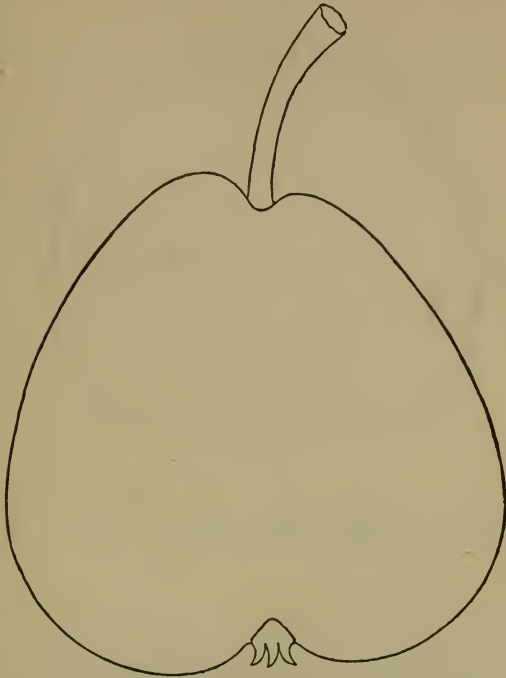
Belle Lucrative.
 Seigneur d'Esperin.
 Bergamotte Fiévé.
 Gresillier.
 Du Seigneur.
 Beurré Lucrative.
 Seigneur.

Arbre Superbe.
 Lucrate.
 Fondante de Maubege.
 Autumn Melting.
 Esperin's Herrenbirne.
 Bergamotte Lucrative.
 Esperen.

This Flemish Pear is, when grown in perfection, one of the very best; but if the trees are overloaded, soil unsuited, or a dull, cloudy, rainy season, it is only second-rate. The tree is

moderately vigorous, healthy, and productive. Young shoots yellowish brown.

Fruit medium size, variable in form, from obovate obtuse pyriform to globular. Pale yellowish green, slightly russeted. Stalk little more than an inch long, stout, often fleshy, obliquely inserted in a slight, irregular cavity. Calyx very



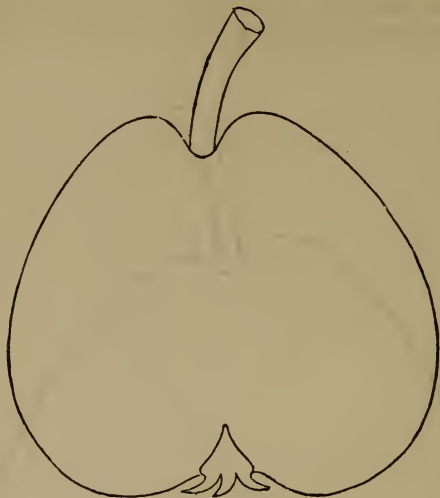
Fondante d'Automne.

short, open, with few divisions, set in a basin of moderate depth. Flesh juicy, melting, sugary, rich, and delicious. Very good to best. Last of September.

FOOTE'S SECKEL.

Raised by Asahel Foote, of Williamstown, Mass., from seed of the Seckel. A very promising new variety, ripening a week or two later than its parent, and a little more vinous. Tree healthy, vigorous, more spreading than Seckel. Young wood dark rich brown.

Fruit small, oblate obtuse pyriform. Skin yellow, shaded with brownish crimson in the sun, nearly covered with rich crimson russet. Stalk short, fleshy. Cavity small. Calyx



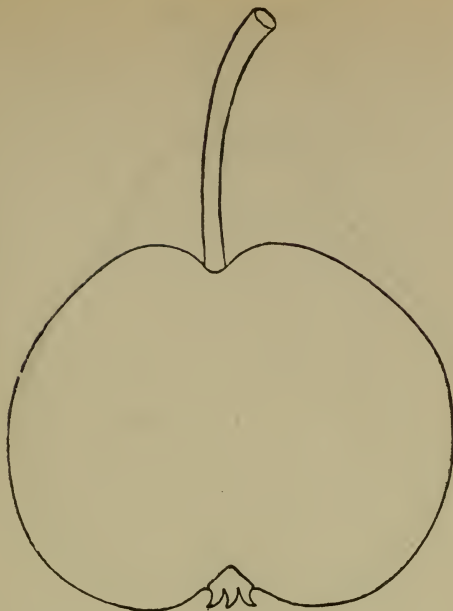
Foote's Seckel.

open. Basin medium, rather deep. Flesh whitish, fine, juicy, melting, sugary, slightly vinous. Very good. September.

FULTON.

This American Pear is a native of Maine, and is a seedling from the farm of Mrs. Fulton, of Topsham, in that State. It is very hardy, and bears every year abundantly. Tree moderately vigorous. Young shoots rather slender, and yellowish-reddish brown.

Fruit below medium size, roundish, flattened. Skin at first entirely gray russet in color, but at maturity of a dark cinnamon russet. Stalk one to two inches long, slender, planted in a narrow cavity. Calyx with long segments sunk in an uneven hollow. Flesh half buttery, moderately juicy, with a sprightly, agreeable flavor. Very good. October and November.



Fulton.

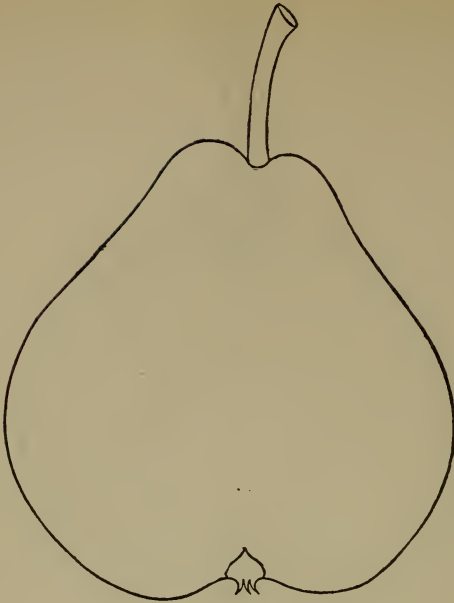
GENERAL TAYLOR.

Homewood.

Keyports.

We have no doubt of this being a native American seedling. It was first introduced by L. N. Rogers, of Baltimore, who found it in the town of Franklin, Md. Afterwards it was said to have been brought from Germany by a man named Keyports, but we can find nothing resembling it in any foreign pomological work. Tree vigorous, upright. Young wood reddish-brown grayish.

Fruit medium, roundish oblate obtuse pyriform, yellow, shaded in the sun with thin light rich crimson, partially netted and patched with russet, much russet near the calyx, and many russet dots. Stalk medium length and thickness, a little inclined in a small cavity. Calyx partially open. Basin lightly corrugated. Flesh whitish, a little coarse, juicy, melting, sweet, slight musky perfume. Good to very good. October, November.



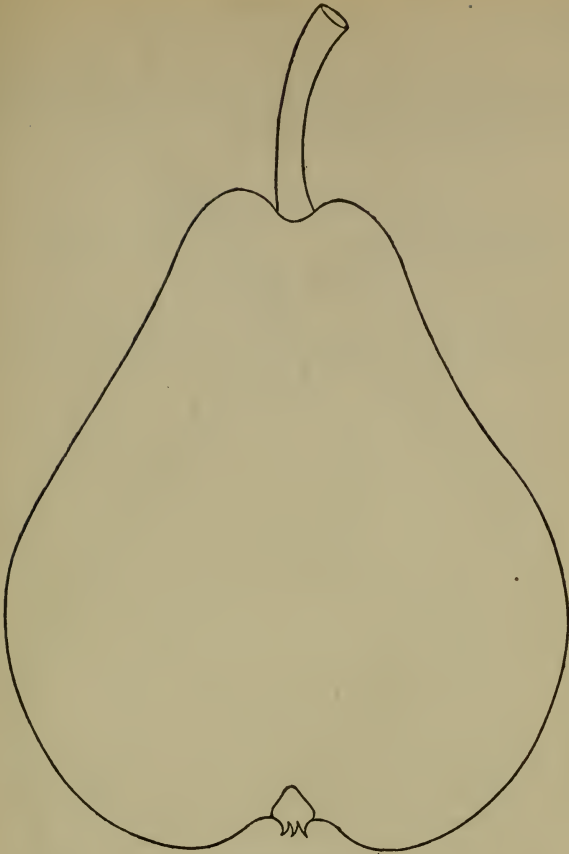
General Taylor.

GENERAL TOTLEBEN.

General Todleben.

Raised by M. Fontaine, of Gheling. First fruited in 1855, and first described by M. Adolphe Papeleu, in 1858. Tree a vigorous grower, irregular, spreading, productive. Young wood reddish-yellow brown.

Fruit above medium or large, roundish obtuse pyriform, greenish yellow, patched and netted with russet, and many russet brown dots. Stalk long, rather stout, often curved. Cavity small. Calyx small, half closed, with short segments. Basin large, deep, uneven. Flesh whitish yellow, a little coarse, juicy, melting, sweet, and aromatic. Very good. November, December.



General Tottleben.

GLOU-MORCEAU.

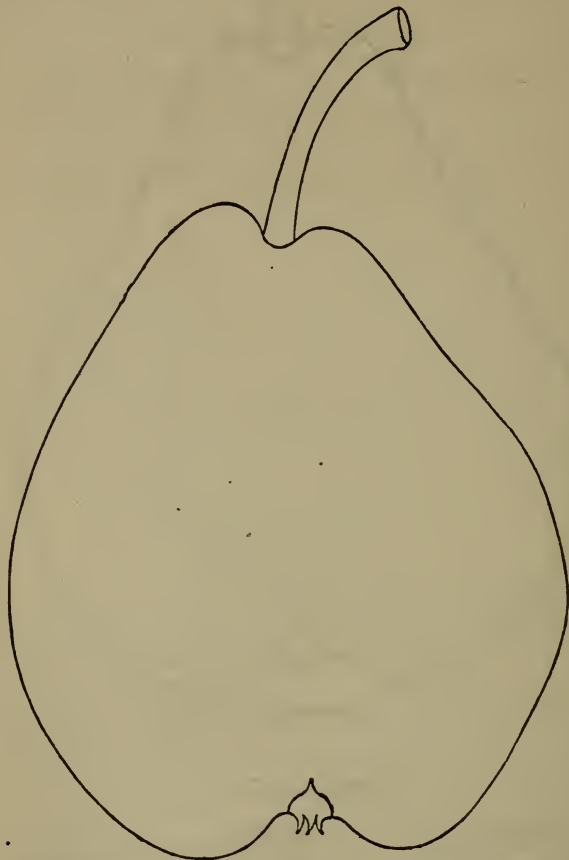
Gloux Morceaux,
 Beurré d'Hardenpont.
 Hardenpont d'Hiver.
 Linden d'Automne.
 Beurré d'Arenberg.
 Glou Morceau.
 Kronprinz Ferdinand.
 ——— von Oestreich.
 Beurré de Cambron.

Trimble.
 Goulue Morceau de Cambron.
 Beurré de Kent.
 Glou Morceau de Cambron.
 Beurré d'Hardenpont de Cambron.
 Beurré Lombard.
 Beurré d'Ardenpont.
 Glout Morceau.
 Hardempont.

Got Luc de Cambron.
Woolaston.
Potts.

Victoria.
Langlier's Victoria.

An old Flemish Pear, originated with M. d'Ardempont, canon of Tournay. The growth of the tree is distinct, having dark olive shoots, spreading in habit.



Glou-morceau.

Fruit rather large, varying in form, but usually obovate ovate obtuse pyriform, smooth, thin, pale greenish yellow, marked with small green dots, and sometimes with thin patches of greenish brown. Stalk rather slender and straight,

an inch or more long, planted in a small, regular cavity. Calyx usually with open divisions, set in a moderately deep basin. Flesh white, fine-grained, and smooth in texture, buttery, very melting, with a rich sugary flavor, with no admixture of acid. Sometimes astringent in heavy soils. Good to very good. December.

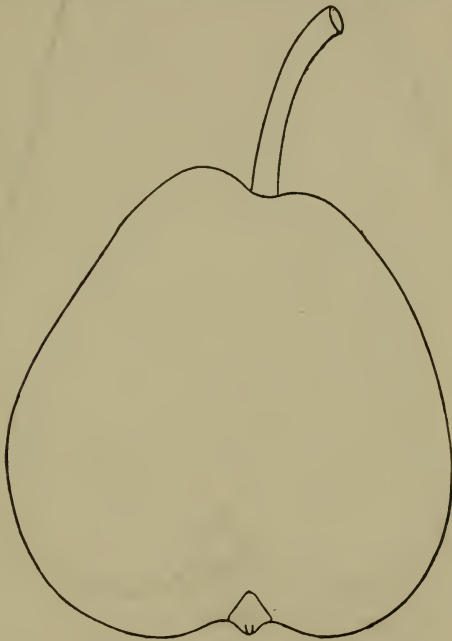
GOLDEN BEURRÉ OF BILBOA.

Hooper's Bilboa.
Driver?

Beurré Doré de Bilboa.
Beurré Gris de Bilboa.

Beurré Gris de Portugal.

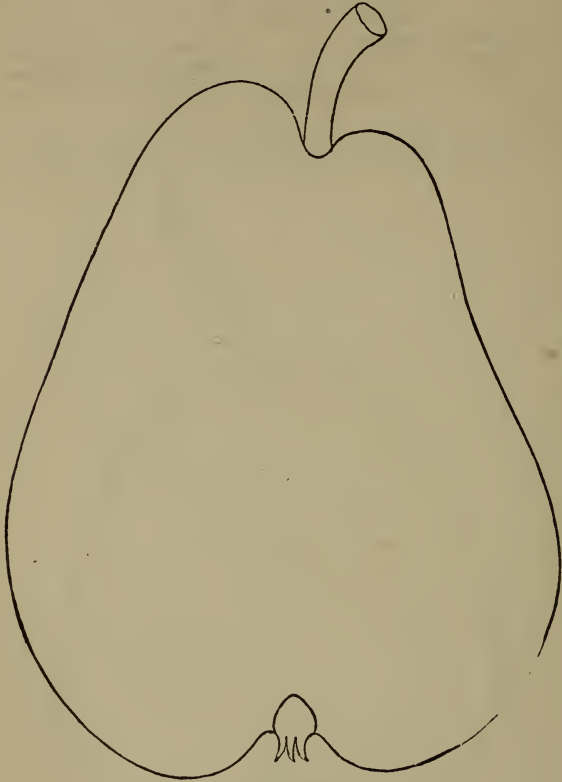
The Golden Beurré of Bilboa was imported from Bilboa, Spain, about 1827, by Mr. Hooper, of Marblehead, Mass.



Golden Beurré of Bilboa.

Its European name is unknown. The tree is healthy, hardy, and a vigorous grower, forming a beautiful upright, round head, and producing abundantly. Shoots stout, upright, light yellowish brown.

Fruit medium, regular obovate pyriform, golden yellow, evenly dotted with small brown dots, and a little marked with russet, especially round the stalk. Stalk about an inch and a half long, rather slender, set in a small cavity. Calyx small, closed, placed in a slight basin. Flesh white, very buttery and melting, and fine-grained with a slightly vinous flavor. Very good. First to the middle of September.



Goodale.

GOODALE.

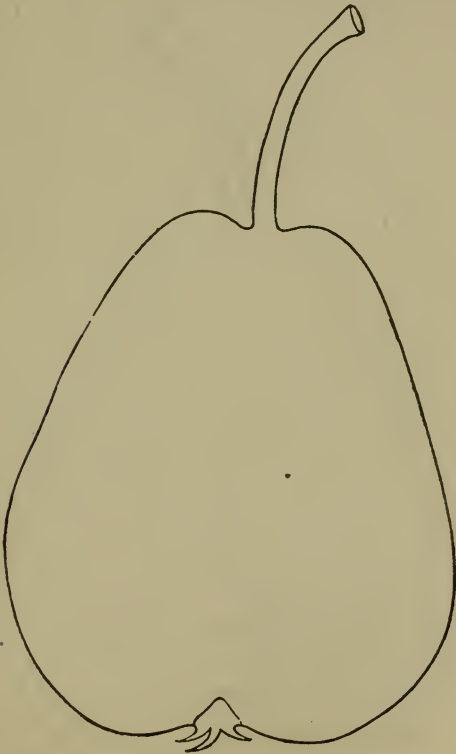
Goodale's Seedling.

Saco.

Raised from seed of the McLaughlin, by Enoch Goodale, Saco, Me. Its size and period of ripening make it promise

of high value as a market sort. The tree is very hardy, a vigorous, thrifty grower, upright in habit, and uniformly productive. Young wood very stout, olive.

Fruit large, roundish oblong obtuse pyriform, sometimes obtuse, sometimes acute, skin pale greenish yellow, sometimes a shade of red in the sun, slightly netted and patched with russet, and thickly sprinkled with small russet brown dots. Stalk rather short and set in an inclined cavity of considerable depth, sometimes a projection one side. Calyx half closed. Basin rather deep and uneven. Flesh whitish, juicy, melting, a little gritty at the core, sweet, slightly vinous, with a brisk, refreshing, musky perfume. Very good. October.



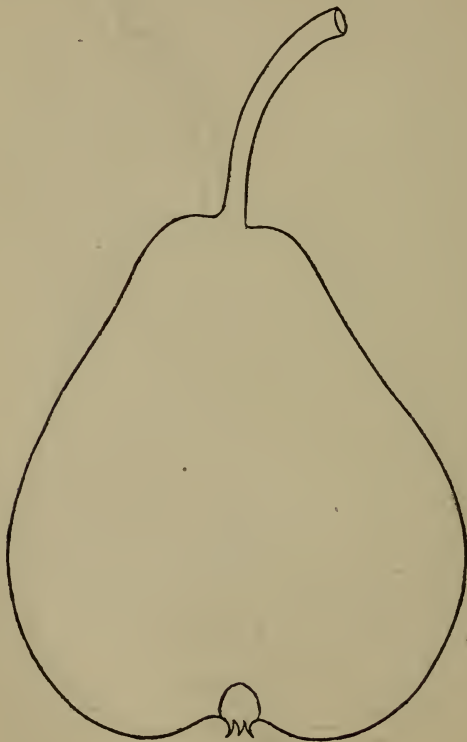
Hanners'

HANNERS'.

Hannas.

Originated in the garden of Mr. Hanners, Boston, Mass. Tree an upright good grower and bearer. Young shoots dull olive.

Fruit large, oblong, very obtuse pyriform, skin pale greenish yellow, slightly netted and patched with russet, and many green and russet dots. Stalk varying, sometimes long, curved, inserted in a broad cavity. Calyx open. Segments long, slender, recurved. Basin shallow, uneven, slightly russeted. Flesh whitish, juicy, melting, pleasant, sweet, a little perfumed. Very good. September.

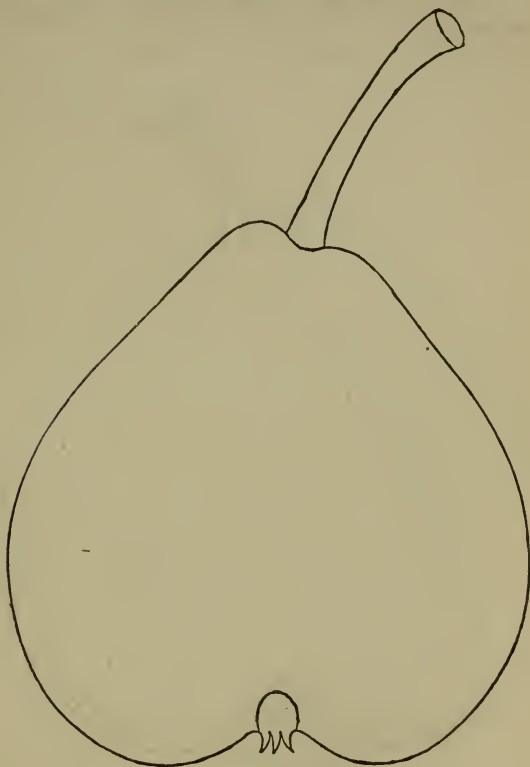


Hélène Grégoire.

HÉLÈNE GRÉGOIRE

Raised by M. Grégoire, of Jodoigne, Belgium. Tree vigorous and productive. Young wood dull reddish brown.

Fruit medium, roundish obtuse pyriform, skin greenish yellow, shaded with red where exposed, a few nettings and patches of russet. Stalk rather long, curved, inserted in a slight depression. Calyx open or half closed, basin small, slightly corrugated, russeted. Flesh whitish, fine, juicy, melting, sweet, rich, slightly aromatic. Very good. October.



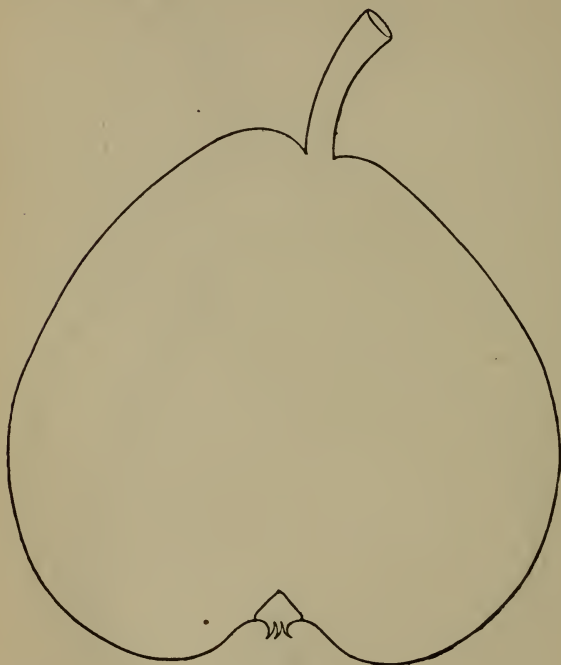
Henkel,

HENKEL.

Cumberland of Belgium.

One of Van Mons' seedlings. Growth vigorous, upright, productive. Young wood dull grayish brown.

Fruit rather large, broad obtuse pyriform, skin pale yellow, sometimes slightly netted and patched with russet, and sprinkled with green and brown dots. Stalk long, inclined, rather stout, inserted in a small cavity. Calyx partially open. Segments short, stiff, sometimes reflexed. Basin rather large, slightly uneven, russeted. Flesh whitish, juicy, melting, with a rich, slightly vinous flavor. Very good to best. September.



Hosenschenck.

HOSENSCHENCK.

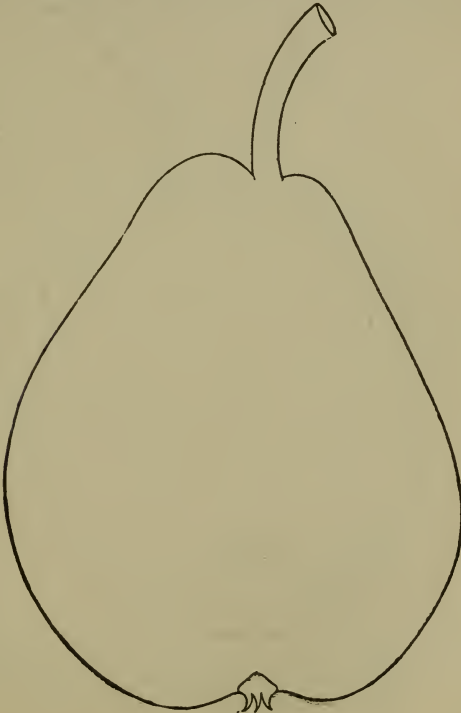
Hosenshenck.
Shenk's.
Watermelon.
Smokehouse.

Queen of August.
Moore's Pound.
Eshleman.
Moore's Pear.

Butter Pear.

This Pear originated on the farm of John Schenck, Manor Township, Pa. Tree vigorous, productive. Young wood grayish olive brown.

Fruit of medium size, roundish obovate, inclining to obtuse pyriform. Skin light yellowish green, rarely with a blush. Stalk about an inch long, rather stout, inserted without much depression, sometimes by a lip. Calyx small, half open. Basin large, deep. Flesh rather coarse, tender, juicy, slightly vinous, melting, with a pleasant flavor. Good to very good. Ripens the last of August.



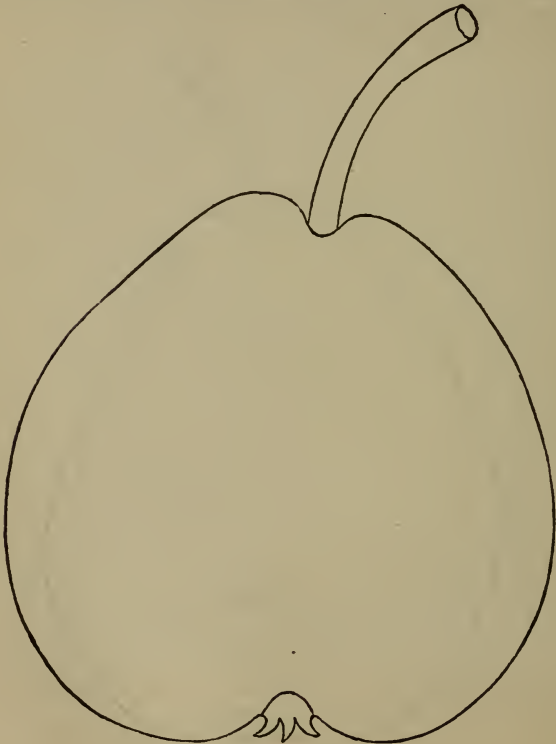
Hovey.

HOVEY.

Doyenné Hovey.

Raised by Andre Leroy, and dedicated to C. M. Hovey, of Boston, Mass. Tree a vigorous, upright grower. Young shoots clear yellow brown.

Fruit medium or above, varying in form from oblong oval to obovate obtuse pyriform, yellow or greenish yellow, slightly sprinkled, netted and patched with russet. Stalk medium, moderately stout, inserted in a small cavity. Calyx half closed, with short, stiff segments. Basin shallow, lightly furrowed and slightly russeted. Flesh yellowish, buttery, juicy, melting, sweet, aromatic. Very good. October, November.



Howell.

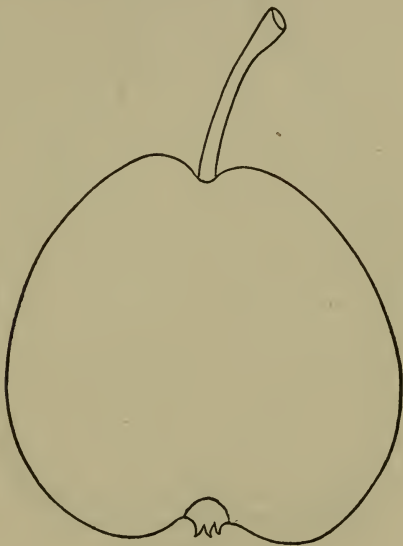
HOWELL.

Raised by Thomas Howell, of New Haven, Conn. A valuable variety. Tree hardy, an upright and free grower. Young shoots reddish-yellow brown, an early and profuse bearer. Fruit generally fair, and esteemed for market.

Fruit rather large, roundish obtuse pyriform, light waxen yellow, often with a finely shaded cheek, thickly sprinkled with minute russet dots, and some russet patches. Stalk medium, inserted without cavity, sometimes by a ring or lip, sometimes in a small cavity. Calyx open. Segments recurved. Basin rather large and uneven. Flesh whitish, juicy, melting, brisk, vinous. Very good. September, October.

HUNTINGTON.

Origin, New Rochelle, and brought to our notice by S. P. Carpenter. It was found by Mr. Huntington, and now stands



Huntington.

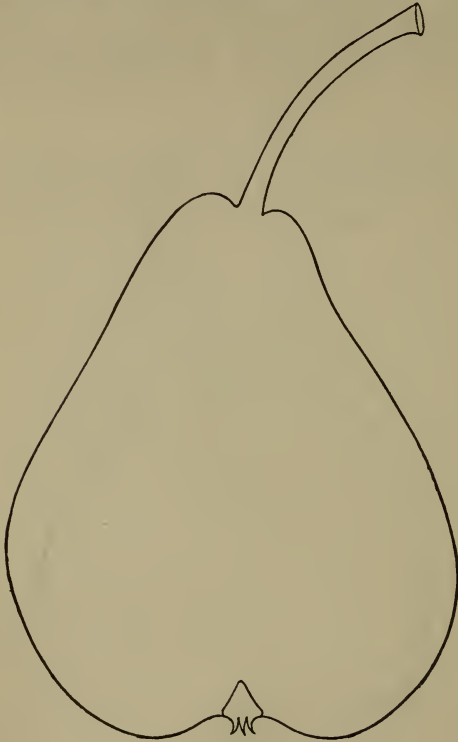
on his grounds. Tree vigorous, forming a pyramid, an early and profuse bearer. Young shoots olive color.

Fruit nearly medium in size, roundish oblate, rough yellow, often shaded with crimson, thickly covered with gray and

crimson dots, and russet patches. Stalk medium or long, nearly straight. Cavity broad and uneven. Calyx open. Segments stiff. Basin broad and open. Flesh white, very juicy, melting, buttery, with a very sweet, vinous flavor, delicately perfumed. Very good. September.

HUYSHE'S PRINCE CONSORT.

Raised by Rev. John Huyshe, of Clythesdon, Devon, England, from seed of Beurré d'Areberg, fertilized by Passe



Huyshe's Prince Consort.

Colmar. This is one of a series of four new Pears, originated by Mr. Huyshe, all of which are said to be of superior excellence. The tree is a vigorous grower, with short-jointed young shoots of a dark dull reddish brown, and indistinct white specks.

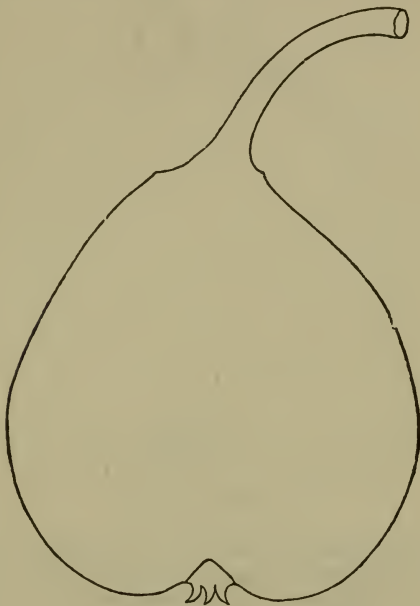
Fruit medium, oblong obtuse pyriform. Skin greenish yellow, partially netted and patched with russet and many russet dots. Stalk rather long, curved, inclined, inserted in a slight depression or small cavity. Calyx open, basin medium, a little uneven. Flesh yellowish, a little coarse at the core, buttery, juicy, half melting, sugary, slightly vinous. Very good. November.

JONES.

Jones's Seedling.

Origin, Kingsessing, near Philadelphia. This is one of the good Pears, and, were it a little larger, would be one of the most valuable. The tree is vigorous and upright in growth, and productive. Young shoots of a dull olive brown.

Fruit rather small, roundish acute pyriform, broad at calyx,



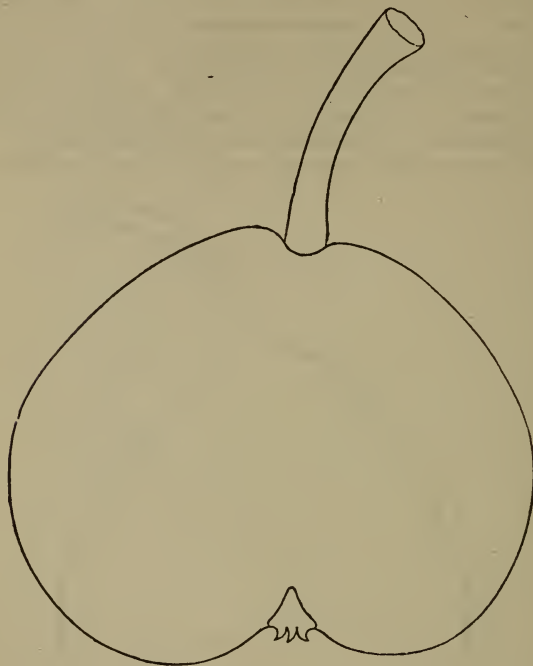
Jones.

tapering to the stem, which meets it by a fleshy junction. Skin yellow, shaded with russet, bright cinnamon on the sunny side. Calyx open, in a broad, shallow, uneven basin. Flesh coarse, granular, buttery, sugary, juicy, melting, rich, slightly aromatic. Very good. October.

JOSEPHINE DE MALINES.

Raised by Major Esperen, of Malines, and proves one among the best of winter varieties. Tree moderately vigorous and productive. Young wood olive-yellow brown, very short-jointed. Buds round, projecting.

Fruit medium, roundish oblate, slightly pyriform, pale greenish yellow, or pale yellow at maturity, netted and patched



Josephine de Malines.

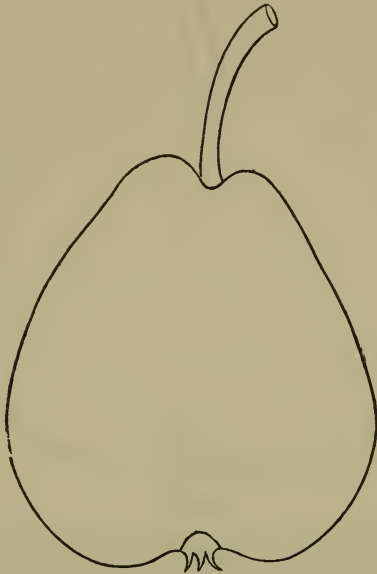
with russet, especially around the stalk, and with many minute brown and russet dots. Stalk enlarged at both ends, curved, inserted in a slight depression, sometimes in a small cavity. Calyx open. Segments short, stiff, nearly erect. Basin large, deep. Flesh fine, pinkish white, juicy, melting, sweet, rich, with a delicate aroma. Very good. January, February.

JULIENNE.

Summer T. Michael.

Gratz.

A handsome summer Pear. It is a productive fruit, and comes into bearing very early. It is often of excellent flavor, and of the first quality; but, unfortunately, it is variable in these respects, and some seasons it is comparatively tasteless and insipid. In the Southern States, and in rich, warm, and dry soils at the North, it is almost always fine. The tree is of thrifty, upright growth, with light yellowish-brown shoots.



Julienne.

Fruit of small size, but varying in different soils; obovate, regularly formed, clear bright yellow on all sides. Stalk light brown, speckled with yellow, a little more than an inch long, pretty stout, inserted in a very shallow depression. Calyx open, set in a basin slightly sunk, but often a little plaited. Flesh white, rather firm at first, half buttery, sweet, and moderately juicy. Ripens all the month of August.

KIRTLAND.

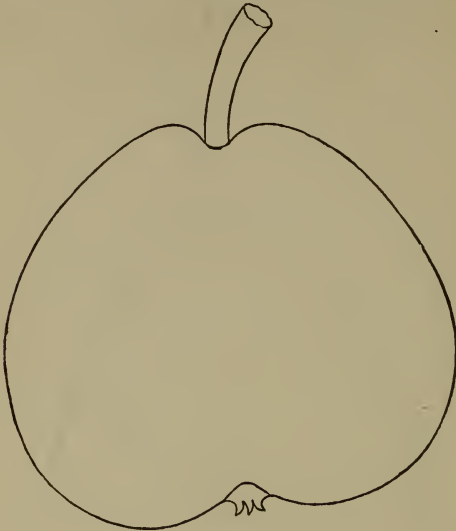
Kirtland's Seedling.
Hadley.

Kirtland's Seckel.
Kirtland's Buerré.

Montague.

Raised by H. T. Kirtland, Poland, O. Tree moderately vigorous. Young wood olive-yellow brown.

Fruit medium or below, obtusely obovate, sometimes obscurely pyriform, fine yellow, mostly covered with bright cinnamon



Kirtland.

russet, occasionally mottled and streaked with red on the sunny side. Stalk rather short and stout, inserted in a small cavity. Calyx partially open, persistent. Basin shallow and broad. Flesh white, half fine, melting, juicy, sweet, aromatic. Very good. Ripe first of September.

LA JUIVE.

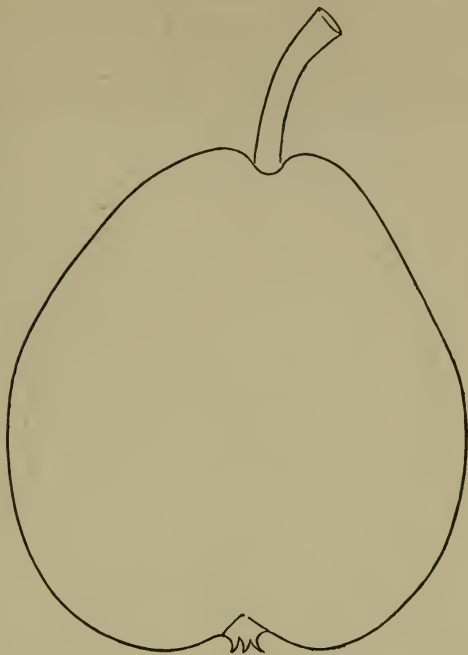
Juive.

Jewess.

One of Major Esperen's introduction. Tree vigorous and productive. Young wood yellow brown.

Fruit medium, roundish obovate, obtuse. Skin pale yellow, considerably russeted, netted, and patched, and with many brown russet dots. Stalk medium, rather stout. Cavity

small. Calyx open. Segments persistent, often a little recurved. Basin shallow, uneven. Flesh yellowish, a little coarse at the core, juicy, half melting, sweet, rich, slightly aromatic. Very good. October, November.



La Juive.

LAS CANAS.

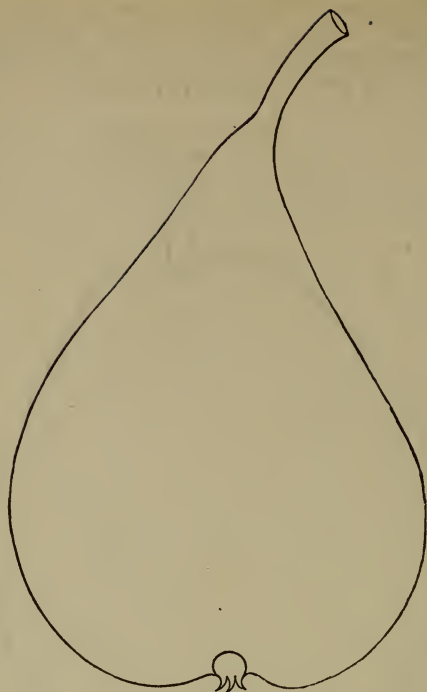
Bon Parent.

Bouvier.

Bow Parent.

A Belgian Pear, possessed of many of the best qualities that make up a good fruit. The tree is a good grower, an early bearer, and the fruit keeps well.

Fruit medium or below, roundish, acute pyriform. Skin pale yellow, netted and patched with golden russet, and thickly dotted with russet dots. Stalk medium, inclined, fleshy at base, or inserted by a lip without depression. Calyx small, half open. Basin shallow, russeted. Flesh yellowish white, buttery, melting, juicy, sweet, and aromatic. Very good. October.

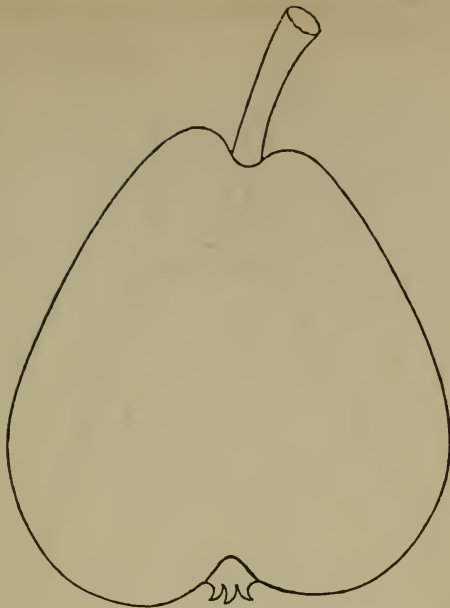


Las Canas.

LAWRENCE.

Originated at Flushing, Long Island. Tree hardy, a moderate grower, foliage persistent, an early and abundant bearer. Young shoots dull yellow brown. A valuable sort for orcharding, and unsurpassed in its many good qualities among our early winter Pears.

Fruit medium size, obovate obtuse pyriform, nearly regular. Color lemon yellow, with traces and occasional patches of russet, and thickly dotted with minute brown dots. Stalk of medium length and rather stout, set in an irregular russeted cavity. Calyx open. Segments short, persistent. Basin broad, shallow, uneven, or slightly corrugated, and thinly russeted. Flesh whitish, juicy, melting, sweet, and aromatic. Very good or best. December.



Lawrence.

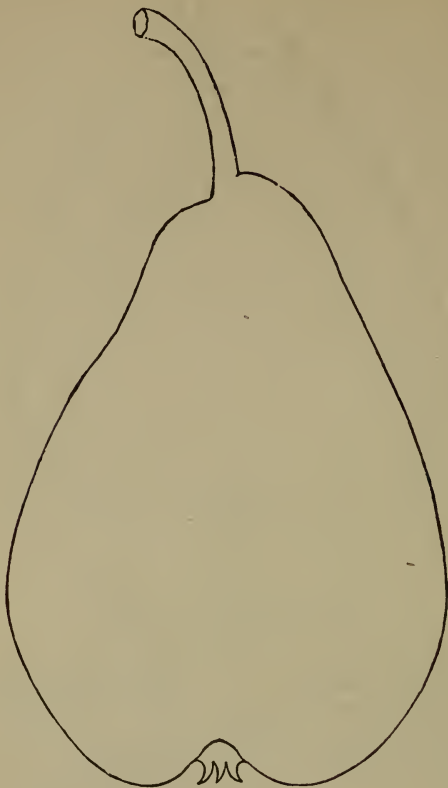
LOUISE BONNE OF JERSEY.

Bonne de Longueval,	Beurré d'Araudoré.
Louise Bonne d'Avranches.	Bonne Louise d'Araudoré.
Louise Bonne de Jersey.	Beurré d'Avranches.
Beurré or Bonne Louise d'Araudoré.	Bonne d'Avranches.
William the Fourth.	De Louise.
Bergamotte d'Avranches.	William.
De Jersey.	Louise de Jersey.

Originated in France, near Avranches, succeeds admirably on the quince, forming a fine pyramid—not of the first quality, but profitable. Tree vigorous, upright, very productive. Fruit of better quality on the quince than on the pear. Young wood dull olive brown.

Fruit large, oblong pyriform, a little one-sided, glossy, pale green in the shade, but overspread with brownish red in the sun, and dotted with numerous gray dots. Stalk about an inch long, curved, rather obliquely inserted, without depression, or with a fleshy, enlarged base. Calyx open, in a shallow, uneven basin. Flesh greenish white, very juicy and melting,

with a rich and excellent flavor. Good to very good. September and October.

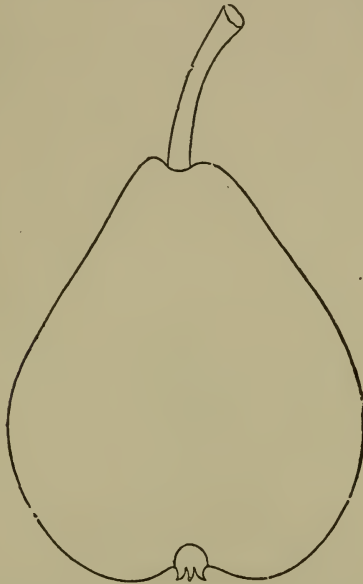


Louise Bonne of Jersey.

LYCURGUS.

Originated with George Hoadley, of Cleveland, O., from seed of Winter Nelis. It is one of the best in quality of late Winter Pears. The tree is a moderate, rather spreading grower, productive. Young wood dark rich olive brown.

Fruit small, oblong pyriform, greenish yellow, mostly covered with a thin brownish russet, many large, grayish dots. Stalk medium length, a little curved, set with little or no depression. Calyx open. Segments short, erect. Basin small, uneven. Flesh yellowish, juicy, melting, sweet, rich, a little aromatic, and slightly perfumed. Very good. December to February.



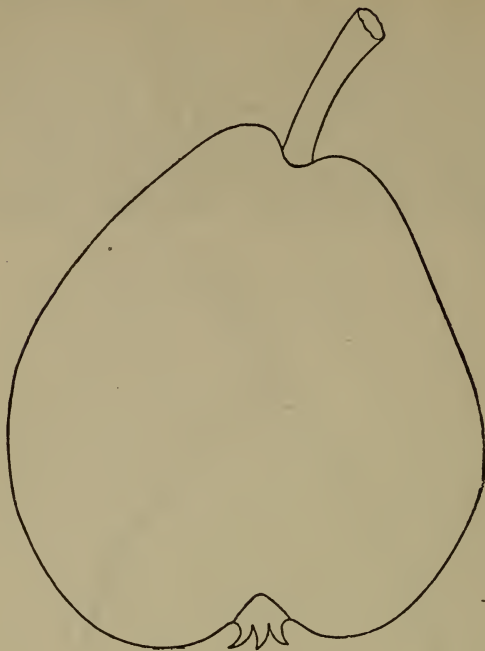
Lycurgus.

McLAUGHLIN.

A native of Maine, introduced by S. L. Goodale, of Saco. Tree hardy and vigorous. Young wood light dull red.

Fruit large, obtuse pyriform, greenish, mostly covered with russet, which becomes yellowish at maturity, with a warm sunny cheek. Stalk short, inserted at an inclination, with some appearance of a lip. Calyx open, set in a shallow cor-

rugated basin. Flesh whitish, not very fine, juicy, and melting. Flavor sweet, rich, and perfumed. Good to very good. November to January.



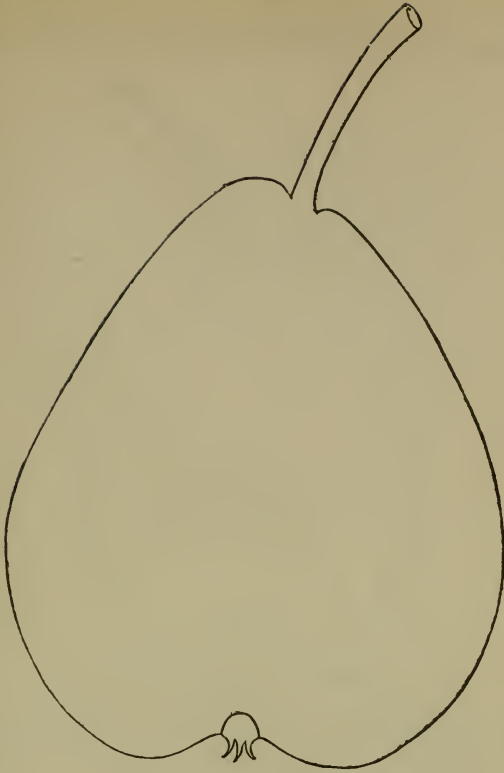
McLaughlin.

MADAME TREYVE.

Souvenir de Madame Treyve.

Raised by M. Treyve, of Trevoux, France, and dedicated to his wife. Tree vigorous, very productive.

Fruit rather large, roundish obtuse pyriform. Skin pale greenish yellow, many small green and brown dots. Stalk rather long, a little inclined, slightly curved, inserted in a small cavity, sometimes by a lip. Calyx half open; basin medium, russeted. Flesh greenish white, buttery, juicy, melting, sweet, rich, slightly perfumed. Very good. Ripens the last of August and beginning of September.



Madame Treyve.

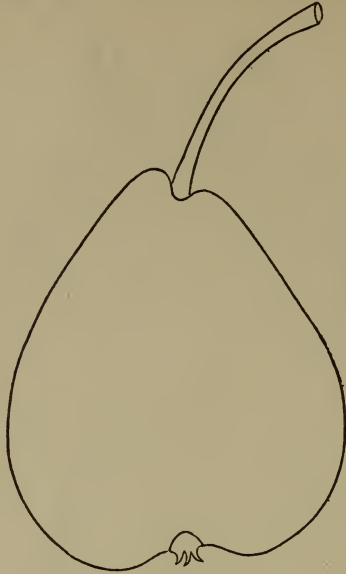
MADELEINE, OR CITRON DES CARMES.

Madeleine.	Sainte-Madelaine.
Citron des Carmes.	Grune Sommer Magdalena.
Early Chaumontelle.	Grune Magdalena.
	Magdalen.

The Madeleine is one of the most refreshing and excellent of the early Pears. It takes its name from its being in perfection in France, at the feast of St. Madeleine. Citron des Carmes comes from its being first cultivated by the Carmelite monks. The tree is fruitful and vigorous, with long, erect, olive-colored branches.

Fruit of medium size, obovate pyriform. Stalk long and

slender, often nearly two inches, set on the side of a small swelling. Pale yellowish green (very rarely with a little brownish blush and russet specks around the stalk). Calyx



Madeleine, or Citron des Carnes.

small, in a very shallow furrowed basin. Flesh white, juicy, melting, with a sweet and delicate flavor, slightly perfumed. Good to very good. Middle and last of July.

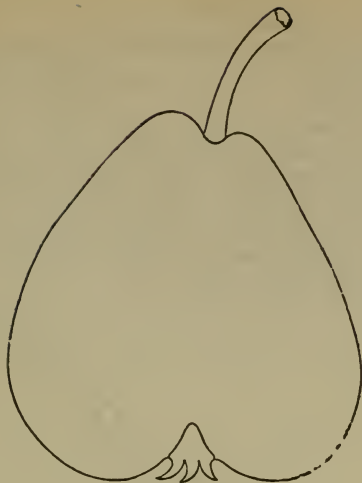
MANNING'S ELIZABETH.

Van Mons. No. 154.

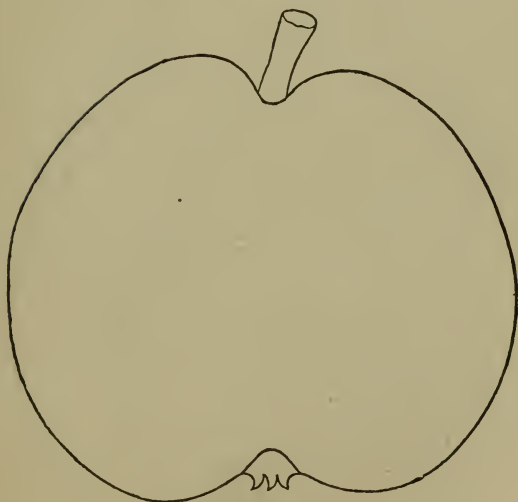
Elizabeth Van Mons.

Manning's Elizabeth, a seedling of Dr. Van Mons', named by Mr. Manning, is a very sweet and sprightly Pear, with a peculiar flavor. A beautiful dessert fruit, very productive, growth moderate, shoots dull reddish. One of the most desirable Pears of its season, for amateur growing.

Fruit below medium, obovate obtuse pyriform, bright yellow, with a lively red cheek, dotted with brown and red dots. Stalk one inch long, set in a shallow, round cavity. Calyx open, set in a broad shallow basin. Flesh white, juicy, and very melting, with a saccharine but very sprightly aromatic character. Very good or best. Last of August.



Manning's Elizabeth.

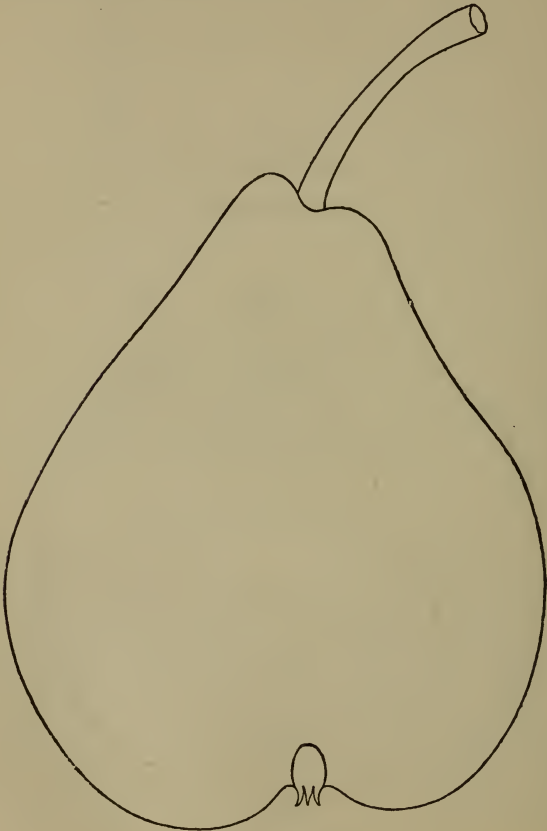


Merriam.

MERRIAM.

Origin, Roxbury, Mass. Tree hardy, vigorous, spreading, and very productive. Young wood reddish-yellow brown; a good market sort.

Fruit medium, roundish, oblate, dull yellow, covered with pale russet around the stem and calyx, and entire surface somewhat netted with russet. Stalk short, moderately stout, in a small cavity, with one protuberant side. Calyx open. Basin shallow and furrowed. Flesh yellowish, coarse, melting, and juicy, slightly vinous, musky. Good to very good. Last of September and October.



Maréchal de la Cour.

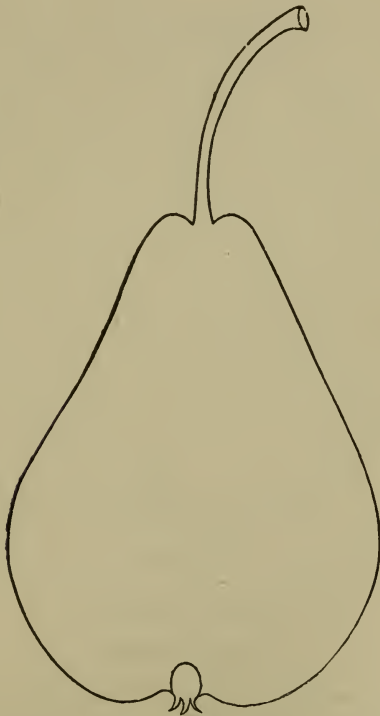
MARÉCHAL DE LA COUR.

B. O. de la Cour.
 Conseiller de la Cour.
 Maréchal Decours.

Baud de la Cour.
 Grosse Marie.
 Duc d'Orleans.

One of Van Mons' seedlings. Tree vigorous, holding its foliage late in season, an abundant bearer. Young shoots olive-reddish brown, with many specks.

Fruit medium to large, roundish pyriform, slightly obtuse. Skin greenish yellow, with a slight netting and few patches of russet, and large russet dots. Stalk rather long, slightly curved, inclined, set in a moderate cavity, somewhat russeted. Calyx small, open, in a narrow basin, russeted. Flesh yellowish white, buttery, juicy, melting, rich, vinous, very good. October.

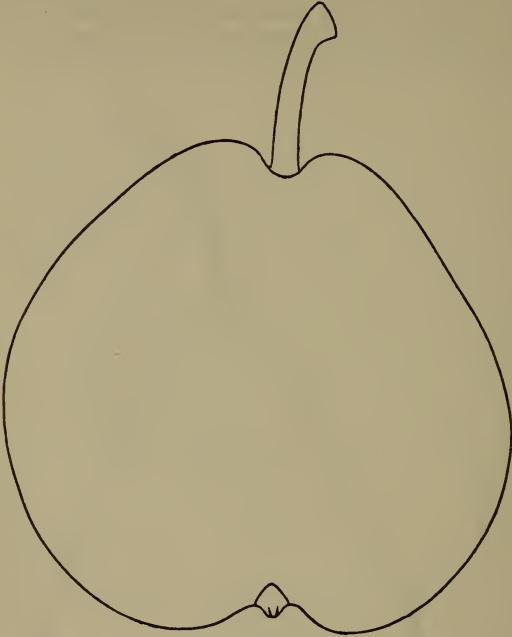


Monseigneur des Hons.

MONSEIGNEUR DES HONS.

A new summer Pear of M. Gibey-Lorne, Troyes, France. Tree vigorous, spreading. Young wood reddish brown.

Fruit below medium, oblong ovate pyriform. Skin greenish yellow, mottled and shaded with dull red where exposed, and more or less russet around the basin. Stalk long, slender, curved, set in a slight depression or small cavity. Calyx open; basin small, uneven. Flesh white, half fine, buttery, half melting, moderately juicy, pleasant, sweet. Good. Ripens the middle of August.



Mount Vernon.

MOUNT VERNON.

Walker's Seedling.

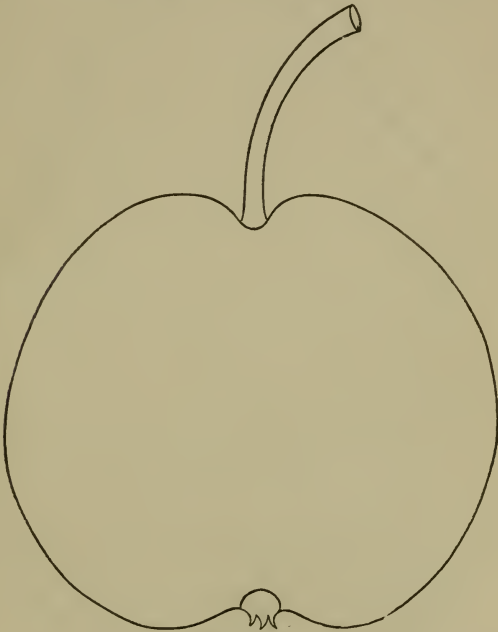
A chance seedling, originated in the grounds of Samuel Walker, Roxbury, Mass., and by him named Mount Vernon. The tree is a vigorous grower, and an early bearer, and an abundant bearer. Young wood yellow-reddish brown.

Fruit medium or above, varying in form, but generally roundish, inclining to obtuse pyriform, light russet on a yellow ground, brownish red in the sun. Stalk short, inserted in a small cavity, sometimes in a slight depression by a lip. Calyx small, closed, with short segments. Flesh yellowish, granulated, juicy, melting, slightly vinous, and slightly aromatic. Very good. November, December.

MUSKINGUM.

Origin supposed Ohio. Tree very vigorous, upright, hardy, and productive. Young wood dull reddish-olive brown.

Fruit medium, roundish. Skin greenish yellow, much



Muskingum.

dotted with russet and green. Stalk long, curved. Cavity small. Calyx open. Basin very shallow, often russeted. Flesh white, half fine, juicy, melting, with a pleasant, brisk flavor. Good to very good. Ripe middle and last of August.

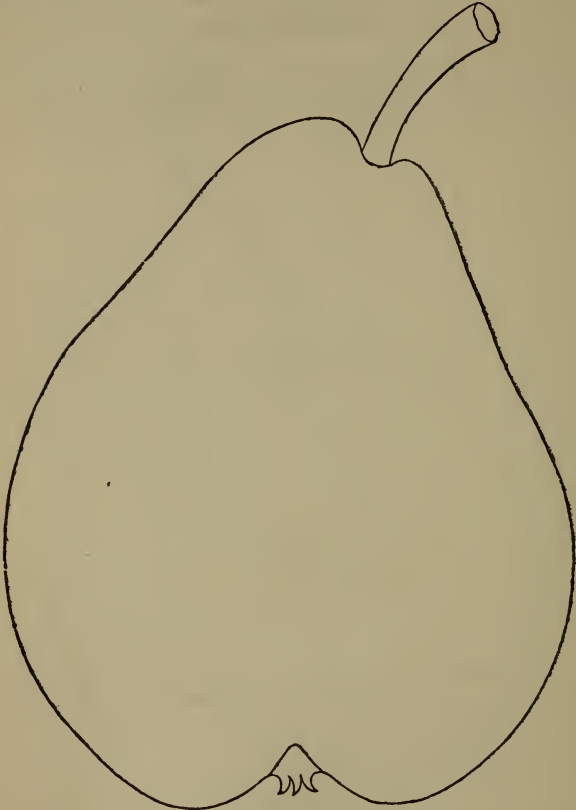
ONONDAGA.

Swan's Orange.

Kilmer.

Supposed to have originated in Farmington, Conn. Tree very vigorous and productive. Young wood olive brown. A profitable market variety.

Fruit large, roundish obtusely pyriform. Skin somewhat coarse and uneven, thickly covered with russet dots, fine rich



Onondaga.

yellow at maturity, generally with some traces of russet, and sometimes with a sunny cheek. Stalk rather stout, of medium length, inserted in a small cavity, at an inclination. Calyx small, firmly closed, set in a narrow, somewhat uneven

basin. Flesh buttery, melting, abounding in juice, slightly granular, and when in perfection with a fine, rich, vinous flavor. A variable fruit. Good to very good. September to November.

OSBAND'S SUMMER.

Osband's Favorite.

Summer Virgalieu.

Origin, Wayne County, N. Y. Tree moderately vigorous, upright, an early and prolific bearer. Young wood rich, yellow brown.



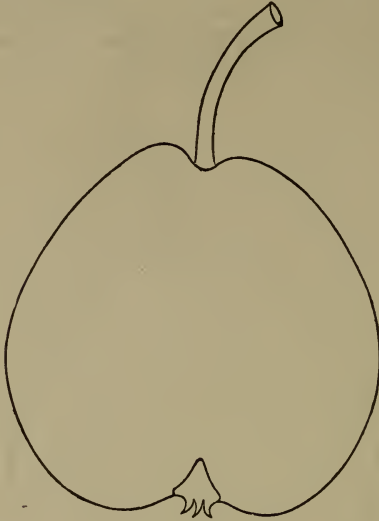
Osband's Summer.

Fruit small, roundish obtuse pyriform, clear yellow, thickly dotted with small greenish and brown dots, with a warm cheek on the side of the sun, and some traces of russet, particularly around the stalk and calyx. Stalk of medium length, rather strong, inserted in an abrupt cavity. Calyx open, set in a broad, shallow basin. Flesh white, juicy, melting, with a rich, sugary flavor and pleasant, musky perfume. Very good. Ripens early in August.

OTT.

A seedling of the Seckel; originated with Samuel Ott, Montgomery Co., Pa. Tree moderately vigorous, very productive. Young wood reddish-olive brown.

Fruit small, roundish, inclining to obtuse pyriform, greenish



Ott.

yellow, partially netted with russet, reddish on the sunny side. Stalk long and curved, inserted in a small cavity. Calyx open, in a round, open basin. Flesh melting, sugary, rich, perfumed, and aromatic. Ripe middle of August. An excellent little pear, somewhat variable. Good to very good.

PARADISE D'AUTOMNE.

Calebasse Bosc.

Maria Nouvelle.

Princesse Marianne.

Faux Spreeview.

False Spreeview.

Marianne.

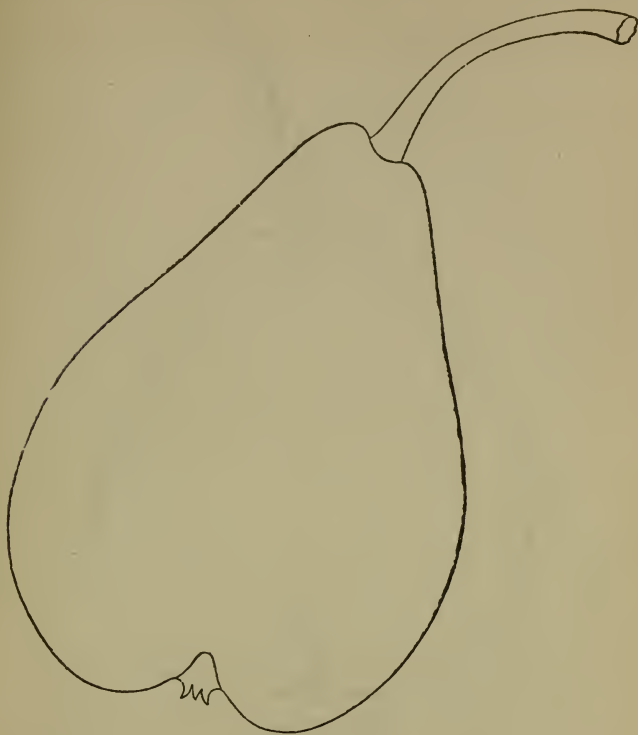
Calebasse.

Calebasse Princesse Marianne.

A Belgian Pear, of uncertain origin. Tree very vigorous. Shoots long and twisting, dull reddish brown, thickly sprinkled with very conspicuous dots.

Fruit large, oblong obovate acute pyriform, skin yellow

mottled, and often entirely overspread with bright cinnamon russet. Surface uneven. Stalk long, enlarged at both ends, and inserted without much cavity, often by fleshy wrinkles or folds. Calyx open. Basin abrupt, and surrounded by promi-



Paradise d'Automne.

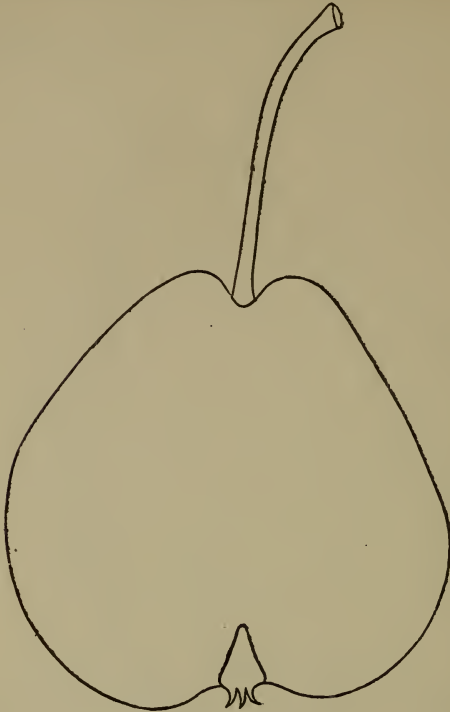
nences. Flesh moderately fine, sometimes slightly granular, juicy, melting, with a very rich vinous, aromatic flavor. Very good. September, October.

PETITE MARGUERITE.

Originated in the nurseries of Andre Leroy, Angers, France. Tree moderately vigorous, very productive.

Fruit nearly of medium size, roundish oblate obtuse pyriform, surface slightly uneven, skin greenish yellow, or pale

yellow when mature, shaded with brownish red on the sunny side, and many greenish dots. Stalk long, slightly curved, set in a narrow, rather deep cavity. Calyx half open. Basin



Petite Marguerite.

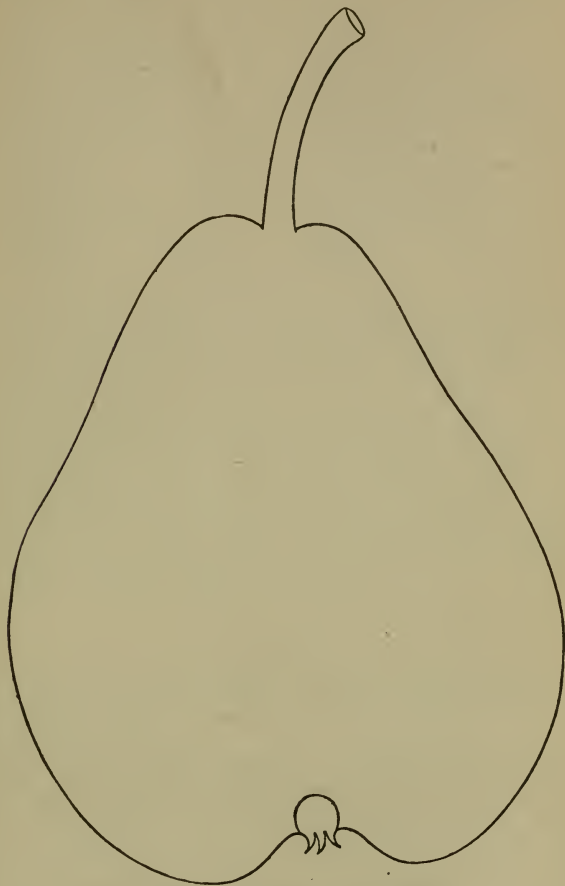
quite large, slightly corrugated. Flesh white, half fine, buttery, juicy, melting, sweet, slight pleasant perfume. Very good. Ripens the last of August.

PITMASTON DUCHESS D'ANGOULÊME.

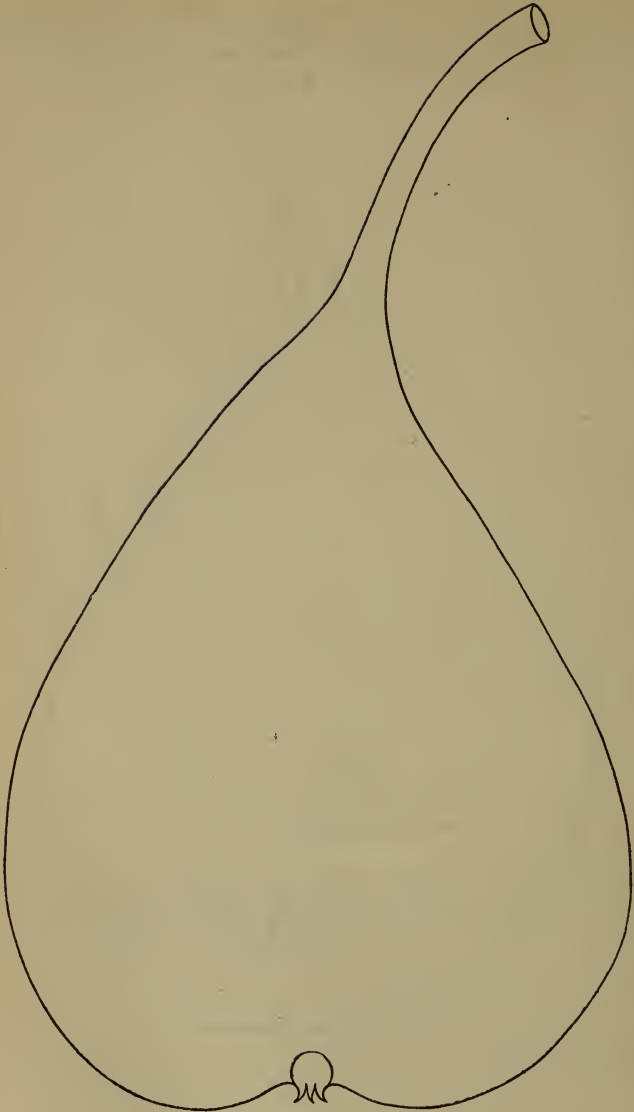
This is the unfortunate name given to a Pear raised by John Williams, of Pitmaston, England. Tree vigorous.

Fruit large, roundish obovate obtuse pyriform, irregular, and surface uneven. Skin fine yellow, a shade of red where exposed, slight nettings and patches of russet, and many

russet dots. Stalk medium length, inclined, set in a slight depression, often by a lip. Calyx half open. Basin rather abrupt, furrowed. Flesh yellowish white, half fine, juicy, half melting, sweet, vinous. Very good. October.



Pitmaston Duchesse D'Angoulême.



Pound.

POUND.

Uvedale's St. Germain.	Bolivar d'Hiver.
Winter Bell.	Comtesse de Terweuren.
Bretagne le Cour.	Duchesse de Berry d'Hiver.
Belle Angevine.	Gros fin or long d'Hiver.
Belle de Jersey.	Union.
Du Tonneau.	Gros de Bruxelles.
Royal d'Angleterre.	La Quintinye.
Beauté de Tervueren	Grosse Dame Jeanne.
Pickering Pear.	Louise Bonne d'Hiver.
Lent St. Germain.	Bellissime d'Hiver du Bur.
Cordelier.	Abbé Mongein.
Anderson.	Chamber's Large.
Angora ?	Dr. Udales Warden.
D'Horticulture.	German Baker.
Berthebirn.	Pickering's Warden.
Bolivar.	Piper.

Faux-Bolivar.

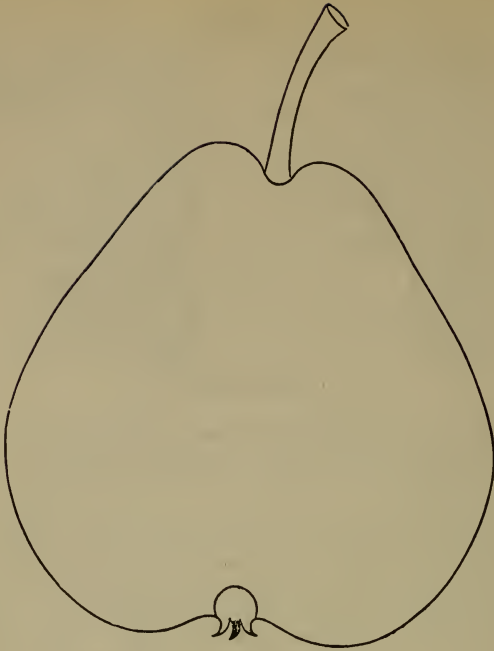
The Pound, or Winter Bell Pear, valued only for cooking, is an abundant bearer, and a profitable orchard crop. The trees are strong and healthy, with very stout, upright, dark-colored wood.

Fruit large, pyriform, swollen at the crown, and narrowing gradually to a point at the insertion of the stalk. Skin yellowish green, with a brown cheek (yellow and red when long kept), and sprinkled with numerous brown russet dots. Stalk two inches or more long, stout, bent. Calyx crumpled, set in a narrow, slight basin. Flesh firm and solid, stews red, and is excellent baked or preserved.

PRATT.

A native of Scituate, Rhode Island. Tree a vigorous upright grower, not an early bearer, very productive. Young wood olive brown.

Fruit medium, obtuse pyriform. Skin pale greenish yellow, shaded with crimson, and sprinkled with numerous russet and conspicuous dots, frequently patched and netted with russet. Stalk long, slender, curved, inserted in a regular cavity. Calyx open, set in a broad shallow basin. Flesh white, juicy, melting, briskly vinous, and saccharine, variable, but when in perfection of great excellence. Good to very good. Ripens last of September.



Pratt.

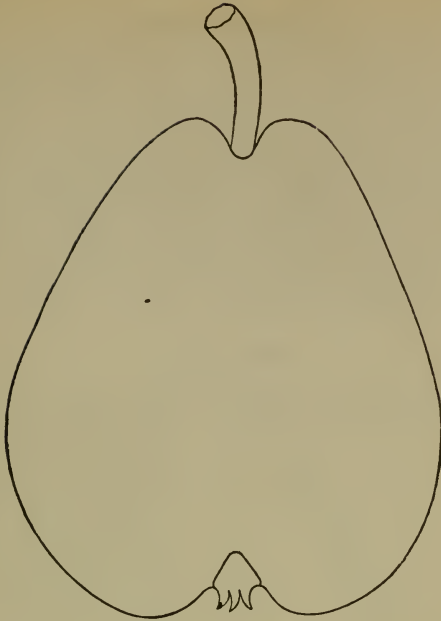
PRINCE'S ST. GERMAIN.

Brown St. Germain.

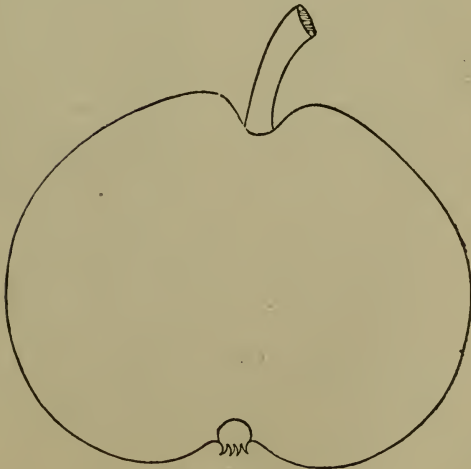
New St. Germain.

Originated with William Prince, Flushing, Long Island. Tree a moderately vigorous grower, and an abundant bearer of fruit, in quality very good, and possessing a good keeping character. Young wood dull reddish brown.

Fruit of medium size, obovate, inclining to oval pyriform. Skin nearly covered with brownish russet over a green ground, and becoming dull red next the sun. Stalk an inch or more long, a little curved, and placed in a medium uneven cavity. Calyx large, open, firm, and nearly without divisions, set in a smooth, nearly flat basin. Flesh yellowish white, juicy, melting, with a sweet, somewhat vinous, and very agreeable flavor. Very good. November to March.



Prince's St. Germain.



Roe's Bergamot.

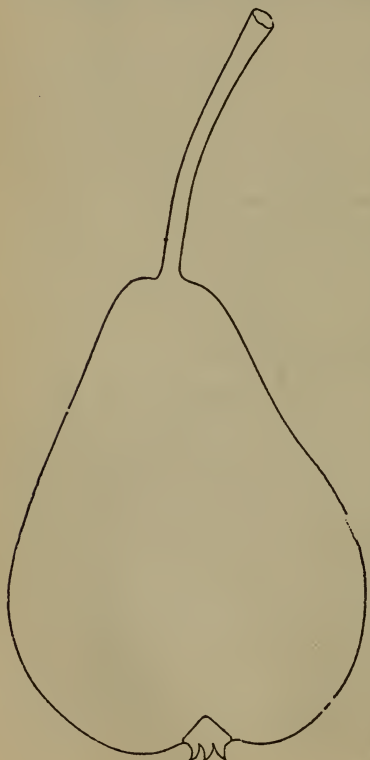
ROE'S BERGAMOT.

Raised by Wm. Roe, Newburgh, N. Y. Tree moderately vigorous, very productive. Young wood reddish yellow brown.

Fruit medium, oblate or bergamot-shaped. Skin smooth, yellow, with minute yellow dots in the shade, mottled and clouded with red on the sunny side. Stalk short, inserted in a narrow, abrupt cavity. Calyx small, with short, stiff segments, set in a narrow basin. Flesh rather coarse, melting, with a sweet, rich, brisk, well-perfumed flavor. The flavor of this excellent new Pear is extremely like Gansel's Bergamotte, but much more sugary. Good to very good. September.

ROSTIEZER.

A foreign variety, which is scarcely medium in size and



Rostiezer.

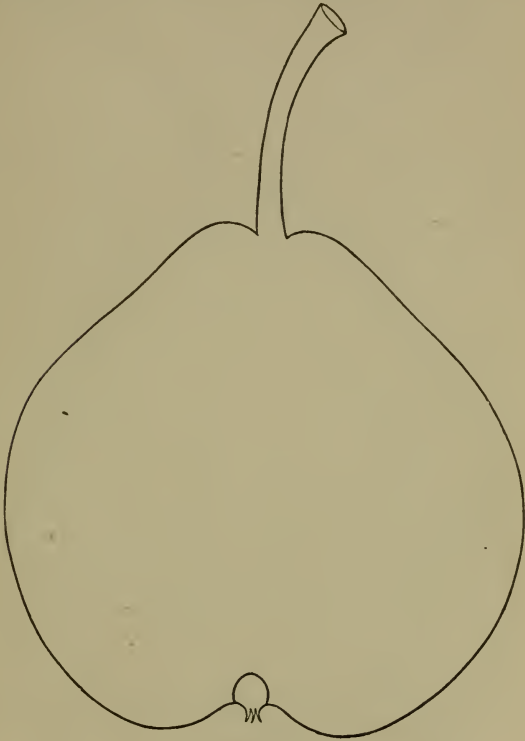
has not generally much beauty of color, yet combines an assemblage of excellences that places it in the rank before any other of its season. The young trees produce but few shoots of strong growth, and require severe shortening to bring them into a fine symmetric form. The color of the young wood is dark olive brown. It is healthy and vigorous in its habit, an early and most profuse bearer, and in flavor is only equalled by the Sec-kel, which ripens six weeks later.

Fruit medium or below, obovate oblong pyriform. Skin dull yellow green, mixed with reddish brown on the sunny side. Stalk long and slender, curved, and inserted with very little depression. Calyx open, persistent. Basin small and corrugated. Flesh juicy, melting, some-

what buttery, exceedingly sugary, vinous, aromatic, and pleasantly perfumed. Best. Middle of August to middle of September.

RUTTER.

Raised by John Rutter, of Westchester, Pa. Tree a moderate grower, an early and abundant bearer, with young wood of a dull olive-yellow brown color.



Rutter.

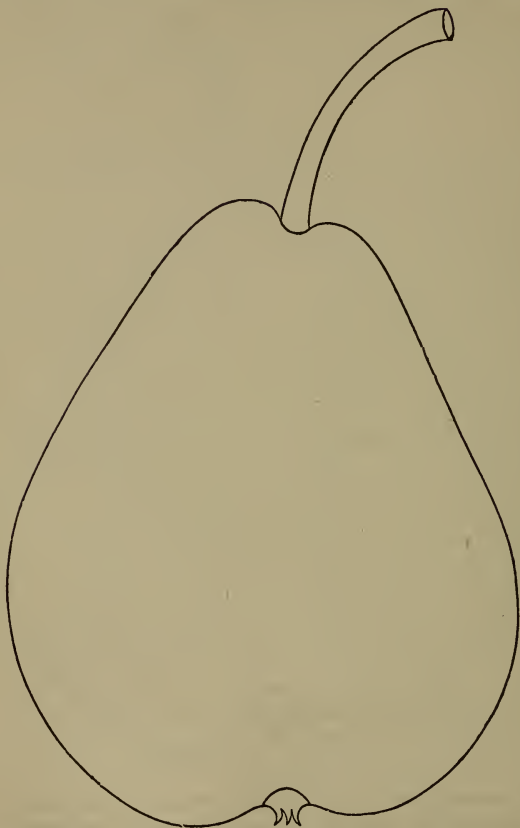
Fruit medium to large, variable in form, generally roundish inclining to pyriform. Skin rough, greenish yellow, sometimes deep yellow, patched and netted with russet, and numerous russet dots. Stalk large, long, and woody. Cavity small. Calyx small, closed. Segments narrow, nearly erect. Basin rather small, uneven. Flesh white, half fine, sugary,

melting, sweet, slightly vinous, and slightly aromatic. Very good. October, November.

SAINT DOROTHÉE.

Royale Nouvelle.

Of foreign origin. Tree vigorous. Young wood grayish brown.



Saint Dorothée.

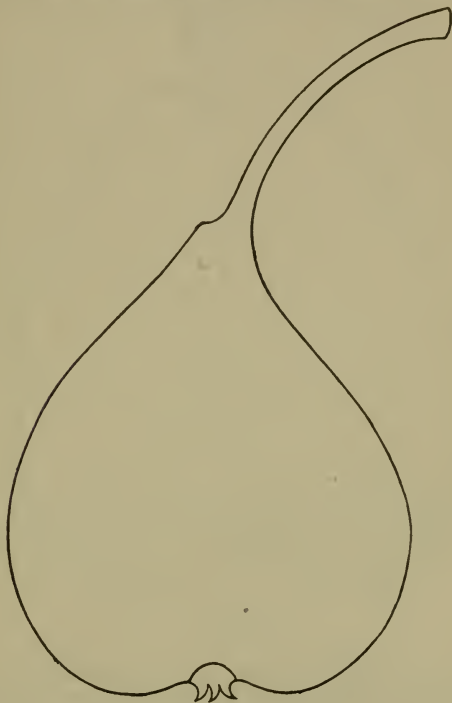
Fruit rather large, oblong obovate pyriform. Skin greenish yellow, netted and patched with russet, and thickly sprinkled with russet dots. Stalk long, curved, inserted in

a small cavity, sometimes by a fleshy lip. Calyx open. Basin medium, uneven. Flesh whitish, fine, juicy, melting, with a sugary, vinous, peculiarly perfumed flavor. Good to very good. October.

SAINT GHISLAIN.

Quinnipiac.

A Belgian Pear, and when in perfection it is of the highest quality, but on some soils it is a little variable. The



Saint Ghislain.

tree is remarkable for its uprightness, and the great beauty and vigor of its growth. Young shoots olive brown, with oblong white specks.

Fruit of medium size, pyriform, tapering to the stalk, to which it joins by fleshy rings. Skin pale clear yellow, with a few gray specks. Stalk an inch and a half long, curved.

Calyx rather small, open, set in a shallow basin. Core small. Flesh white, buttery, and juicy, with a rich, sprightly flavor. Good to very good. September, October.

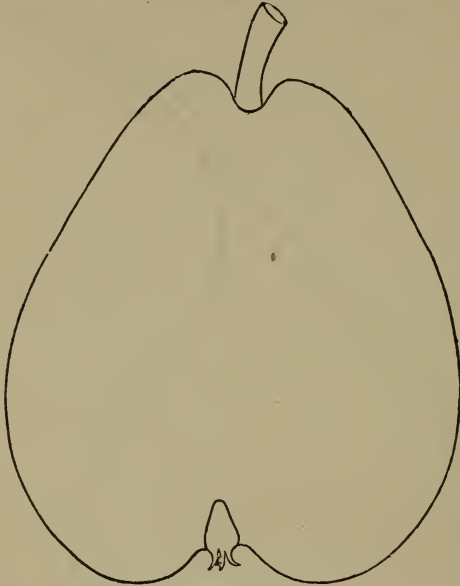
SAINT MENIN.

Omer Pacha.

His Poiteau.

Poire His.

A foreign variety of uncertain origin. Tree a vigorous grower. Young wood grayish olive.



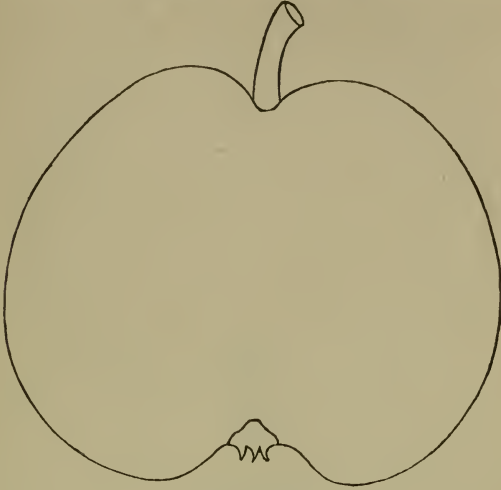
Saint Menin.

Fruit rather large, roundish obtuse pyriform. Skin pale yellow, slightly brown in the sun, netted and patched with russet, and thickly dotted with conspicuous russet dots. Stalk short. Cavity deep. Calyx closed. Basin abrupt. Flesh whitish, juicy, melting, sweet, slightly aromatic. Good to very good. September.

SAM BROWN.

Originated with Samuel Brown, Junr., at Walnut Hills, Anne Arundel County, Maryland. Tree a free grower, an early and regular bearer.

Fruit medium, roundish oblate, a little irregular. Skin pale yellow, partially covered with thin russet, a little brown-



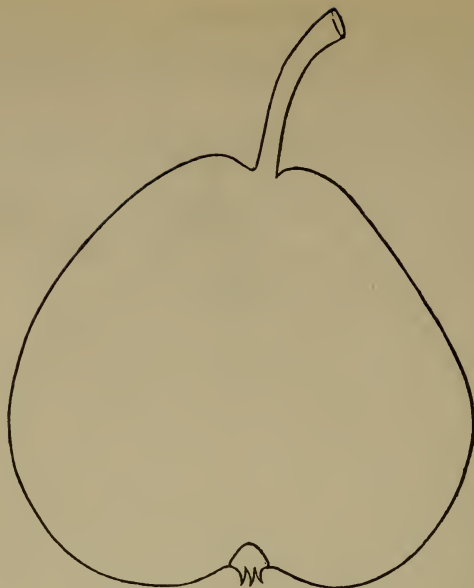
Sam Brown.

ish in the sun. Stalk short, rather stout, inserted in a large cavity. Calyx open or partially closed. Basin large, deep. Flesh white, a little coarse, juicy, melting, vinous, and rich. Very good. September.

SARAH.

Raised by Thaddeus Clapp, Dorchester, Mass. Tree of an erect habit, hardy, healthy, and productive. Young wood rich olive-yellow brown.

Fruit medium size, roundish oblate, slightly obtuse pyriform. Skin pale yellow, partially netted and patched with russet, and thickly sprinkled with russet dots. Stalk medium, a little inclined, set with a slight depression or small cavity. Calyx partially closed. Basin shallow, uneven, russeted. Flesh white, fine, juicy, melting, sweet, rich, aromatic. Very good. October.



Sarah.

SECKEL.

Seckle.
Sickel.

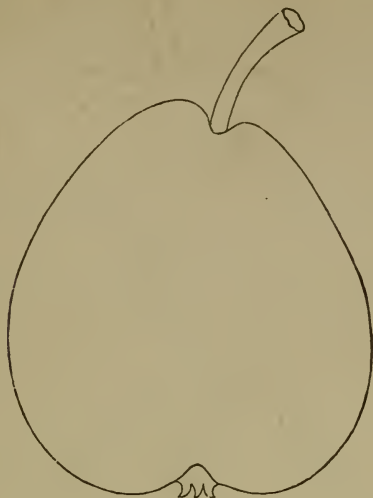
Syckle.
Red-Cheeked Seckel.

New York Red Cheek.
Shakespeare.

We do not hesitate to pronounce this American Pear the richest and most exquisitely flavored variety known. In its highly concentrated, spicy, and honeyed flavor it is not surpassed, nor indeed equalled, by any European variety. When we add to this, that the tree is the healthiest and hardiest of all pear-trees, forming a fine, compact, symmetrical head, and bearing regular and abundant crops in clusters at the ends of the branches, it is easy to see that we consider no garden complete without it. Indeed we think it indispensable in the smallest garden. The stout, short-jointed, olive-brown colored wood distinguishes this variety, as well as the peculiar reddish brown color of the fruit. The soil should receive a top-dressing of manure frequently, when the size of the Pear is an object. The Seckel Pear originated on the farm of Mr. Seckel, about four miles from Philadelphia. It was sent to Europe by the late Dr. Hosack, in 1819, and the fruit was

pronounced by the London Horticultural Society exceeding in flavor the richest of their autumn Pears.*

Fruit small, regularly formed, obovate. Skin brownish

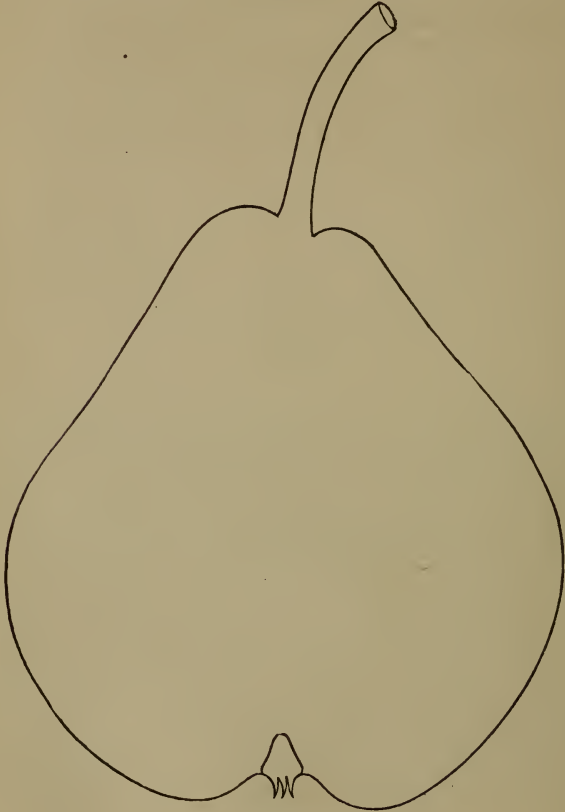


Seckel.

* The precise origin of the Seckel Pear is unknown. The first pomologists of Europe have pronounced that it is entirely distinct from any European variety, and its affinity to the Rousselet, a well-known German Pear, leads to the supposition that the seeds of the latter Pear, having been brought here by some of the Germans settling near Philadelphia, by chance produced this superior seedling. However this may be, the following *morceau* of its history may be relied on as authentic, it having been related by the late venerable Bishop White, whose tenacity of memory is well known: About eighty years ago, when the Bishop was a lad, there was a well-known sportsman and cattle-dealer in Philadelphia, who was familiarly known as "Dutch Jacob." Every season, early in the autumn, on returning from his shooting excursions, Dutch Jacob regaled his neighbors with pears of an unusually delicious flavor, the secret of whose place of growth, however, he would never satisfy their curiosity by divulging. At length the Holland Land Company, owning a considerable tract south of the city, disposed of it in parcels, and Dutch Jacob then secured the ground on which his favorite pear-tree stood, a fine strip of land near the Delaware. Not long afterwards it became the farm of Mr. Seckel, who introduced this remarkable fruit to public notice, and it received his name. Afterwards the property was added to the vast estate of the late Stephen Girard. The original tree still exists (or did a few years ago), vigorous and fruitful. Specimens of its pears were quite lately exhibited at the annual shows of the Pennsylvania Horticultural Society.

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 and spicy flavor and aroma. It ripens gradually in the house from the end of August to the last of October.

SELLECK.



Selleck.

Origin somewhat uncertain. The oldest bearing tree stands on the grounds of Columbus Selleck, Sudbury, Vt., and is of

healthy growth, and very productive. Young wood grayish olive brown,

Fruit large, roundish obtuse pyriform. Surface uneven. Skin fine yellow, sometimes with a crimson cheek, and thickly sprinkled with russet dots. Stalk long and curved, fleshy at its insertion in a moderate cavity. Calyx nearly closed, in a rather small uneven basin. Flesh white, a little coarse, juicy, and melting, sweet, aromatic. Good to very good. September, October.

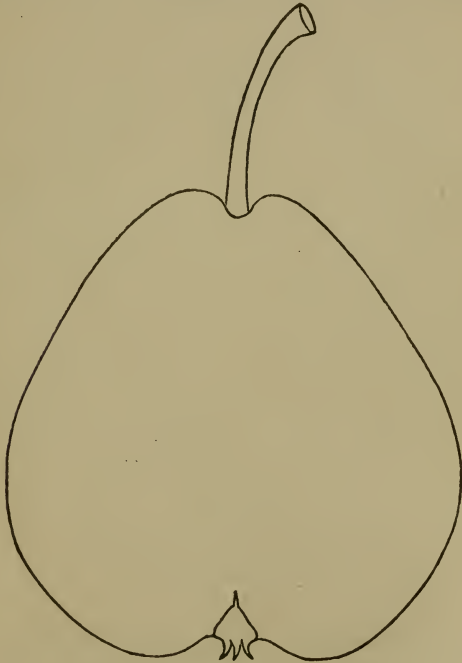
SERRURIER.

Serrurier d'Automme.
Nouveau Maison.

Neuve Maison.
Neufmaisons.

Neuf-Maisons.

A seedling of Professor Van Mons. Tree vigorous, healthy, productive. Young wood light yellow brown.



Serrurier.

Fruit medium, roundish inclining to obtuse pyriform. Skin pale yellow, with a tinge of red in the sun, considerably

netted and patched with russet, and numerously sprinkled with russet dots. Stalk medium, inserted in a small cavity, often russeted. Calyx open. Basin small, much russeted. Flesh yellowish white, a little coarse, juicy, melting, vinous, slightly aromatic. Very good. October.

SHELDON.

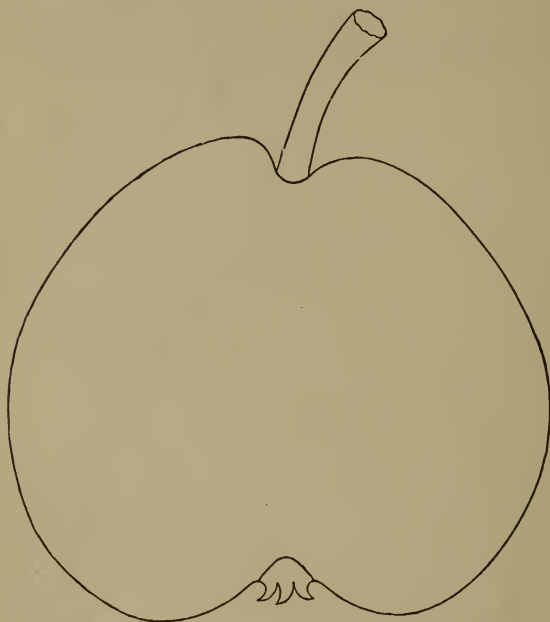
Wayne.

Bland.

Huron.

Wisner.

An accidental seedling on the farm of Norman Sheldon, in the town of Huron, Wayne Co., N. Y. Tree vigorous, erect, hardy, and a good bearer. Young wood yellow brown.

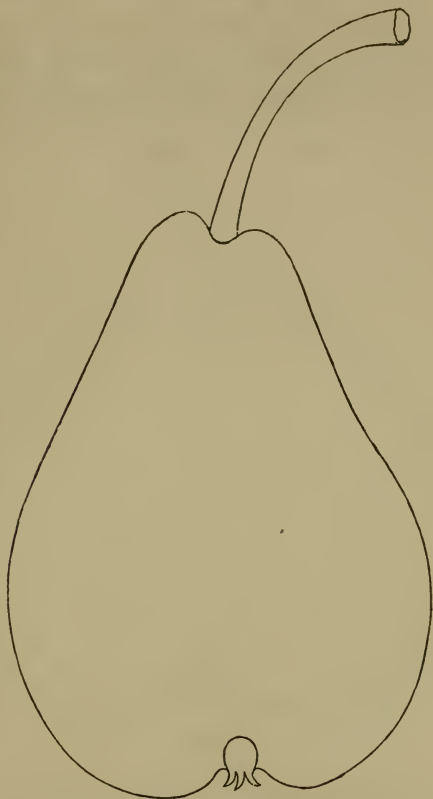


Sheldon.

Fruit medium, roundish oblate obtuse pyriform. Skin greenish yellow, mostly covered with thin light russet, a little brownish crimson in the sun, dotted with russet. Stalk short, stout. Cavity deep. Calyx open. Segments partly recurved. Basin broad, large. Flesh whitish, very juicy, melting, sweet, vinous, rich, aromatic. Very good. October.

SOUVENIR D'ESPEREN.

This seedling Pear of Major Esperen's proves one of the very best, either for amateur or market cultivation. Tree vigorous, healthy, hardy, and productive, and holds its foliage well and late. Young wood olive-reddish yellow brown.



Souvenir d'Esperen.

Fruit large, oblong pyriform, slightly obtuse. Surface uneven. Skin greenish yellow, mostly covered with dull rough russet, especially around the stalk and calyx. Stalk long, inclined, curved, set in a slight cavity, sometimes by a lip. Calyx open. Segments medium, erect, sometimes a little recurved. Basin small, narrow, uneven. Flesh yellowish, a

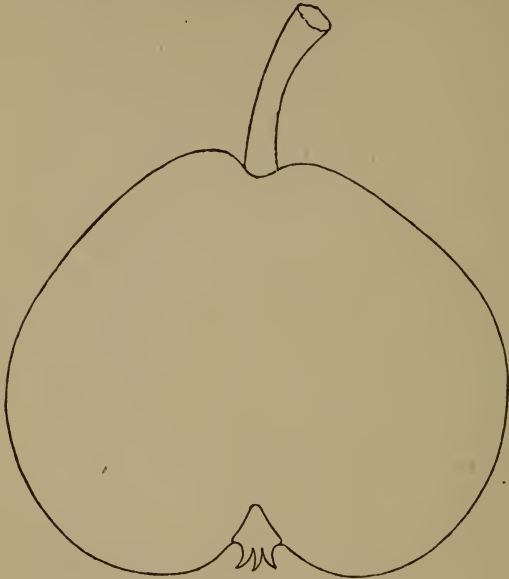
little coarse at the core, juicy, melting, vinous, rich, aromatic. Very good. October, November.

STERLING.

De Mott.

Origin, Livingston Co., N. Y.; grown from seed brought from Connecticut. Tree vigorous, upright. Young wood grayish-yellowish brown, an early bearer, and productive.

Fruit medium, roundish oblate, inclining to obtuse pyri



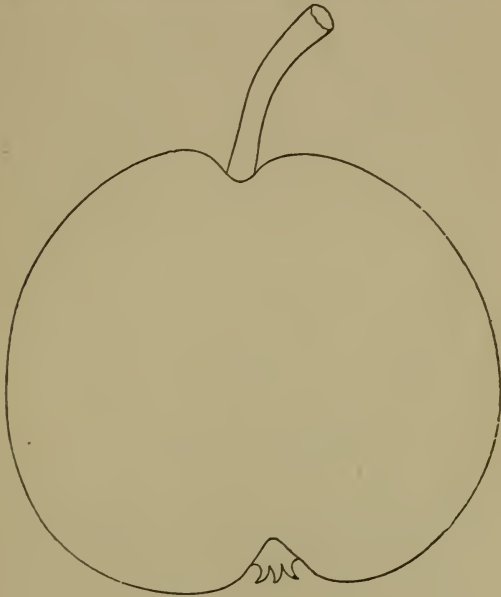
Sterling

form. Skin yellow, sometimes with a few small patches of russet, and on the sunny side a mottled crimson cheek. Stalk rather stout, inserted in a slight cavity, sometimes by a ring. Calyx open, in a medium, rather uneven basin. Flesh rather coarse, juicy, melting, with a very sugary, brisk flavor. Good to very good. Ripens last of August and first of September.

STEVENS' GENESEE.

Guernsey.	Philippe Strié.
Louise de Prusse.	Doyenné Crotté.
Crottée.	Passa-tutti.
Doyenné Galeux.	Stephen's Genesee.
Saint Michel Crotté.	Genesee.
Beurré des Belges.	

This admirable Pear, combining, in some degree, the excellence of the Doyenné and Bergamotte, is reputed to be a seedling of Western New York. It originated on the farm of Mr. F. Stevens, of Lima, Livingston Co., N. Y. Although placed among autumn pears, it frequently ripens here at the



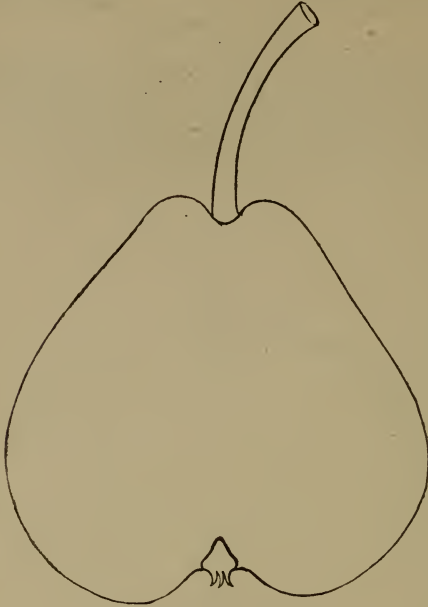
Stevens' Genesee.

end of August, among the late summer varieties. Young shoots diverging, dark gray.

Fruit large, roundish, and of a yellow color. Stalk about an inch long, stout, thicker at the base, and set in a slight, rather one-sided depression. Calyx with short, stiff divisions, placed in a smooth basin of only moderate depth. Flesh white, half buttery, with a rich aromatic flavor. Good to very good. First of September.

SUMMER BEURRÉ D'AREMBERG.

Raised by Thomas Rivers, of Sawbridgeworth, Herts, England. Tree hardy, somewhat thorny when young, moderately vigorous, upright, very productive.



Summer Buerré d'Arenberg.

Fruit below medium, oblate obtuse pyriform, skin pale greenish yellow, considerably netted and patched with russet, especially around the calyx, and pretty thickly sprinkled with russet dots. Stalk long, rather slender, a little inclined, inserted in a small cavity. Calyx closed or partially open; basin narrow, deep, furrowed. Flesh whitish, a little coarse, juicy, melting, sweet, slightly vinous, and slightly aromatic. Very good. Ripens last of September and first of October.

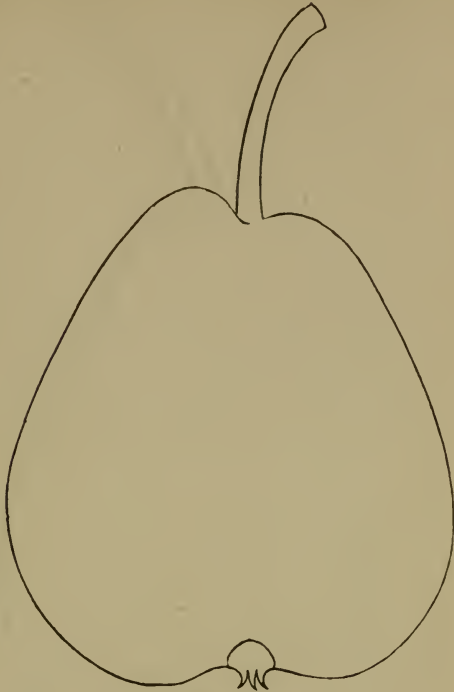
SURPASSE VIRGALIEU.

Surpasse Virgouleuse.

Colmar Van Mons, erroneously.

The precise origin of this very delicious fruit is not known. It was first sent out from the nursery of the late Mr. An-

drew Parmentier, of Brooklyn, under this name, and is, perhaps, an unrecognized foreign Pear, so named by him in allusion to its surpassing the favorite Virgalieu (White Doyenné), of New York.



Surpasse Virgalieu.

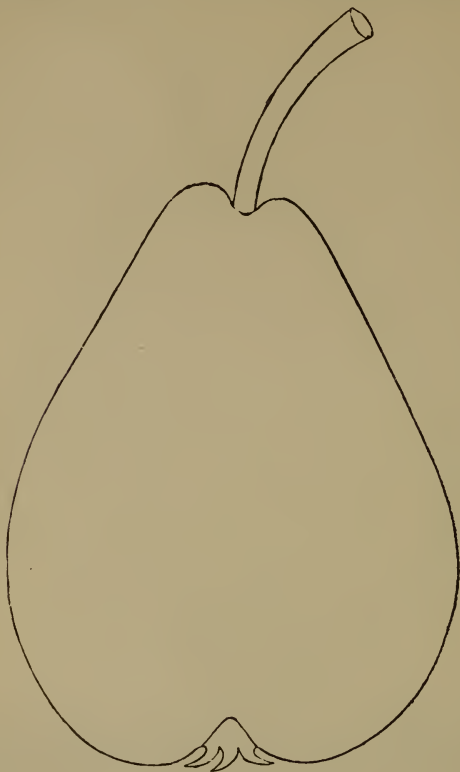
Fruit medium, roundish, sometimes roundish obovate. Skin smooth, pale lemon yellow, with a very few minute dots, and rarely a little faint red on the sunny side. Stalk rather more than an inch long, not deeply planted in a cavity rather higher on one side. Calyx rather small and pretty firm, set in a slight, smooth basin. Flesh white, exceedingly fine-grained and buttery, abounding with delicious, high-flavored, aromatic juice. Very good. October.

THEODORE VAN MONS.

This Belgian Pear, supposed one of Van Mons' seedlings, originated about 1827, but was not brought to notice until

about 1843. The tree is a vigorous, upright grower, quite productive. The young wood light yellow-reddish brown.

Fruit medium or above, oblong pyriform, slightly obtuse. Skin greenish or pale yellow, with traces and patches of rus-



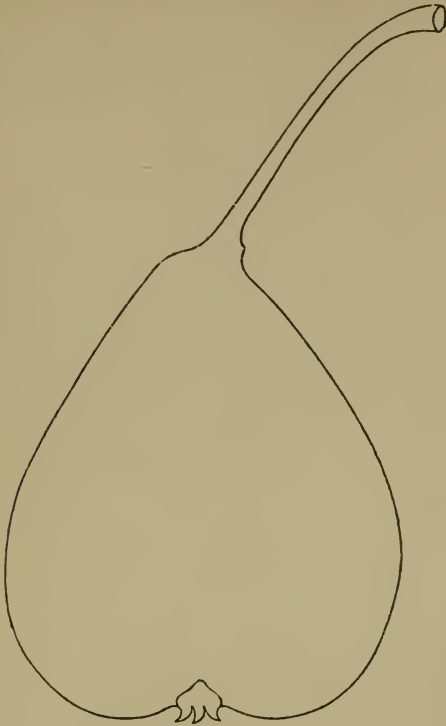
Theodore Van Mons.

set, and many gray and green dots. Stalk long, curved. Cavity slightly russeted. Calyx open. Flesh whitish, rather coarse, juicy, melting, vinous. Good to very good. September, October.

TYSON.

A native seedling, found in a hedge on the farm of Jonathan Tyson, of Jenkintown, near Philadelphia. Tree an upright, vigorous grower, but a tardy bearer, very productive. Young wood olive-yellow brown.

Fruit medium or below, acute pyriform. Skin clear, deep yellow at full maturity, slightly russeted, with a fine crimson cheek, and numerous minute brown dots. Stalk long and



Tyson.

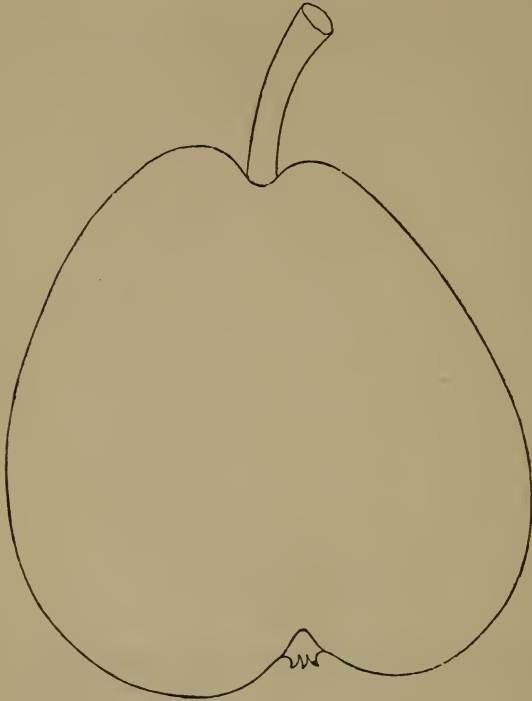
curved, generally inserted by a fleshy ring or lip. Calyx open. Basin shallow. Flesh rather fine, juicy, melting, very sugary, and somewhat aromatic. Very good to best. Ripens last of August and first of September.

URBANISTE.

Count Coloma.	Louise d'Orleans.
St. Marc ?	Picquery.
Beurré Picquery.	Louis Dupont.
——— Drapiez.	Henkel d'Hiver.
Coloma d'Automne.	Urbaniste Seedling.

The Urbaniste is a fruit which, in its delicious flavor, com-

parees perhaps more nearly with the favorite old Doyenné or Virgalieu than any other fruit, and adds, when in perfection, a delicate perfume peculiarly its own. Its handsome size and remarkably healthy habit commend it for those districts where the Doyenné does not flourish. The tree is a moderately vigorous grower, and though it does not begin to bear so early as some varieties, it yields abundant and regular crops, and gives every indication of a long-lived, hardy va-



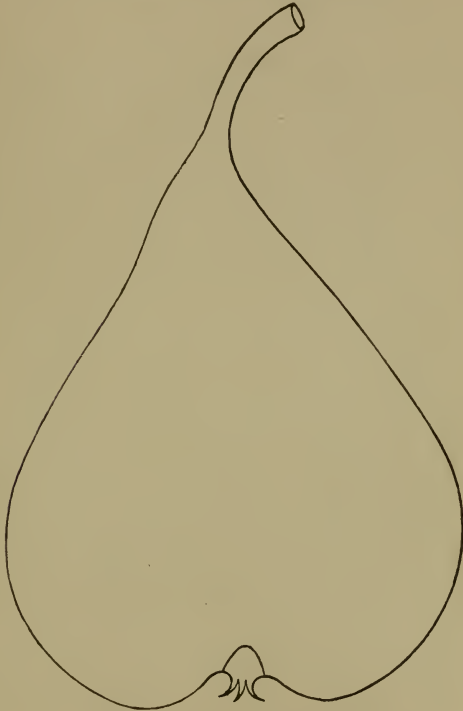
Urbaniste.

riety. For the orchard or garden in the Middle States, therefore, we consider it indispensable. With so many other fine sorts, we owe this to the Flemish, it having been originated by the Count de Coloma, of Malines. It was first introduced into this country in 1823. Young shoots upright, short-jointed, olive-yellow brown.

Fruit of medium size, often large, roundish obtuse pyriform. Skin smooth and fair, pale yellow, with gray dots,

and a few russet streaks. Stalk about an inch long, rather stout, and inserted in a well-marked or rather broad depression. Calyx small, closed, and set in a narrow basin, which is abruptly and rather deeply sunk. Flesh white, yellowish at the core, buttery, very melting and rich, with a copious delicious juice, delicately perfumed. Very good or best. Ripens from the last of September till the end of November, if kept in the house.

VERMILLON D'EN HAUT.

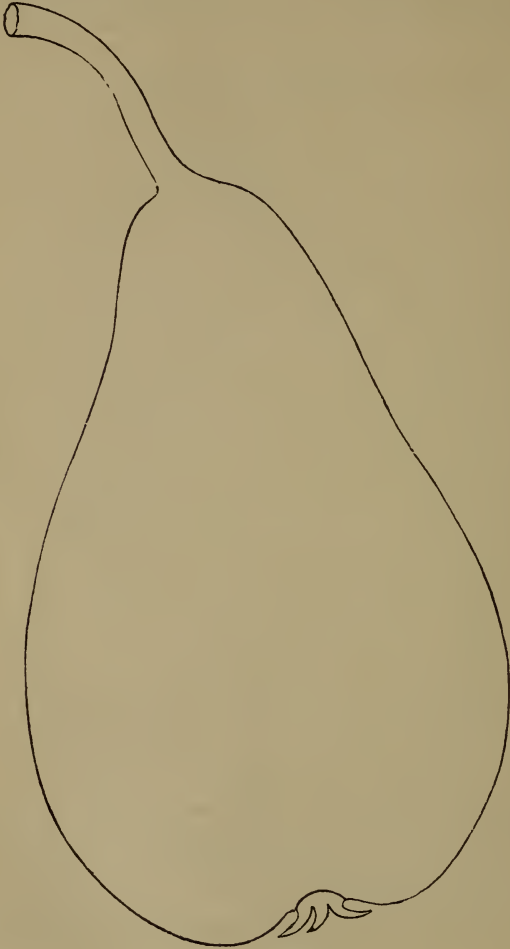


Vermillon d'en Haut.

A seedling of Bois-Bunel, Rouen, France. Tree vigorous, with strong young shoots, of a light olive-yellow brown. An early bearer, and productive.

Fruit medium, roundish acute pyriform, surface somewhat uneven; skin pale yellow, almost waxen, a shade of bright

red where exposed to the sun, a few traces of russet, and many russet and green dots. Stalk rather short and stout, inclined, joined acutely to the fruit, sometimes by a lip. Calyx open; basin medium, uneven. Flesh fine, whitish, juicy; melting, sweet, slight perfume. Very good. September.



Vicar of Winkfield.

VICAR OF WINKFIELD.

Le Curé.	Missive d'Hiver.
Monsieur Le Curé.	Cueillette d'Hiver.
Clion.	Comice de Toulon.
Belle de Berry.	Du Curé.
Belle Héloïse.	Grosse Allongée.
Bon Papa.	Du Pradel.
De Clion.	Wicar of Wakefield.
Monsieur.	Pradello De Catalogne.
Belle Andreane.	Curette.
De Monsieur Le Curé.	Jouffroy.
Belle Adrienne.	Messire d'Hiver.
Vicaire de Winkfield.	

This large and productive Pear was discovered, as a natural seedling, in the woods of Clion, France, by a French *curate*, whence it obtained in France the familiar name of *Le Curé*, or *Monsieur Le Curé*. A short time after it became known at Paris, it was imported into England by the Reverend Mr. Rham, of Winkfield, Berkshire, and cultivated and disseminated from thence, becoming known in the neighborhood of London as the *Vicar of Winkfield*. With regard to its merits there is some difference of opinion—some persons considering it a fine fruit. It is always remarkably large, fair, and handsome. We think it always a first-rate baking Pear. Occasionally we have tasted it fine as a table Pear, but generally it is astringent, and only third-rate for this purpose. If ripened off in a warm temperature, however, it will generally prove a good second-rate eating Pear. But its great productiveness, hardiness, and fine size, will always give it a prominent place in the orchard as a profitable market cooking Pear. The tree grows thriftily, with drooping fruit branches. Shoots diverging, dark olive brown.

Fruit large and long, pyriform, often six inches long, and a little one-sided. Skin fair and smooth, pale yellow, sometimes with a brownish cheek, and marked with small brown dots. Stalk an inch or an inch and a half long, slender, obliquely inserted without depression. Calyx large, open, set in a basin which is very slightly sunk. Flesh greenish white, generally juicy, but sometimes buttery, with a good, sprightly flavor. November to January.

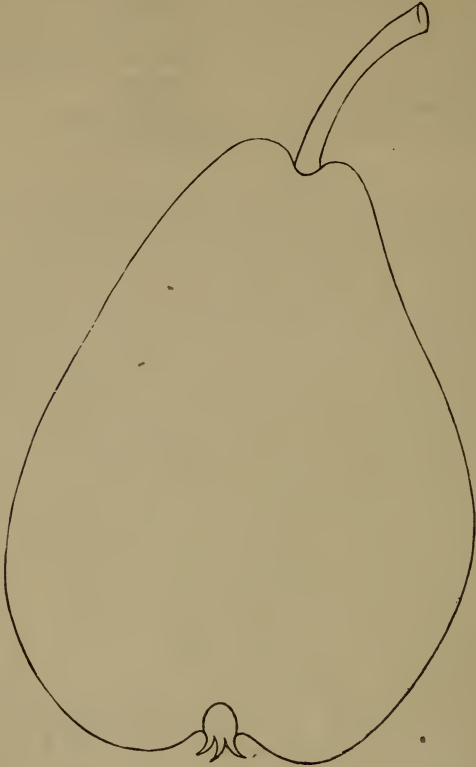
WALKER.

No. 135, Van Mons.

This is a seedling of Van Mons, and sent to Robert Manning, of Salem, Mass., in 1834-5, under number. The tree

is a vigorous, healthy grower, upright habit. The young wood grayish.

Fruit large, oblong pyriform. Skin greenish yellow, sometimes a shade of crimson in the sun. Slight nettings and patches of russet, and thickly sprinkled with brown dots.



Walker.

Stalk long, curved, set in a slight cavity, sometimes in a slight depression by a lip. Calyx open or partially closed. Basin medium. Flesh white, a little coarse, juicy, half melting, sweet, slightly vinous. Good to very good. October.

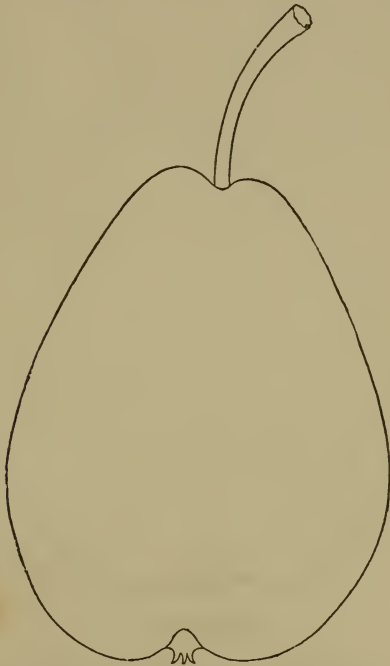
WASHINGTON.

Robinson.
Robertson.

Naaman's Creek.
Namen's Creek.

A beautiful American Pear, of very excellent quality, which is a native of Delaware. It was discovered there in a thorn hedge, near Naaman's Creek, on the estate of Colonel Robinson. It is one of the most attractive and distinct of our native dessert Pears. Tree vigorous, very productive. Young shoots slender, diverging, reddish-yellow brown.

Fruit of medium size, oval obovate, regularly formed.



Washington.

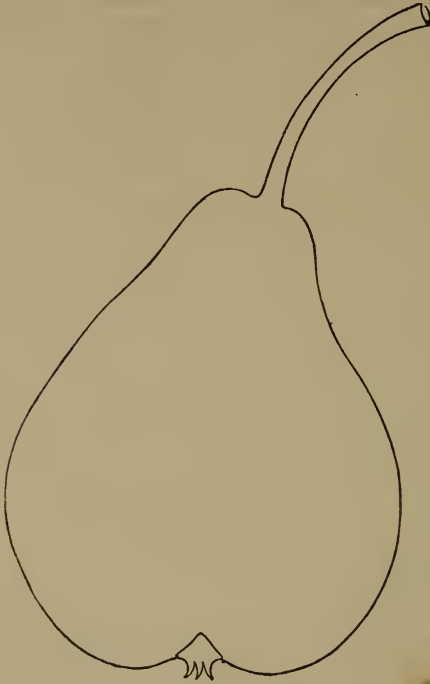
Skin smooth, clear lemon yellow, with a sprinkling of reddish dots on the sunny side. Stalk about an inch and a half long, inserted even with the surface, or with a slight depression. Calyx small, partly closed, and set in a shallow basin. Flesh white, very juicy, melting, sweet, and agreeable. Very good. Middle of September.

WHARTON'S EARLY.

Wharton's Seedling.

Originated with Silas Wharton, near Cincinnati, Ohio. Tree vigorous. Young wood olive-yellowish brown.

Fruit medium size, roundish pyriform, sometimes acute. Skin pale yellow, traces of russet, and thickly sprinkled with



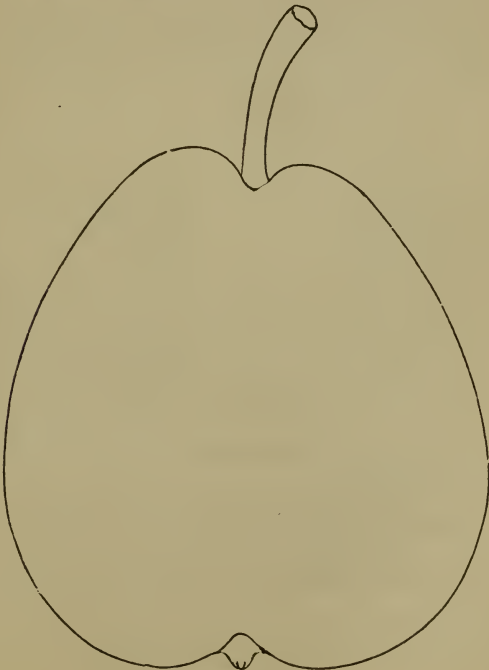
Wharton's Early.

russet dots. Stalk long, curved, rather slender, set in a slight cavity, sometimes by a lip, sometimes joined acutely with the fruit. Calyx open. Basin small, uneven. Flesh whitish, juicy, melting, sweet, slightly musky. Good to very good. August.

WHITE DOYENNÉ.

Doyenné White.	Poire de Limon.
Virgalieu, of New York.	Valencia.
St. Michael, of Boston.	Citron de Septembre.
Butter Pear, of Philadelphia.	Bonne-ente.
Virgaloo.	A courte queue.
Bergoloo.	Kaiserbirne.
Yellow Butter.	Kaiser d'Automne.
White Beurré.	Weisse Herbst Butterbirne.
White Autumn Beurré.	Dechantsbirne.
Dean's.	Nouvelle d'Ouef.
Warwick Bergamot.	Edwige.
Pine Pear.	Carlisle.
St. Michel.	White or Autumn Butter.
Reigner.	Valencia or Valencia.
Doyenné.	Poire du Doyen.
Doyenné blanc.	Garner or Gardner.
Beurré Blanc.	Sublime Garnotte.

The White Doyenné is, unquestionably, one of the most perfect of autumn Pears. Its universal popularity is attested



White Doyenné.

by the great number of names by which it is known in various parts of the world. As the Virgalieu in New York, Butter Pear in Philadelphia, and St. Michael's in Boston, it is most commonly known; but all these names, so likely to create confusion, should be laid aside for the true one, White Doyenné.* It is an old French variety, having been in cultivation over two hundred years. The branches are strong, upright, yellowish gray or light brown.

Fruit of medium or large size, regularly formed, obovate. It varies considerably in different soils, and is often shorter or longer on the same tree. Skin smooth, clear pale yellow, regularly sprinkled with small dots, and often with a fine red cheek. Stalk brown, from three-fourths to an inch and a fourth long, a little curved, and planted in a small round cavity. Calyx always very small, closed, set in a shallow basin, smooth or delicately plaited. Flesh white, fine-grained, very buttery, melting, rich, high-flavored and delicious. Best. September—and, if picked early from the tree, will often ripen gradually till December.

The DOYENNÉ PANACHE, or *Striped Dean*, is a variety rather more narrowing to the stalk, the skin prettily striped with yellow, green, and red, and dotted with brown. Flesh juicy, melting, but not high-flavored. October.

WINTER NÉLIS.

Nélis d'Hiver.
Bonne de Malines.
Beurré de Malines.
La Bonne Malinaise.
Milanaise Couvelier.

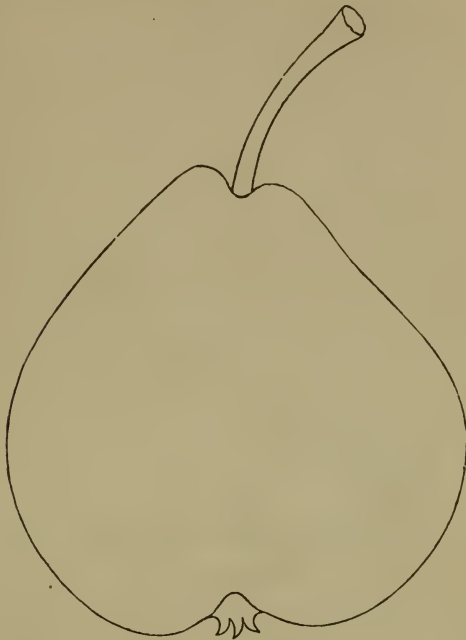
Etourneau.
Bergamotte Thouin.
Colmar Nélis.
Thouin.
Colmar d'Hiver.

The Winter Nélis holds, in our estimation, nearly the same rank among winter Pears that the Seckel does among the autumnal varieties. It is a very hardy and thrifty tree, and bears regular crops of pears, which always ripen well, and in succession. Branches diverging, rather slender, dark reddish brown. It is a Flemish Pear, and was originated by M. Nélis, of Mechlin.

Fruit of medium size, or usually a little below it, roundish obovate, narrowed-in near the stalk. Skin yellowish green at maturity, dotted with gray russet, and a good deal covered with russet patches and streaks, especially on the sunny side.

* Virgalieu seems an American name, and is always liable to be confounded with the Virgouleuse, a very different fruit. The Doyenné (pronounced *duoyannay*), literally *deanship*, is probably an allusion to the Dean by whom it was first brought into notice.

Stalk an inch and a half long, bent, and planted in a narrow cavity. Calyx open, with stiff, short divisions, placed in a shallow basin. Flesh yellowish white, fine-grained, buttery, and very melting, abounding with juice of a rich, saccharine, aromatic flavor. Best. In perfection in December, and keeps till the middle of January.

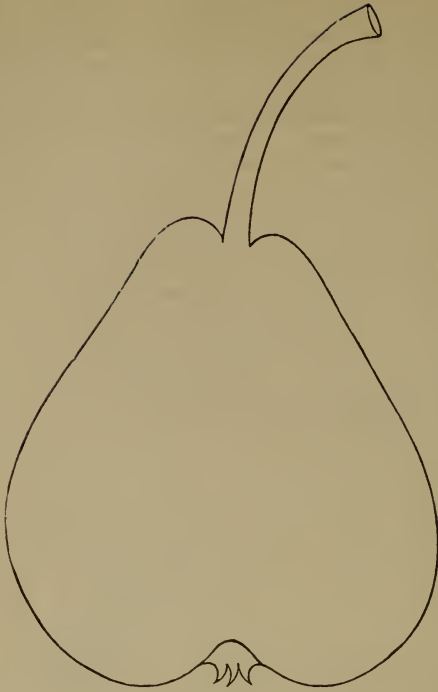


Winter Nélis.

WILMINGTON.

A seedling of *Passe Colmar*, raised by Dr. Brinckle, of Philadelphia. Tree a moderate grower. Young wood dull yellow brown.

Fruit medium, roundish oblate obtuse pyriform. Skin greenish yellow, netted and patched with russet, and thickly sprinkled with russet dots. Stalk long, curved, set in a small cavity, sometimes by a lip. Calyx open. Segments persistent. Basin rather shallow, uneven. Flesh whitish, fine, juicy, buttery, melting, sweet, pleasant, slightly aromatic. Very good. September.



Wilmington.

CHAPTER XXVIII.

THE PLUM.

Prunus domestica, L. *Rosacæ*, of botanists.

Prunier, of the French; *Pflaumenbaum*, German; *Prugno*, Italian; *Ciruelo*, Spanish.

THE original parent of most of the cultivated Plums of our gardens is a native of Asia and the southern parts of Europe, but it has become naturalized in this country, and in many parts of it is produced in the greatest abundance. That the soil and climate of the Middle States are admirably suited to

this fruit is sufficiently proved by the almost spontaneous production of such varieties as the Washington, Jefferson, Lawrence's favorite, etc.; sorts which equal or surpass in beauty or flavor the most celebrated Plums of France or England.*

USES. The finer kinds of plums are beautiful dessert fruits, of rich and luscious flavor. They are not, perhaps, so entirely wholesome as the peach and the pear, as, from their somewhat cloying and flatulent nature, unless when very perfectly ripe, they are more likely to disagree with weak stomachs.

For the kitchen the plum is also very highly esteemed, being prized for tarts, pies, canning, sweetmeats, etc. In the South of France an excellent spirit is made from this fruit fermented with honey. In the western part of this State, where they are very abundant, they are halved, stoned, and dried in the sun or ovens in large quantities, and are then excellent for winter use. For eating, the plum should be allowed to hang on the tree till perfectly ripe, and the fruit will always be finer in proportion as the tree has a more sunny exposure. The size and quality of the fruit is always greatly improved by thinning the fruit when it is half-grown. Indeed, to prevent rotting, and to have this fruit in its highest perfection, no two plums should be allowed to touch each other while growing, and those who are willing to take this pains, are amply repaid by the superior quality of the fruit.

One of the most important forms of the plum in commerce

* There are three species of wild plums indigenous to this country—of tolerable flavor, but seldom cultivated in our gardens. They are the following:—

I. The CHICKASAW PLUM. (*Prunus Chicasa*, Michaux.) Fruit about three-fourths of an inch in diameter, round, and red or yellowish red, of a pleasant, subacid flavor, ripens pretty early. Skin thin. The branches are thorny, the head rather bushy, with narrow lanceolate serrulate leaves, looking at a little distance somewhat like those of a peach-tree. It usually grows about 12 or 14 feet high; but on the Prairies of Arkansas it is only 3 or 4 feet high, and in this form it is also common in Texas. The DWARF TEXAS PLUM, described by Kenrick, is only this species. It is quite ornamental.

II. WILD RED OR YELLOW PLUM. (*P. Americana*, Marshall.) Fruit roundish oval, skin thick, reddish orange, with a juicy, yellow, subacid pulp. The leaves are ovate, coarsely serrate, and the old branches rough and somewhat thorny. Grows in hedges, and by the banks of streams, from Canada to the Gulf of Mexico. Tree from 10 to 15 feet high. Fruit ripens in July and August.

III. The BEACH PLUM, or Sand Plum. (*P. Maritima*, Wang.) A low shrub with stout straggling branches, found mostly on the sandy sea-coast, from Massachusetts to Virginia, and seldom ripening well elsewhere. Fruit roundish, scarcely an inch in diameter, red or purple, covered with a bloom. Pleasant but somewhat astringent. Leaves oval, finely serrate.

is that of *prunes*, as they are exported from France to every part of the world. We quote the following interesting account of the best mode of preparing prunes from the *Aboretum Britannicum* :—

The best *prunes* are made near Tours, of the St. Catherine Plum and the Prune d'Agen; and the best *French plums* (so called in England) are made in Provence, of the Perdrigon blanc, the Brignole, and the Prune d'Ast; the Provence plums being the most fleshy, and having always most bloom. Both kinds are, however, made of these and other kind of plums, in various parts of France. The plums are gathered when just ripe enough to fall from the trees on their being slightly shaken. They are then laid, separately, on frames or sieves made of wicker-work or laths, and exposed for several days to the sun, till they become as soft as ripe medlars. When this is the case they are put into a spent oven shut quite close, and left there for twenty-four hours; they are then taken out, and the oven being slightly reheated, they are put in again when it is rather warmer than it was before. The next day they are again taken out, and turned by slightly shaking the sieves. The oven is heated again, and they are put in a third time, when the oven is one-fourth degree hotter than it was the second time. After remaining twenty-four hours, they are taken out, and left to get quite cold. They are then rounded, an operation which is performed by turning the stone in the plum without breaking the skin, and pressing the two ends together between the thumb and finger. They are then again put upon the sieves, which are placed in an oven from which the bread has been just drawn. The door of the oven is closed, and the crevices are stopped round it with clay or dry grass. An hour afterwards the plums are taken out, and the oven is again shut, with a cup of water in it, for about two hours. When the water is so warm as just to be able to bear the finger in it, the prunes are again placed in the oven, and left there for twenty-four hours, when the operation is finished, and they are put loosely into small, long, and rather deep boxes, for sale. The common sorts are gathered by shaking the trees; but the finer kinds, for making French plums, must be gathered in the morning, before the rising of the sun, by taking hold of the stalk between the thumb and finger, without touching the fruit, which is laid gently on a bed of vine-leaves in a basket. When the baskets are filled, without the plums touching each other, they are removed to the fruit-room, where they are left for two or three days exposed to the sun and air; after which the same process is employed as for the others; and in this way

the delicate bloom is retained on the fruit, even when quite dry.

PROPAGATION AND CULTURE. The plum is usually propagated in this country by sowing the seeds of any common free-growing variety (avoiding the Damsons, which are not readily worked), and budding them, when two years old, with finer sorts. The stones should be planted as soon as gathered, in broad drills (as in planting peas), but about an inch and a half deep. In good soil the seedlings will reach eighteen inches or two feet in height the next season, and in the autumn or the ensuing spring they may be taken from the seed-beds, their tap-roots reduced, and all that are of suitable size planted at once in the nursery rows, the smaller ones being thickly bedded until after another season's growth.

The stocks planted out in the nursery will ordinarily be ready for working about the ensuing midsummer, and as the plum is quite difficult to bud in this dry climate if the exact season is not chosen, the budder must watch the condition of the trees, and insert his buds as early as they are sufficiently firm,—say, in this neighborhood, about the 10th of July. Insert the buds, if possible, on the north side of the stock, that being more protected from the sun, and tie the bandage rather more tightly than for other trees.

The English propagate very largely, by layers, three varieties of the common plum—the *Muscle*, the *Brussels*, and the *Pear Plum*, which are almost exclusively employed for stocks with them. But we have not found these stocks superior to the seedlings raised from our common plums (the *Blue Gage*, *Horse Plum*, etc.), so abundant in all our gardens. For dwarfing, the seedlings of the *Mirabelle* are chiefly employed.

Open standard culture is the universal mode in America, as the plum is one of the hardiest of fruit-trees. It requires little or no pruning beyond that of thinning out a crowded head, or taking away decayed or broken branches, and this should be done before midsummer, to prevent the flow of gum. Old trees that have become barren may be renovated by heading them in pretty severely, covering the wounds with a solution of gum shellac, and giving them a good top-dressing at the roots.

SOIL. The Plum will grow vigorously in almost every part of this country, but it only bears its finest and most abundant crops in heavy loams, or in soils in which there is a considerable mixture of clay. In sandy soils the tree blossoms and sets plentiful crops, but they are rarely perfected, falling a prey to the *curculio*, an insect that harbors in the

soil, and seems to find it difficult to penetrate or live in one of a heavy texture, while a warm, light, sandy soil is exceedingly favorable to its propagation. It is also undoubtedly true that a heavy soil is naturally the most favorable one. The surprising facility with which superior new varieties are raised merely by ordinary reproduction from seed, in certain parts of the valley of the Hudson, as at Hudson or near Albany, where the soil is quite clayey, and also the delicious flavor and great productiveness and health of the plum-tree there, almost without any care, while in adjacent districts of rich sandy land it is a very uncertain bearer, are very convincing proofs of the great importance of clayey soil for this fruit.*

Where the whole soil of a place is light and sandy, we would recommend the employment of pure yellow loam or yellow clay in the place of manure, when preparing the border or spaces for planting the plum. Very heavy clay, burned slowly by mixing it in large heaps with brush or fagots, is at once an admirable manure and alterative for such soils. Swamp muck is also one of the best substances, and especially that from salt-water marshes.

Common salt we have found one of the best fertilizers for the plum-tree. It greatly promotes its health and luxuriance.

INSECTS AND DISEASES. There are but two drawbacks to the cultivation of the plum in the United States, but they are in some districts so great as almost to destroy the value of this tree. These are the *curculio* and the *knots*.

The *curculio*, or plum-weevil (*Rhynchænus Nenuphar*), is the uncompromising foe of all smooth-stone fruits. The cultivator of the Plum, the Nectarine, and the Apricot, in many parts of the country, after a flattering profusion of snowy blossoms and an abundant promise in the thickly set young crops of fruit, has the frequent mortification of seeing nearly all, or indeed, often, the whole crop, fall from the trees when half or two-thirds grown.

If he examines these falling fruits he will perceive on the surface of each, not far from the stalk, a small semi-circular scar. This scar is the crescent-shaped insignia of that little Turk the *curculio*—an insect so small as, perhaps, to have escaped his observation for years, unless particularly drawn to it, but which nevertheless appropriates to himself the whole product of a tree, or an orchard of a thousand trees.

The habits of this *curculio*, or plum-weevil, are not yet fully

* When this was written it was generally supposed that the *curculio* would not attack the fruit of plums growing on trees in clayey soils; but practical experience has shown that such is not the fact.—REVISOR.

and entirely ascertained. But careful observation has resulted in establishing the following points in its history :—



The curculio, and its mark.

The Plum-weevil is a small, dark brown beetle, with spots of white, yellow, and black. Its length is scarcely one-fifth of an inch. On its back are two black humps, and it is furnished with a pretty long, curved throat and snout, which, when it is at rest, is bent between the forelegs. It is also provided with two wings, with which it flies through the air. How far this insect flies is yet a disputed point, some cultivators affirming that it scarcely goes farther than a single tree, and others believing that it flies over a whole neighborhood. Our own observation inclines us to the belief that this insect emigrates just in proportion as it finds in more or less abundance the tender fruit for depositing its eggs. Very rarely do we see more than one puncture in a plum, and, if the insects are abundant, the trees of a single spot will not afford a sufficient number for the purpose ; then there is little doubt (as we have seen them flying through the air), that the insect flies farther in search of a larger supply. But usually, we think, it remains nearly in the same neighborhood, or migrates but slowly.

About a week or two after the blossoms have fallen from the trees, if we examine the fruit of the plum in a district where this insect abounds, we shall find the small, newly-formed fruit beginning to be punctured by the proboscis of the plum-weevil. The insect is so small and shy, that unless we watch closely it is very likely to escape our notice. But if we strike or shake the tree suddenly, it will fall in considerable numbers on the ground, drawn up as if dead, and resembling a small raisin, or perhaps more nearly, a ripe hempseed. From the first of April until August this insect may be found, though we think its depredations on fruit, and indeed its appearance in any quantity, are confined to the months of May and June in this climate. In places where it is very abundant, it also attacks to some extent the cherry, the peach, and even the apple and pear.

Early in July the punctured plums begin to fall rapidly from the tree. The egg deposited in each, at first invisible, has become a white grub or larva, which slowly eats its way towards the stone or pit. As soon as it reaches this point the fruit falls to the ground. Here, if left undisturbed, the grub soon finds its way into the soil.

There, according to most cultivators of fruit, and to our

own observations, the grubs or larvæ remain till the ensuing spring, when in their perfect form they again emerge as beetles and renew their ravages on the fruit. It is true that Harris and some other naturalists have proved that the insect does sometimes undergo its final transformation and emerge from the ground in twenty days, but we are inclined to the opinion that this only takes place with a small portion of the brood, which, perhaps, have penetrated but a very short distance below the surface of the soil. These making their appearance in midsummer, and finding no young fruit, deposit their eggs in the young branches of trees, etc. But it is undeniable that the season of the plum-weevil is early spring, and that most of the larvæ which produce the annual swarm, remain in the soil during the whole period intervening since the fall of the previous year's fruit. Plum-trees growing in hard-trodden court-yards usually bear plentiful crops.

The modes of destroying the plum-weevil are the following:—

1. *Shaking the tree and killing the beetles.* Watch the young fruit, and you will perceive when the insect makes its appearance by its punctures upon them. Spread some sheets under the tree, and strike the trunk pretty sharply several times with a *wooden mallet*. The insects will quickly fall, and should be killed immediately. This should be repeated daily for weeks, or so long as the insects continue to make their appearance. Repeated trials have proved, beyond question, that this rather tedious mode is a very effectual one if persisted in.* Coops of chickens placed about under the trees at this season will assist in destroying the insects.

Dr. E. S. Hull, of Alton, Illinois, has invented a machine for catching the curculio on a large scale, for orchard culture,

* Merely *shaking* the tree is not sufficient. The following memorandum, as additional proof, we quote from the *Genesee Farmer*:—“Under a tree in a remote part of the fruit-garden, having spread the sheets, I made the following experiment: On *shaking* the tree well I caught five curculios; on jarring it with the hand I caught twelve more; and on striking the tree with a stone, eight more dropped on the sheets. I was now convinced that I had been in error; and calling in assistance and using a hammer to jar the tree violently, we caught, in less than an hour, more than two hundred and sixty of these insects.” We will add to this, that to prevent injury to the tree a large wooden mallet should be substituted for a hammer, and it is better if a thick layer of cloth is bound over its head. A sharp stunning blow is found necessary to readily dislodge the insect, and as such, when given directly upon the bark of the tree, often causes a bruise, it is found to be a good practice to saw off a small limb and strike the blow upon the stump.

but not having seen it, we copy an extract from the *Hearth and Home*:—

“This is nothing but a gigantic white umbrella, turned bottom upwards, mounted upon an immense wheelbarrow, and split in front to receive the trunk of the tree which is to be operated upon. At the interior end of the split in front is a padded bumper, which strikes against the trunk as the operator wheels the barrow, first against one tree, and then against another, and with two or three sudden jars fetches all the insects off the boughs into the white umbrella, which gapes widely open to receive them. Really, it is a most magnificent institution, but for its practical success three things are necessary: 1st. That the land should be decently clean, and not overgrown with rank weeds four or five feet high. 2d. That the orchard be a sufficiently large one to pay the interest on the prime cost of the machine. 3d. That the trees have a clean trunk of some three or four feet.”

For those wishing a full description of the machine, we refer them to the Doctor's own statement in the *American Entomologist* for July, 1869.

2. *Gathering the fruit and destroying the larvæ.* As the insect, in its larva or grub form, is yet within the plums when they fall prematurely from the tree, it is a very obvious mode of exterminating the next year's brood to gather these fallen fruits daily, and feed them to swine, boil, or otherwise destroy them.

A simple and easy way of covering the difficulty, where there is a plum orchard or enclosure, is that of turning in swine and fowls during the whole season, when the stung plums are dropping to the ground. The fruit, and the insects contained in it, will thus be devoured together. This is an excellent expedient for the farmer, who bestows his time grudgingly on the cares of the garden.

The knots, or black gum. In some parts of the country this is a most troublesome disease, and it has, in neighborhoods where it has been suffered to take its course, even destroyed the whole race of Plum-trees.

The knots is a disease attacking the bark and wood. The former at first becomes swollen, afterwards bursts, and, finally, assumes the appearance of large, irregular, black lumps, with a hard, cracked, uneven surface, quite dry within. The passage of the sap upwards becomes stopped by the compression of the branch by the tumor, and, finally, the poison seems to disseminate itself by the downward flow of the sap through the whole trunk, breaking out in various parts of it.

The sorts of plum most attacked by this disease are those with purple fruit, and we have never known the green or yellow fruited varieties infected, until the other sorts had first become filled with the knots. The common Horse Plum and Damson appear to be the first to fall a pray to it, and it is more difficult to eradicate it from them than from most other sorts. The common Morello cherry is also very often injured by the same disease, and, in some districts, the sweet cherry also.

There is yet some doubt respecting the precise cause of these knotty excrescences, though there is every reason to think it is the work of an insect. Professor Peck and Dr. Harris believe that they are caused by the same curculio or plum-weevil that stings the fruit; the second brood of which, finding no fruit ready, choose the branches of this tree and the cherry. This observation would seem to be confirmed by the fact that the grubs or larvæ of the plum-weevil are frequently found in these warts, and that the beetles have been seen stinging the branches.

On the other hand, the following facts are worthy of attention: First, in some parts of the country where the curculio has been troublesome for many years, the knots have never been known. Secondly, in many cases the knots have been abundant on Plum-trees, when the fruit was entirely fair and uninjured by the curculio, even upon the same branches.

These facts seem so irreconcilable with the opinion that the curculio produces both these effects, that we rather incline at present to the belief, that though the curculio deposits its eggs in the tumors on the branches while they are yet soft and tender, yet it is not to the curculio, but to some other insect or cause that we owe this unsightly disease.

Practically, however, this is of little account. The experience of many persons, besides ourselves, has proved most satisfactorily that it is easy to extirpate this malady, if it is taken in season and unremittingly pursued. As early as possible in spring the whole of the infected trees should be examined, and every branch and twig that shows a tumor should be cut off and immediately burned. Whatever may be the insect, we thus destroy it, and, as experience has taught us that the malady spreads rapidly, we will thus effectually prevent its increase. If the trees are considerably attacked by it, it will probably be necessary to go over them again about the middle of May, but, usually, once a year will be sufficient. If any of the trees are very much covered with these knots, it is better to head back the shoots severely, or dig them up and burn them outright, and it will be necessary

to prevail upon your neighbors, if they are near ones, to enter into the plan, or your own labors will be of little value. Pursue this simple and straightforward practice for two or three seasons (covering any large wounds made with the solution of gum shellac), and the knots will be found to disappear, the curculio to the contrary notwithstanding.

VARIETIES. There are now a pretty large number of fine plums, and some most important additions have been made by the seedlings raised in this country. The Green Gage still stands at the head of the list for high flavor, though several other sorts are nearly or quite equal to it. The Washington, the Jefferson, and the Madison are among the largest and most beautiful; and Coe's Golden Drop and Reine Claude de Bavay are very desirable for their late maturity.

In describing Plums, the surface of the young wood, when just ripened, is an important character; as it is *smooth* in some varieties, and *downy*, or covered with soft hairs, in others. In some varieties, the flesh *parts* from the stone, while in others it *adheres*. And, finally, the depressed line or channel which runs down one side of the exterior surface of the plum is called the *suture*, and the prominence or absence of this feature enables us to distinguish many kinds at first sight.

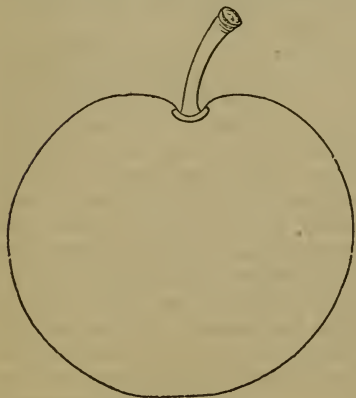
VARIETIES.

BAYAY'S GREEN GAGE.

Reine Claude de Bavay. Monstrueuse de Bavay. Saint Clair.

Raised by Major Esperen, and dedicated to M. De Bavay, of Vilvorde. A very vigorous grower, very productive, and a valuable addition to the late varieties. Branches smooth.

Fruit large, roundish, slightly depressed. Skin greenish yellow, with stripes and splashes of green, covered with a thin bloom. Suture medium. Apex dimpled. Stalk short and stout, set in a small cavity. Flesh yellow, juicy, melting, with a sugary, rich, excellent flavor; separates from



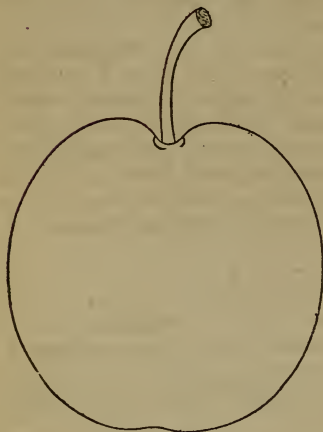
Bayay's Green Gage.

the stone. Best. Last of September and first of October.

BELGIAN PURPLE.

Bleu de Belgique.

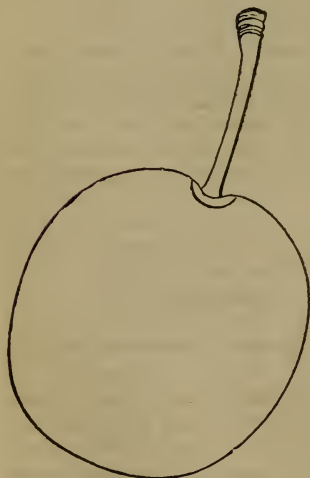
Bleu de Perque.



Belgian Purple.

From Belgium. Tree vigorous. Branches smooth. Buds prominent.

Fruit rather large, roundish oval. Suture shallow. Apex sunken. Skin deep brownish purple, covered with a blue bloom. Stalk half inch long, rather slender. Cavity large. Flesh a little coarse, greenish, juicy, rich, sugary; adheres to the stone. Very good. Early September.



Bleeker's Gage.



Blue Impératrice.

BLEECKER'S GAGE.

German Gage. Bleecker's Yellow. Bleecker's Yellow Gage.

A fruit of the first quality, not only excellent but remarkably hardy, and a good and regular bearer. It was raised by the late Mrs. Bleecker, of Albany. Tree very vigorous. Branches downy.

Fruit of medium size, roundish oval, very regular. Suture scarcely perceptible. Stalk quite long, an inch or more, straight and pretty stout, downy, slightly inserted. Skin yellow, with numerous imbedded white specks, and a thin white bloom. Flesh yellow, rich, sweet, and luscious in flavor; separates almost entirely from stone, which is pointed at both ends. Easily distinguished from Yellow Gage by its longer and stouter stalk. Very good. Last of August.

BLUE IMPÉRATRICE.

Impératrice.	Violette.	Empress.
Véritable Impératrice.	Impératrice Violet.	Violet Empress.

The true Blue Impératrice is an admirable Plum, one of the finest of the late plums, hanging for a long time on the tree, and may be kept in the fruit-room a considerable period after being gathered. It is rich, sugary, and excellent. The branches are long, smooth, and slender, and the smaller twigs start out at nearly right angles with the main branches.

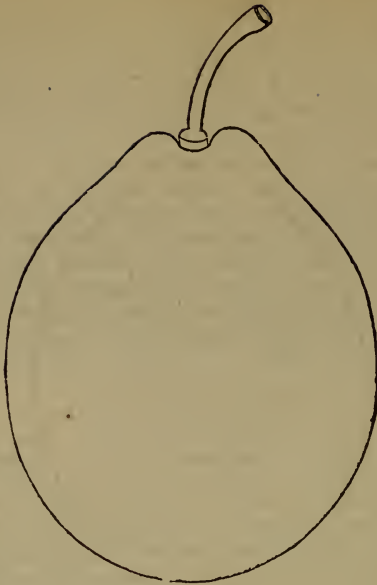
Fruit of medium size, oval obovate obtuse, tapering most towards the stalk. Stalk nearly an inch long, set in a slight hollow. Skin deep purple, covered with a thick blue bloom. Flesh greenish yellow, pretty firm, rather dry, but quite rich and sugary, adhering closely to the stone. Very good. Ripens in October, and will hang, in sheltered situations, till the middle of November.

BRADSHAW.

Black Imperial. Blue Imperial.

Tree an upright, vigorous grower. Branches smooth, brownish.

Fruit large, oval obovate, sometimes with a slight neck. Suture half round, broad, shallow. Apex a little sunk. Skin reddish purple, covered with a light blue bloom. Stalk rather stout, curved, set in a small cavity. Flesh yellowish, coarse, juicy, brisk, pleasant; adheres partially to the stone. Good to very good. August.



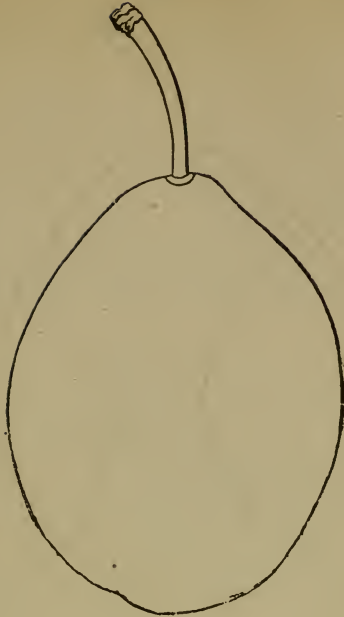
Bradshaw.

COE'S GOLDEN DROP.

Bury Seedling.	Waterloo of some.
Coe's Imperial.	Goutte d'Or.
New Golden Drop.	Coe's Plum.
Fair's Golden Drop.	Prune Goutte d'Or.
Golden Gage.	

Raised by Mr. Coe, an English gardener, near London. Tree moderately vigorous, productive; requires a warm, late season to ripen it north of 41° latitude. Branches smooth.

Fruit of the largest size, oval, with a well-marked suture, on one side of which it is a little more swollen than the other, the outline narrowing towards the stalk. Skin light yellow, with a number of rich dark red spots on the sunny side. Stalk nearly an inch long, rather stiff, set on the end of the fruit. Flesh yellow, rather firm, adhering closely to the stone, which is quite pointed. Flavor rich, sweet, and delicious. Very good. Last of September.



Coe's Golden Drop.

COE'S VIOLET.

Coe's Golden Drop Violette.

Tree vigorous. Branches smooth, dark brown.

Fruit large, oval. Suture large, extending a little beyond the apex. Skin light reddish, thickly sprinkled with brown dots and a lilac bloom. Stalk rather long and stout. Cavity small. Flesh yellowish, juicy, sweet; adheres to the stone. Good to very good. September.

COPPER.

French Copper.

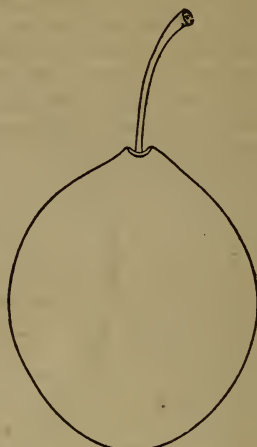
An old Plum, very productive, profitable, and a good market sort. Tree vigorous. Branches smooth.

Fruit medium or below, oval, without suture and with a slight mamelon neck. Skin deep copper color, covered with a thick blue bloom. Stalk rather long, slender, set on a point

without depression. Flesh greenish, juicy, and acid; adheres to the stone. Good. Valued for cooking. Last of September.



Coe's Violet.



Copper.

DAMSON.

Common Damson,
Black Damson.

Purple Damson.
Early Damson of many.

The common oval Blue Damson is almost too well known to need description, as every cottage garden in the country contains this tree, and thousands of bushels are annually sold in the market for preserves. The tree is enormously productive, but in the hands of careless cultivators is liable to be rendered worthless by the *knots*, which are easily extirpated if the diseased branches are regularly burned every winter or spring. Branches slender, a little thorny, and downy.

Fruit small, oval, about an inch long. Skin purple, covered with thick blue bloom. Flesh melting and juicy, rather tart; separates partially from the stone. September.

As the Damson is frequently produced from seed, it varies somewhat in character.

The SHROPSHIRE or PRUNE DAMSON is an English purple variety, rather obovate in figure, but little superior to our

common sort. The SWEET DAMSON resembles the common Damson, and is but slightly acid.

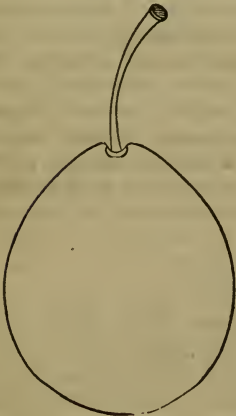
The LATE BLACK DAMSON, LATE PURPLE DAMSON, PRINCE'S EARLY DAMSON, SMALL RED DAMSON, SMALL WHITE DAMSON, LARGE WHITE DAMSON, are also varieties not of sufficient value or distinctness to render separate description necessary.

The WINTER DAMSON is a valuable market sort from its extreme lateness. It is small, round, purple, covered with a very thick light blue bloom. Flesh greenish, acid, with a slight astringency, but makes good preserves. It bears enormous crops, and will hang on the tree till the middle of November, six weeks after the common Damson, uninjured by the early frosts.

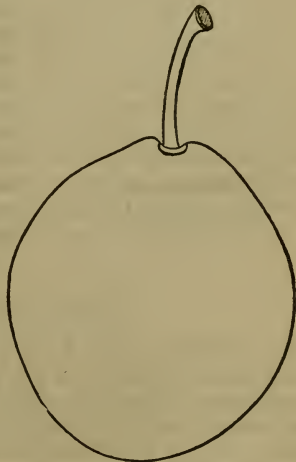
DE DÉLICE.

A foreign variety of excellence. Tree moderately vigorous and productive. Branches smooth.

Fruit medium, roundish oval, with a slight neck, a little swollen on one side. Suture small. Skin green, marbled and shaded with violet, and covered with a thin bloom. Stalk three-fourths of an inch long, rather stout, very slightly inserted. Flesh orange yellow, juicy, melting, with a rich, sugary, luscious flavor; adheres slightly to the stone. Very good. Ripens the last of September.



De Délice.



De Montfort.

DE MONTFORT.

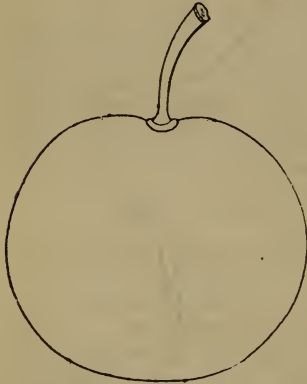
A seedling of Prevost. Tree of moderate growth, spreading, very productive. Branches smooth.

Fruit medium size, roundish oval. Suture large, extending to apex. Skin dull purple, with russet dots and stripes, a thin blue bloom. Stalk half an inch long, rather stout, set in a small cavity. Flesh greenish, juice abundant, sweet, and rich; separates from the stone. Very good. Ripens last of August.

DENNISTON'S SUPERB.

Madison.

An excellent seedling, from Mr. Denniston's famous plum orchard, near Albany, N. Y., of the Green Gage family, a third larger than the latter variety, and nearly as rich in flavor. Tree very vigorous and productive. Branches downy.



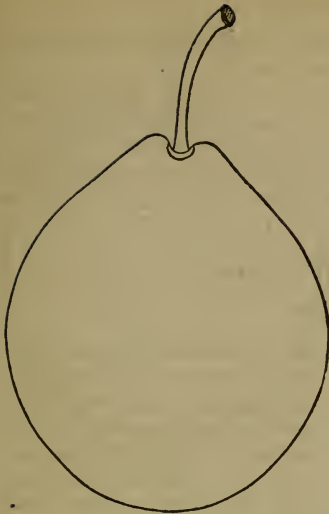
Denniston's Superb.

Fruit round, a little flattened, and having a distinct suture, often extending quite round the fruit. Skin pale yellowish green, marked with a few large purple blotches and dots, and overspread with a thin bloom. Stalk rough, three-fourths of an inch long, set in a cavity of moderate size. Flesh very thick (the stone being small), moderately juicy, with a rich vinous flavor; stone parts readily, and is roundish and thick. Best. Middle and last of August.

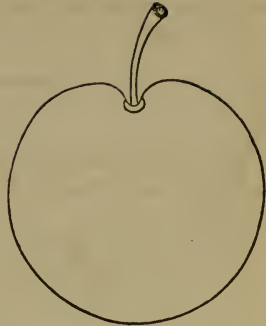
DORR'S FAVORITE.

Originated with Elisha Dorr, Albany, N. Y. Tree moderately vigorous. Branches smooth, brownish.

Fruit large, oval, with a slight neck. Suture broad. Apex a little sunk. Skin yellowish, marbled and dotted in the sun with purplish crimson, thin lilac bloom. Stalk long. Cavity small. Flesh yellowish, a little coarse, juicy, sweet; adheres to the stone. Good to very good. Last of September.



Dorr's Favorite.



Early Green Gage.

EARLY GREEN GAGE.

Reine Claude Hâtive.

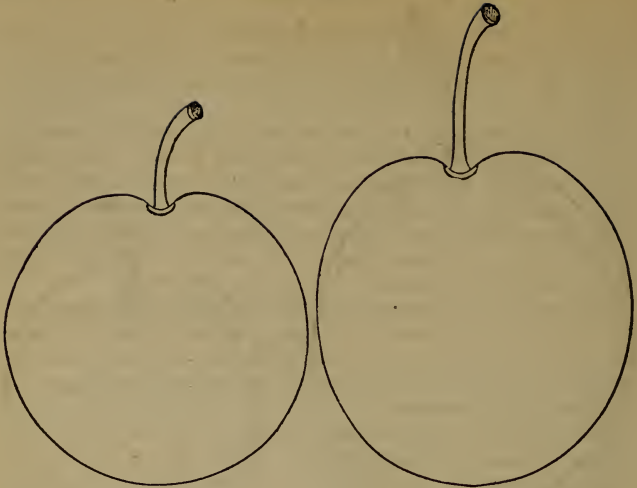
A new early foreign variety. Tree vigorous and productive. Branches smooth.

Fruit small to medium, roundish, regular. Skin pale greenish yellow, sometimes with a shade of red in the sun, and covered with a thin whitish bloom. Stalk short and small, inserted in a small, narrow cavity. Flesh greenish yellow, sugary, juicy and rich; separates from the stone, which is small and thin. Ripens the first week in August.

FOOTE'S GOLDEN GAGE.

Tree very vigorous, upright. Branches slightly downy, reddish brown.

Fruit large, nearly globular. Suture shallow, half round. Skin golden yellow, with obscure splashes of green, and shaded with red in the sun; thin bloom. Stalk slender. Cavity small. Flesh yellow, juicy, sweet, slightly vinous; adheres very slightly to the stone. Very good. Early September.



Foote's Golden Gage.

Fulton.

FULTON.

Origin uncertain. Found at Johnstown, Fulton Co., N. Y. Tree vigorous and productive. Branches smooth, reddish.

Fruit rather large, roundish oval. Suture shallow, half round. Skin whitish yellow, covered with a bloom, blotched and marbled in the sun. Stalk rather stout. Cavity large. Flesh golden yellow, juicy, sugary, vinous. Good to very good. Separates from the stone. Early October.

GERMAN PRUNE.

Common Quetsche.	Quetsche Grosse.
True Large German Prune.	Prune d'Allemagne.
Turkish Quetsche.	Quetsche d'Allemagne Grosse
Leipzig.	Damas Gros.
Sweet Prune.	Covetche.
Damask.	Early Russian.
Impératrice Violette.	German Quetsche. Couetsche.
Impératrice Violette Grosse.	Koetsche.
Damas Violet Gros.	Quetzen.
Zwetsche.	Large German Prune.

So many Plums are cultivated under the name of German Prune that is difficult to fix this fickle title, a circumstance owing to the fact that the prune frequently comes the same, or nearly the same, from seed, and in prune-growing districts this is a popular way of increasing them, while it, of course, gives rise to many shades of character. It is a valuable class

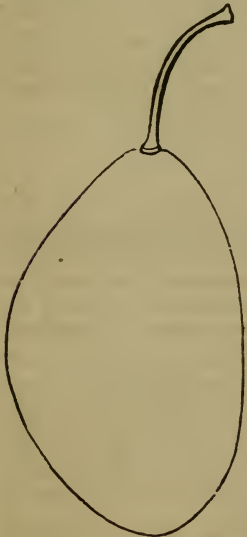
of plums, of fair quality for the table, but most esteemed for drying and preserving; abundant bearers, and hanging long on the tree. Branches smooth. The common German Prune is described as follows:—

Fruit long oval, nearly two inches long, peculiarly swollen on one side, and drawn out towards the stalk. Suture distinctly marked. Skin purple, with a thick blue bloom. Stalk three-fourths of an inch long, slender, slightly inserted. Flesh firm, green, sweet, and pleasant; separates from the stone, which is flat, very long, and a little curved. Good to very good. 10th of September.

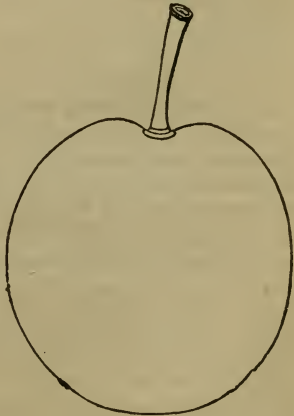
This prune is, perhaps, the most universal and most valuable fruit-tree in Germany, Hungary, Saxony, and all Central Europe. Preserved, it is used in winter as a substitute for butter by the laboring peasantry; and dried, it is a source of large profit in commerce.

The AUSTRIAN QUETSCH, *Thomp.* (*Quetsche de Brême, Bremen Prune*), is a sub-variety, much like the foregoing, purple, a freestone, of rather better flavor, and ripening somewhat later.

ST. JAMES' QUETSCH is another variety, with smooth branches, and oblong fruit of medium size. Flesh purple, adheres to the stone, of very good flavor. It yields good crops. September.



German Prune.



Golden Esperin.

GOLDEN ESPEREN.

Cloth of Gold Esperen.

Drap d'Or Esperen.

Raised by Major Esperen. Tree of moderate growth, spreading. Buds large, pointed, a promising variety. Branches smooth, reddish brown.

Fruit large, roundish oval. Skin golden yellow, with light streaks of green beneath, covered with a thin bloom, and a few crimson dots on the sunny side. Suture shallow. Stalk short and rather stout, in a small cavity. Flesh light yellowish, rather coarse, very juicy, sugary, and rich. Good to very good. Adheres partially to the stone. Ripens last of August.

GREEN GAGE.

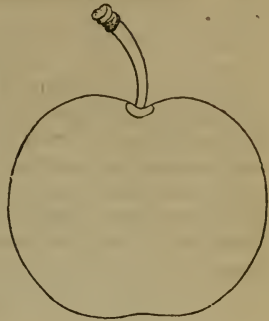
Bruyn Gage.	Aloise's Green Gage.
Bradford Gage.	Goring's Golden Gage.
Wilmot's Green Gage.	Great Green Damask.
———— New Green Gage.	Ida Green Gage.
———— Late Green Gage.	Mirabelle Vert Double.
Isleworth Green Gage.	Queen Claudia.
Brugnon Gage.	Rensselaer Gage.
Reine Claude.	Schuyler Gage, incorrectly.
Grosse Reine Claude.	Trompe Garçon.
Grosse Reine.	Trompe Valet.
Damas Vert.	Verducia.
Sucrin Vert.	Verdochio.
Vert Bonne.	Verte Tiquetée.
Abricot Vert.	Murray's Reine Claudia.
Dauphine.	Huling's Reine Claudia.
Louis Brun?	Reine Claudia blanche la grosse.
Abricotée Sageret?	Gros Damas vert.
Ida Gage.	Livingston Manor.
Cant's late Green Gage.	Reine Claude Dorée.

The Green Gage is universally admitted to hold the first rank in flavor among all Plums, and is everywhere highly esteemed. In France this variety is generally known as the Reine Claude, having, it is said, been introduced into that country by Queen Claude, wife of Francis I. During the last century an English family by the name of *Gage* obtained a number of fruit-trees among the monks of Chartreuse, near Paris. Among them was a tree of this plum, which, having lost its name, was called by the gardener the Green Gage. It is pronounced, by Lindley, the best plum in England, and we must admit that we have no superior to it here.

The Green Gage is a very short-jointed, slow-growing tree, of spreading and rather dwarfish habit. It is an abundant

and pretty regular bearer, though the fruit is a little liable to crack upon the tree in wet seasons. Branches smooth. Buds with large shoulders.

Fruit round, rather small, seldom of medium size. Suture faintly marked, but extending from the stalk to the apex. Skin green, or yellowish green at full maturity, when it is often a little dotted or marbled with red. Stalk half to three-fourths of an inch long, slender, very slightly inserted. Flesh pale green, exceedingly melting and juicy, and usually separates freely from the stone. Flavor at once sprightly and very luscious. Best. Ripe about the middle of August.



Green Gage.

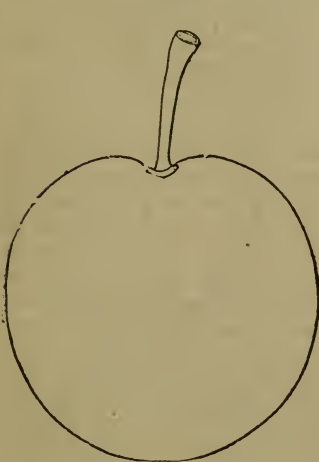
There are several seedling varieties of this Plum in various parts of this country, but none superior, or scarcely equal, to the old.

GUTHRIE'S LATE GREEN.

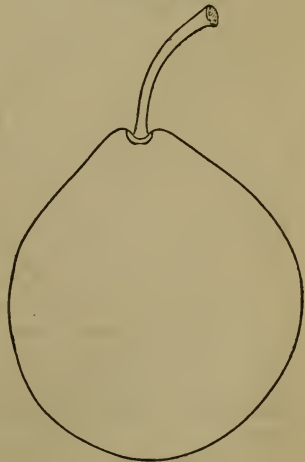
Minette.

Raised by Mr. Guthrie, Scotland. A very rapid grower. Branches smooth.

Fruit medium, globular, swollen on one side. Skin yellow,



Guthrie's Late Green.



Henry Clay.

with splashes of green, and covered with a thin bloom. Stalk three-fourths of an inch long, inserted in a small cavity. Flesh greenish yellow, juicy, sugary, rich; adheres to the stone. Very good. Early September.

HENRY CLAY.

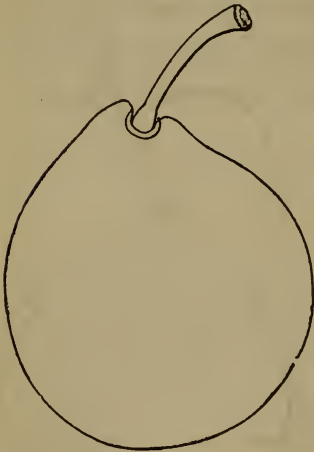
Raised by Elisha Dorr, Albany, N. Y. Tree vigorous and productive. Its great beauty will make it desirable. Branches smooth.

Fruit medium, somewhat oval, inclining to a neck, with a slight suture. Skin yellow, with a light bloom, and the cheek beautifully marbled and shaded with red. Stalk long, slender, inserted in a small cavity. Flesh yellow, juicy, and sweet; adheres slightly to the stone. Good to very good. Last of August.

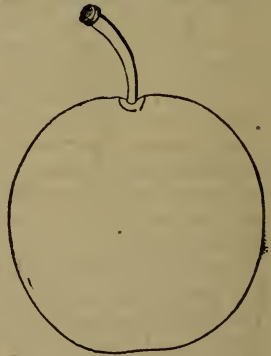
HOWARD'S FAVORITE.

Raised by E. Dorr, Albany, N. Y. Tree a vigorous grower, very productive. Branches smooth.

Fruit large, oval, narrowing toward the stalk, and flattened at apex. Suture shallow, a little more than half round. Skin



Howard's Favorite.



Hudson Gage.

pale yellow, dotted and marbled with carmine in the sun, covered with a thin lilac bloom. Stalk rather long. Cavity small. Flesh yellow, juicy, sweet; adheres to the stone. Good to very good. September.

HUDSON GAGE.

Reine Claude d'Hudson.

Raised by L.U Lawrence, of Hudson, N. Y. Tree thrifty, productive. Branches downy.

Fruit of medium size, oval, a little enlarged on one side of the obscure suture. Skin yellow, clouded with green streaks under the skin, and covered with a thin white bloom. Stalk short, little more than half an inch long, inserted in a moderate hollow. Flesh greenish, very juicy and melting, with a rich, sprightly, excellent flavor. It separates from the stone (adhering very slightly). Very good. First week in August.

IMPERIAL GAGE.

Flushing Gage.

White Gage.

Prince's Imperial Gage.

Superior Green Gage.

Prince's Imperial.

Reine Claude Impériale.

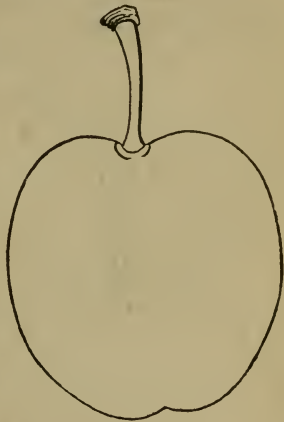
Prince's Gage.

Admiral de Rigny.

Prince's White Gage.

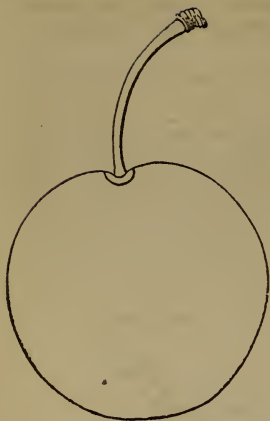
The Imperial Gage has long enjoyed the reputation of one of the most excellent and productive of Plums. It was raised at Prince's Nursery, Flushing, N. Y., from the seed of the Green Gage, and the fact of the fruit of a single tree near Boston having produced fruit to the value of nearly fifty dollars annually, has often been repeated as a proof of the profit of its cultivation for market. The tree grows freely and rises rapidly, and has long dark shoots, slightly downy.

Fruit rather above medium size, oval, with a distinct suture. Stalk nearly an inch long, slightly hairy, and pretty stout, inserted in an even hollow. Skin pale green until fully ripe, when it is tinged with yellow, showing a *peculiar marbling of dull green stripes*, and covered with copious white bloom. Flesh greenish, very juicy, melting, and rich, with a very slightly agreeable flavor; it separates pretty freely from the stone. The latter is oval, and pointed at both ends. Best. Early September.



Imperial Gage.

IMPERIAL OTTOMAN.



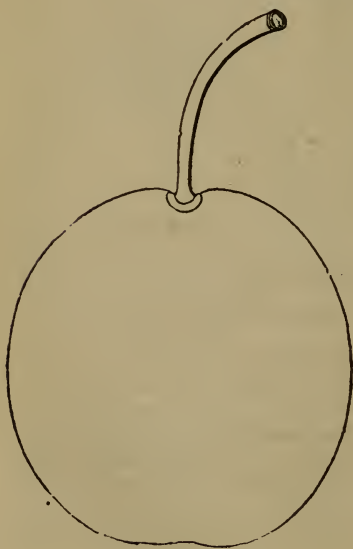
Imperial Ottoman.

A very neat early Plum, of good flavor, and a prolific bearer. It has the reputation of having been brought from Turkey, but it is uncertain whether this is correct. Tree vigorous, upright. Branches long, slightly downy.

Fruit scarcely below medium size, roundish, between Green Gage and the American Yellow Gage in appearance, and having a suture on one side, from the stalk half way down. Stalk downy, slender, curved, three-fourths of an inch long, inserted in a very slight cavity. Skin dull yellow, clouded with darker streaks, and covered with a thin bloom. It adheres considerably

to the stone. The flesh is juicy, sweet, melting. Good to very good. Last of July.

JEFFERSON.



Jefferson.

If we were asked which we think the most desirable and beautiful of all dessert Plums, we should undoubtedly give the name of this new variety. When fully ripe, it is nearly equal in flavor to the Green Gage, that unsurpassable standard of flavor. But when we contrast the small appearance of the Green Gage with the unusual size and beauty of the Jefferson, we must admit that it takes the very first rank. It is about ten days or a fortnight later than the Washington, ripening the last of August.

We received the Jef-

feron Plum, a few years ago, from the late Judge Buel, by whom it was raised and named. It is a good moderate grower and regular bearer, and the crop is very handsome on the tree. Branches slightly downy.

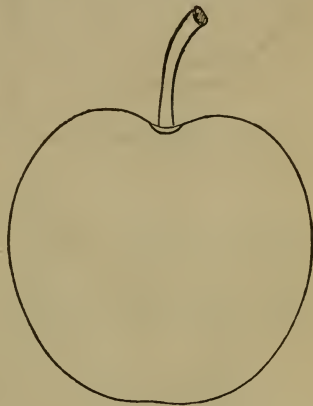
Fruit large, oval, slightly narrowed on one side towards the stalk. Skin golden yellow, with a beautiful purplish-red cheek, and covered with a thin white bloom. Stalk an inch long, pretty stout, very slightly inserted. Suture indistinct. Flesh deep orange; parts freely and almost entirely from the stone, which is long and pointed. Very rich, juicy, luscious, and high flavored. Best.

JULY GREEN GAGE.

Reine Claude de Bavay Hâtive.

Early Bavay.

An excellent foreign variety. Tree vigorous, branches smooth. Fruit medium, roundish, slightly oblong. Suture distinct, a little more than half round. Skin greenish yellow, tinged with purple in the sun, thin bloom. Stalk rather stout. Cavity broad, shallow. Flesh yellow, juicy, sweet, rich; separates from the stone. Very good. Ripens the middle of August.



July Green Gage.

LAWRENCE'S FAVORITE.

Lawrence's Gage.

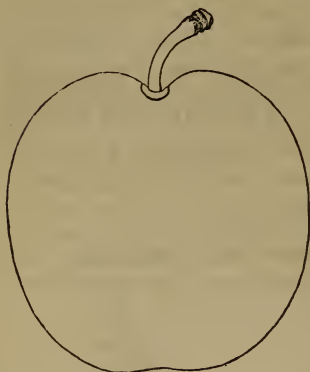
Reine Claude de Lawrence.

Lawrence's Favorite is a fruit of high merit, raised by Mr. L. U. Lawrence, of Hudson, N. Y., from a seed of the Green Gage.

The general appearance of the fruit is like that of its parent, except that it is much larger. It hangs well on the tree, and its size, flavor, and productiveness should give it a place in every garden.

Lawrence's Favorite forms an upright tree of thrifty growth. Young branches smooth.

Fruit large, heavy, roundish, a little flattened at either end. Skin dull yellowish green, clouded with streaks of a darker shade beneath, and covered with a light bluish-green bloom.



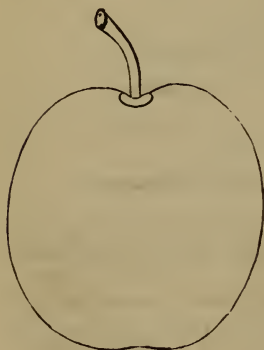
Lawrence's Favorite.

The upper part of the fruit, when fully ripe, is covered with a *peculiar brownish network*, and a few reddish dots. Stalk short, only half an inch long, slender, inserted in a narrow cavity. Flesh greenish, resembling that of the Green Gage, remarkably juicy and melting, perhaps scarcely so rich as the latter, but with a very rich, sprightly, vinous flavor, and one of the most delicious of plums. The flesh sometimes adheres a little when not fully ripe, but then separates freely. Best. Middle of August.

LOMBARD.

Bleecker's Scarlet. Beekman's Scarlet. Montgomery Prune.

Tree very vigorous, hardy, has strikingly crimped leaves, bright purple glossy shoots, very productive, popular.



Lombard.

It was called the Lombard Plum by the Massachusetts Horticultural Society, in compliment to Mr. Lombard, of Springfield, Massachusetts, who first brought it into notice in that State; and it is said to have been received by him from Judge Platt, of Whitesborough, N. Y., who raised it from seed. But it was previously well known here by the name of *Bleecker's Scarlet*. Never having been described under that name, however, we adopt the present title.

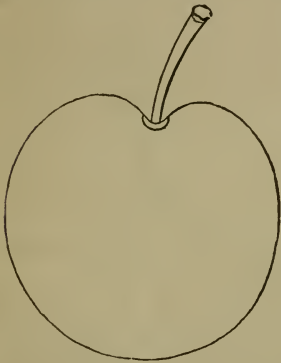
Fruit of medium size, roundish oval, slightly flattened at either end. Suture obscure. Stalk quite slender, scarcely three-fourths of an inch long, set in a broad, abruptly narrowing cavity. Skin delicate violet red, paler in

the shade, dotted with red, and dusted thinly with bloom. Flesh deep yellow, juicy, and pleasant, but not rich; adhering to the stone. Good. Middle and last of August.

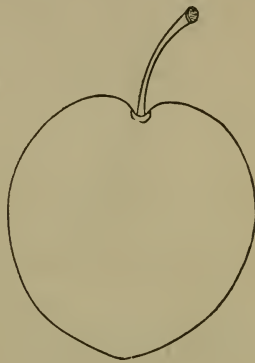
McLAUGHLIN.

Raised by James McLaughlin, Bangor, Me. Tree hardy, vigorous, and productive, a valuable variety, nearly or quite equal to Green Gage. Branches smooth.

Fruit large, nearly round, oblate, flattened at both ends. Suture slight. Stalk three-fourths of an inch long, inserted in a small cavity by a ring. Skin thin and tender, yellow, dotted and marbled with red on the sunny side, and covered with a thin bloom. Flesh dull yellow, rather firm, juicy, very sweet and luscious, perfumed. It adheres to the stone. Best. Last of August.



McLaughlin.



Miner.

MINER.

Hinckley.
Isabel.

Gillett.
Townsend.

Robinson.

This is an improved variety of the wild or Chickasaw Plum; originated with Mr. Miner, Lancaster, Pa. Tree hardy, vigorous, blossoms late, very productive, and valuable as a cooking and market fruit. Branches smooth, dark red.

Fruit medium, roundish oblong, pointed at apex. Skin dark purplish red, with a fine bloom. Stalk medium, slender, inserted in a small cavity. Flesh soft, juicy, vinous; adheres to the stone. Early October.

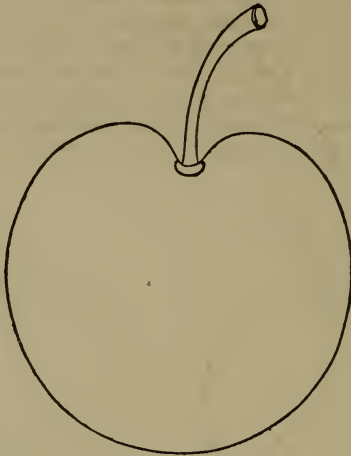
OULLIN'S GOLDEN.

Reine Claude d'Oullins.
Reine Claude Précoce.

Oullin's Golden Gage.
Monstrueuse d'Oullins.

Oullin's Gage.

This is a German Plum, large and showy. Tree very vigorous and productive, with smooth branches, stout, short jointed.



Oullin's Golden.

Fruit large, roundish inclining to oblong. Suture broad and shallow, ending at apex, which is shallow. Skin pale greenish yellow, covered with a thin whitish bloom, and sometimes a few red dots in the sun. Stalk of medium length, slender, inserted in a large deep cavity. Flesh greenish yellow, juicy, sugary, and rich; adheres slightly to the stone at one edge, which is small and rather thin. Ripens from the middle to the last of August.

POND'S SEEDLING.

Plum de l'Inde.

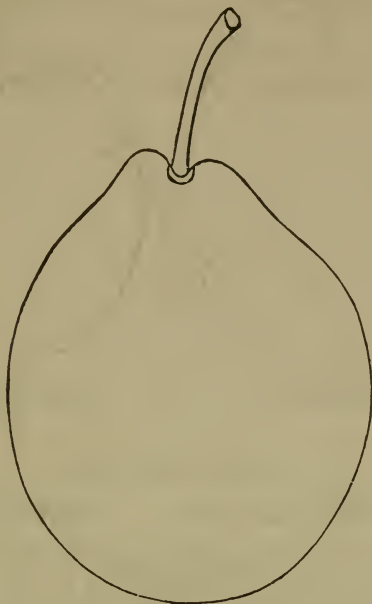
Fonthill.

Pond's Purple.

English origin. Tree very vigorous and productive; a beautiful fruit. Branches smooth, grayish.

Fruit very large, oval, tapering a little towards the stalk, sometimes with a melon neck. Skin yellowish, nearly cov-

ered with bright red or carmine, having a thin whitish bloom, and sprinkled with brownish dots. Flesh yellow, a little coarse, juicy, and sugary, but not rich. Good. Middle of September.

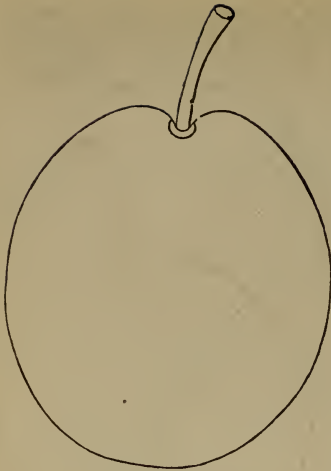


Pond's Seedling (English).

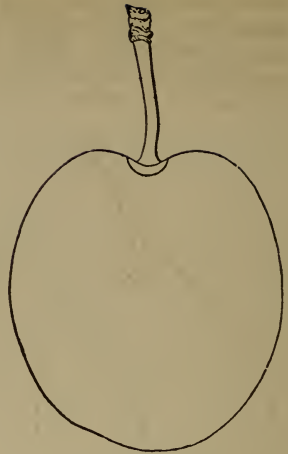
PRINCE ENGLEBERT.

From Belgium. This is a promising variety for market growing, as the tree is a great bearer, and the fruit valuable for dessert and cooking. Tree vigorous. Branches smooth.

Fruit large, oblong oval. Suture very slight, one side a little enlarged. Skin very deep purple, sprinkled with brown dots, and covered with a deep blue bloom. Stalk rather stout, set in a deep cavity. Flesh yellowish green, juicy, sugary; separates from the stone. Very good. Last of August.



Prince Englebert.



Prince's Yellow Gage.

PRINCE'S YELLOW GAGE.

American Yellow Gage of some.

White Gage of some.

The Yellow Gage was raised so long ago as the year 1783, by the elder Mr. Prince, of Flushing, L. I. Its great hardiness and productiveness, joined to its rich, sugary flavor, make it a favorite sort. Branches smooth, short-jointed, and the tree 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. Very good. Early in August.

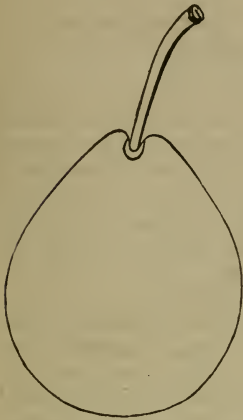
PRUNE D'AGEN.

D'Agen.	Robe de Sergent.	St. Maurin.
Prune d'Ast.	Agen Datte.	Prune de Brignole of some.
	Prune du Roi.	

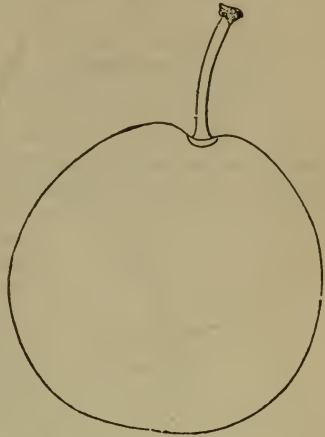
A foreign variety of excellent quality. Tree of moderate growth. Branches smooth. Very productive.

Fruit medium size, oval, slightly necked. Suture small.

Skin violet purple, covered with a thick bloom and numerous small dots. Stalk nearly an inch long, a little curved, set in a small depression. Flesh greenish yellow, juicy, sugary, rich, and delicious, slightly adherent to the stone. Best. Middle and last of September.



Prune d'Agen.



Purple Favorite.

PURPLE FAVORITE.

This delicious fruit received its name from us some years ago. The tree from which the stock now in this country was derived, stood for many years (until it died of old age) in the centre of the principal garden here, and was planted by the father of the author. Its origin we were never able to learn, and we have not been able during all our pomological researches and comparisons to identify it with any other sort.

The Purple Favorite, when in perfection, is not surpassed by any other Plum in luscious flavor. It is more juicy and melting than the Purple Gage, and has some affinity to the Diaprée Rouge, or Mimms. It should have a place in every garden, as it bears well, and is very hardy. In the nursery it has the dwarfish habit of the Green Gage, but more slender shoots. Branches nearly smooth, short jointed.

Fruit medium size, often large, roundish obovate. Suture none. Skin light brown in the shade, brownish purple in the sun, dotted with numerous golden specks, and dusted with thin, light blue bloom. Stalk three-fourths to one inch long, set in a very slight depression. Flesh pale greenish, very

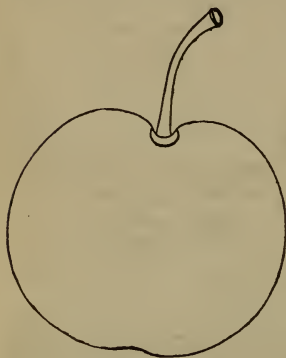
juicy, tender, melting, with a luscious sweetness. Parts freely from the stone, which is very small and roundish. Best. Begins to ripen about the 20th of August, and will hang for a fortnight on the tree.

PURPLE GAGE.

Reine Claude Violette.
Die Violette Königin Claudie.

Violette Queen Claude.
Violet Gage.

The Purple Gage holds the first place for high flavor among purple plums abroad. Although it is well known in France under the title of the Reine Claude Violette, as in England under that of the Purple Gage, yet its native country is not precisely determined. Tree moderately vigorous. Branches smooth, much like those of the Green Gage.



Purple Gage.

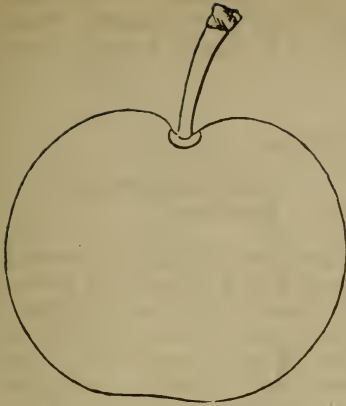
Fruit medium sized, shaped like the Green Gage, roundish, a little flattened. Suture shallow, but distinct. Stalk an inch long, rather thick, set in a narrow cavity. Skin a little thick, violet, dotted with pale yellow, and covered with a light blue bloom. Flesh greenish yellow, rather firm, rich, sugary, and very high-flavored; separates from the stone, which is oval and compressed. Ripens rather late, and will hang on the

tree—shrivelling a little, but not cracking—all the month of September. Very good.

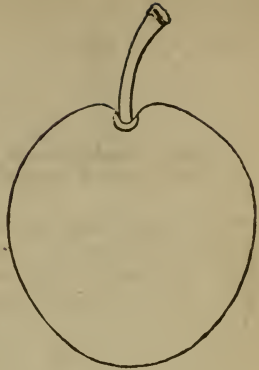
REAGLE'S GAGE.

Another of the seedlings raised by C. Reagles, Schenectady, N. Y., from seed of the Washington. Tree vigorous, upright. Branches smooth.

Fruit medium, nearly globular. Suture broad and shallow. Apex sunken. Skin greenish yellow, with splashes of darker green, and covered with a bloom. Stalk medium in length and thickness. Cavity large. Flesh greenish yellow, juicy, sweet, slightly vinous; separates from the stone. Very good. Last of August.



Reagle's Gage.



Red Gage.

RED GAGE.

An American Plum, of delicious flavor, very hardy, and a prodigious bearer. It is a seedling raised from the Green Gage by the elder Wm. Prince, of the Flushing Nurseries, in 1790. It grows very vigorously, and is distinguished, when young, by its deep green crimped foliage. Branches dark reddish, smooth.

Fruit about as large as the Green Gage, but more oval, regularly formed. Skin brownish or brick red, with little bloom. Stalk rather slender, set in a narrow cavity. Flesh greenish amber, very juicy, melting, sugary, and luscious. It parts freely from the stone, which is small. Best. Middle of August.

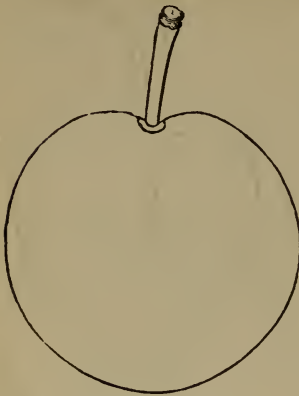
ROYALE DE TOURS.

Royal Tours.

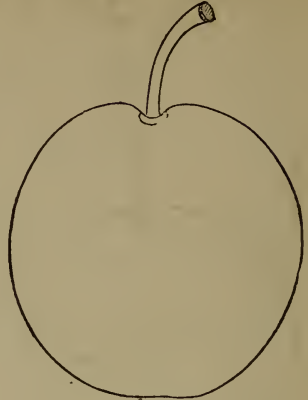
A French variety, received from several sources, but they do not agree, neither do the authorities; some say a freestone, and others a cling. Branches always quite downy.

Fruit large, roundish, but marked with a large and deep suture, extending quite half round, and enlarged on one side. At the apex is a small, white, depressed point. Skin lively red in the shade, deep violet in the sun, with many minute golden dots, and coated with a thick blue bloom. Stalk half to three-fourths of an inch long, stout, set in a narrow cavity.

Flesh greenish, rather firm, with a rich, high-flavored, abundant juice. Good to very good. Middle of August.



Royale de Tours.



Royale Hâtive.

ROYALE HÂTIVE.

Early Royal.

Marian.

An early Plum, of French origin. Tree vigorous, with stout, short branches. Branches very downy.

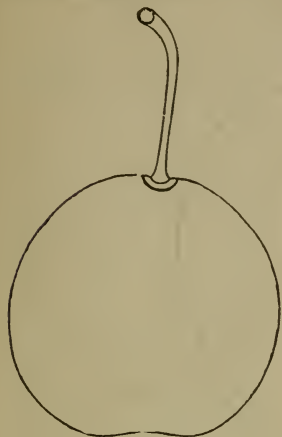
Fruit of medium size, roundish, a little wider towards the stalk. Skin light purple, dotted (and faintly streaked) with brownish yellow, and covered with a blue bloom. Stalk half an inch long, stout, inserted with little or no depression. Flesh yellow amber, with rich, high flavor, and parts from the stone (adhering slightly till ripe). Very good. Early August.

SAINT CATHERINE.

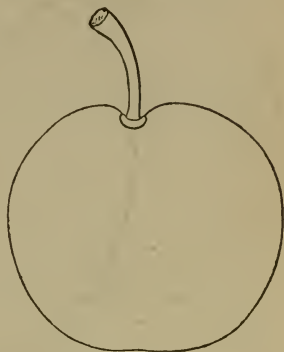
Among the fine old varieties of late Plums the St. Catherine is one of the most celebrated. In France it is raised in large quantities, in some districts making the most delicate kind of prunes. It is also much esteemed for preserving, and is of excellent quality for the dessert. Branches smooth, upright, rather slender.

Fruit of medium size, obovate, narrowing considerably towards the stalk, and having a strongly marked suture on one side. Stalk three-fourths of an inch or more long, very slender, inserted in a slight cavity. Skin very pale yellow, overspread with thin white bloom, and occasionally becoming

a little reddish on the sunny side. Flesh yellow, juicy, rather firm, and adheres partially to the stone. In flavor it is sprightly, rich, and perfumed. Very good. Middle to last of September.



Saint Catherine.



Schenectady Catherine.

SCHENECTADY CATHERINE.

Origin, Schenectady, N. Y. Tree vigorous, very productive. Branches smooth, grayish.

Fruit medium, roundish oval. Suture shallow on one side. Skin reddish purple, covered with a thin blue bloom. Stalk of medium length, slender, set in a small cavity. Flesh greenish yellow, very juicy, sugary, and rich; separates freely from the stone. Very good. First of September.

SMITH'S ORLEANS.

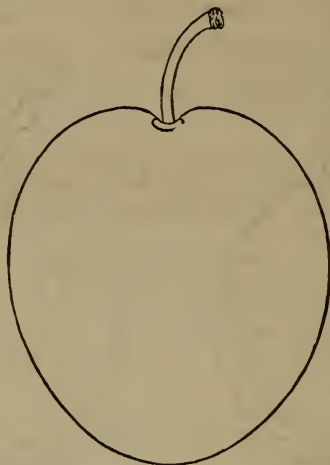
Violet Perdrigon, incorrectly.

Red Magnum Bonum of some.

Smith's Orleans, the largest and finest of this class of Plums, is a native variety raised from the old Orleans by Mr. Smith, of Gowanus, Long Island. It is one of the most vigorous of all plum-trees, making straight, glossy, reddish purple shoots, with dark green crimped leaves. Very productive. Bearing branches smooth, or nearly so.

Fruit large, often of the largest size, oval, rather widest towards the stalk, a little irregular, with a strongly marked suture on one side. Stalk quite small and slender, little more than half an inch long, inserted in a deep narrow cavi-

ty. Skin reddish purple, covered with a deep blue bloom. Flesh deep yellow, a little firm, very juicy, with a brisk, rich, vinous flavor (not sweet and cloying), and adheres to the stone. Good to very good. 20th to the last of August.



Smith's Orleans.

TRANSPARENT GAGE.

Reine Claude Diaphane.
Diaphane Laffay.

Prune Diaphane Laffay.
Reine Claude Transparent.
Diaphane.



Transparent Gage.

A French variety, evidently from seeds of the Green Gage, raised by M. Laffay, of Paris. Tree vigorous, with long, stout, and smooth branches.

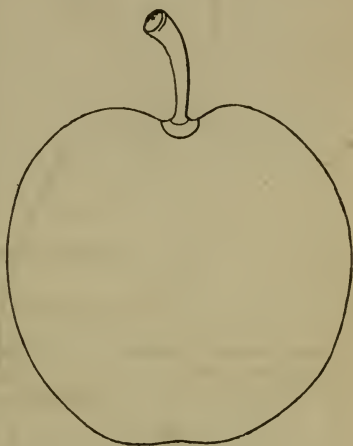
Fruit rather large, roundish inclining to oblate. Suture shallow, ending at apex, which is large and quite deep. Skin pale yellow, often much shaded with light bright red where exposed, and covered with a thin whitish bloom. Stalk short and quite stout, inserted in

a medium or rather large cavity. Flesh deep yellow, juicy, sugary, rich, and luscious, adheres to the stone, which is small, roundish, and quite thick. Ripens the middle of September.

WASHINGTON.

Bolmar.	Bolmer's Washington.	Parker's Mammoth.
Bolmer.	Franklin.	Washington Jaune.
New Washington.	Irving's Bolmar.	Philippe I.
	Jackson.	

The Washington, although not equal to the Green Gage and two or three others in high flavor, yet its great size, its beauty, and the vigor and hardiness of the tree, are qualities which have brought this noble fruit into notice everywhere. The parent tree grew originally on Delancey's farm, on the east side of the Bowery, New York, but, being grafted with another sort, escaped notice until a *sucker* from it, planted by Mr. Bolmer, a merchant in Chatham Street, came into bearing about the year 1818, and attracted universal attention by the remarkable beauty and size of the fruit. In 1821 this sort was first sent to the Horticultural Society of London, by the late Dr. Hossack.



Washington.

The Washington has remarkably large, broad, and glossy foliage, is a strong grower, and forms a handsome round head. Wood light brown, downy.

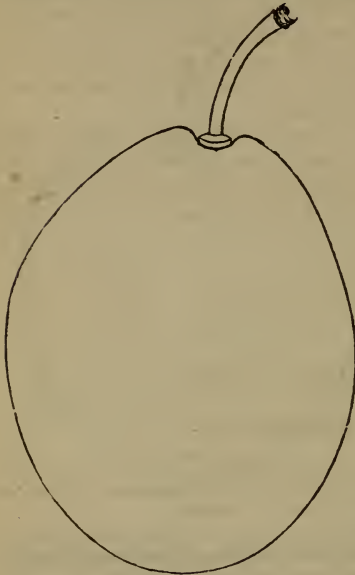
Fruit of the largest size, roundish oval, with an obscure suture, except near the stalk. Skin dull yellow, with faint marblings of green; but when well ripened, deep yellow, with a pale crimson blush or dots. Stalk scarcely three-fourths of an inch long, a little downy, set in a shallow, wide hollow. Flesh yellow, firm, very sweet and luscious, separating freely from the stone. Good to very good. Middle to the last of August.

YELLOW EGG.

White Magnum Bonum.
 Askew's Golden Egg.
 Egg Plum.
 White Egg.
 Magnum Bonum.
 Yellow Magnum Bonum*
 White Mogul.
 Wentworth.

White Imperial
 White Holland.
 Dame Aubert.
 Dame Aubert blanche.
 Dame Aubert jaune.
 Impériale blanche.
 Grosse Luisante.
 Prune d'Inde blanc.

The White Magnum Bonum, or Egg Plum, as it is almost universally known here, is a very popular fruit, chiefly on account of its large and splendid appearance, and a slight acidity, which renders it admirably fitted for making showy sweatmeats or preserves. When it is raised in a fine warm situation, and is fully matured, it is pretty well flavored, but ordinarily it is considered coarse, and as belonging to the kitchen and not to the dessert. Branches smooth, long.



Yellow Egg.

Fruit of the largest size, measuring six inches in its longest circumference, oval, narrowing a good deal to both ends. Suture well marked. Stalk about an inch long, stout, inserted without cavity in a folded border. Skin yellow, with numerous white dots, covered with thin white bloom; when fully

ripe, of a deep gold color. Flesh yellow, adhering closely to the stone, rather acid until very ripe, when it becomes sweet, though of only second-rate flavor. Stem long, and pointed at both ends. A pretty good bearer, though apt, in light soils, to drop from the tree before matured. Middle of August.

* There is really no practical difference between the White and the Yellow Magnum Bonum. The fruit is precisely similar in appearance and quality, though the growth of the two trees may not fully agree.

ORNAMENTAL VARIETIES.

There are few varieties of Plums which are considered purely ornamental. One, however, is a remarkable exception to this, as it is scarcely exceeded in beauty in the month of May by any other flowery shrub—we mean the DOUBLE-FLOWERING SLOE. It is a large shrub, only 10 or 12 feet high, with quite slender shoots and leaves, but it is thickly sprinkled, every spring, with the prettiest little double white blossoms about as large as a sixpence, resembling the Lady Banks Roses. It is one of the greatest favorites of the Chinese and Japanese—those flower-loving people.

The COMMON ENGLISH SLOE, or Blackthorn (*Prunus spinosa*), is rather an ornamental tree in shrubbery plantations. The branches are more thorny than those of the common Damson, and the fruit is nearly round, quite black, but covered with a thick blue bloom. In the spring this low tree is a perfect cloud of white blossoms.

The DOUBLE-BLOSSOMED PLUM has large and handsome double white flowers. Except in strong soils, however, they are apt to degenerate and become single, and are, indeed, always inferior in effect to the Double Sloe.

 CHAPTER XXIX.

THE POMEGRANATE.

Punica granatum, L.; *Granatacea*, of Botanists.
Grenadier, of the French; *Granatenbaum*, German; *Melagrano*, Italian; *Granado*, Spanish.

THIS unique fruit, the most singularly beautiful one that ever appears at the dessert, is a native of China and the South of Europe. It grows and bears very readily in this country, as far north as Maryland and the Ohio River, though the fruit does not always mature well north of Carolina, except in sheltered places. It is even hardy enough to stand the winter here, and will bear very good fruit if trained as an espalier and protected in winter.

The fruit is as large as an apple. Its skin is hard and leathery, of a yellowish orange color, with a rich red cheek. It is crowned in a peculiar manner with the large calyx, which remains and increases in size after the flower has fallen.

There is a pretty bit of mythological history told by Rapin, the French poet, respecting this fruit. Bacchus once beguiled a lovely Scythian girl, whose head had been previously turned by the diviners having prophesied that she would some day wear a crown, and who, therefore, lent a willing ear to his suit. The fickle god, however, not long after abandoned her, when she soon died of grief. Touched at last, he metamorphosed her into a pomegranate-tree, and placed on the summit of its fruit the crown (calyx) which he had denied to his mistress while living.

The fruit of the common Pomegranate is acid, but the cultivated variety bears fruit of very agreeable, sweet flavor. The interior of the fruit consists of seeds enveloped in pulp, much like those of the gooseberry, but arranged in compartments, and of the size and color of red currants. Medicinally, it is cooling and much esteemed, like the orange, in fevers and inflammatory disorders.

The tree is of low growth, from twelve to twenty feet, with numerous slender, twiggy branches, and is very ornamental in garden scenery, either when clad with its fine scarlet flowers or decked with fruit, which hangs and grows all summer, and does not ripen till pretty late in the season. It is well worthy of a choice sheltered place at the North, on a wall or espalier rail, where it can be slightly protected with mats or straw in winter; and it deserves to be much more popular than it now is in every Southern garden. If raised in large quantities there, it would become a valuable fruit for sending to the northern cities, as it is now constantly sent from the South of Europe to Paris and London. Hedges are very often made of it near Genoa and Nice.

PROPAGATION AND CULTURE. This tree is readily propagated by cuttings, layers, suckers, or seeds. When by seeds, they should be sown directly after they ripen, otherwise they seldom vegetate. Any good rich garden soil answers well for the Pomegranate; and, as it produces little excess of wood, it needs little more in the way of pruning than an occasional thinning out of any old or decaying branches.

VARIETIES. There are several varieties. The finest, viz. :—

1. THE SWEET-FRUITED Pomegranate (*Grenadier à Fruit Doux*), with sweet and juicy pulp.
2. THE SUBACID FRUITED Pomegranate; the most common variety cultivated in gardens.
3. THE WILD or ACID-FRUITED Pomegranate, with a sharp, acid flavor, which makes an excellent syrup.

Besides these, there are several double-flowering varieties of the Pomegranate, which are very beautiful, but bear no fruit. They are also rather more tender than the fruit-bearing

ing ones. The finest are the DOUBLE RED Pomegranate, with large and very splendid scarlet blossoms, and the DOUBLE WHITE Pomegranate, with flowers nearly white. There are also the rarer varieties, the YELLOW FLOWERED and the VARIEGATED FLOWERED Pomegranate, seldom seen here, except in choice green-house collections.

CHAPTER XXX.

THE QUINCE.

Cydonia vulgaris, Dec.; *Rosaceæ*, of Botanists.

Coignassier, of the French; *Quittenbaum*, German; *Kivepeer*, Dutch; *Cotogno*, Italian; and *Membrillo*, Spanish.

THE Quince is a well-known hardy, deciduous tree, of small size, crooked branches, and spreading, bushy head. It is indigenous to Germany and the South of Europe; and it appears first to have attracted notice in the city of *Cydon*, in Crete or Candia, whence its botanical name, *Cydonia*. The fruit is of a fine golden yellow, and more nearly resembles that of the orange than any other. It was even more highly esteemed by the Greeks and Romans, for preserving, than by us. "Quinces," says Columella, "not only yield pleasure, but health."

The Quince seldom grows higher than fifteen feet, and is usually rather a shrub than a tree. Its large white and pale pink blossoms, which appear rather later than those of other fruit-trees, are quite ornamental; and the tree, properly grown, is very ornamental when laden in October and November with its ripe golden fruit.

USES.—The Quince is, in all its varieties, unfit for eating raw. It is, however, much esteemed when cooked. For preserving it is everywhere valued, and an excellent marmalade is also made from it. Stewed, it is very frequently used to communicate additional flavor and piquancy to apple-tarts, pies, or other pastry. In England, wine is frequently made from the fruit by adding sugar and water, as in other fruit wines; and it is a popular notion there that it has a most beneficial effect upon *asthmatic* patients. Dried Quinces are excellent.

In this country large plantations are sometimes made of the Quince; and as it is in good soil a plentiful bearer, it is considered one of the most valuable market fruits. The

Apple Quince is the most productive and salable; but as the Pear Quince ripens and can be sent to market much later, it frequently is the most profitable. The Angers is also a profitable market sort, producing abundantly, and keeping equally as well as the Pear-shaped.

PROPAGATION.—The Quince is easily propagated from seed, layers, or cuttings. From seeds the Quince is somewhat liable to vary in its seedlings, sometimes proving the apple-shaped and sometimes the pear-shaped variety. Cuttings prepared in the autumn, heeled-in, and protected during winter, and planted in a shaded situation early in the spring, root very easily, and this is perhaps the simplest and best way of continuing a good variety. Another way is to bud upon free-growing sorts, as that of the Angers.

Quince *stocks* are extensively used in engrafting or budding the pear, when it is wished to render that tree *dwarf* in its habit.

SOIL AND CULTURE.—The Quince grows naturally in rather moist soil, by the side of rivulets and streams of water. Hence it is a common idea that it should always be planted in some damp, neglected part of the garden, where it usually receives little care, and the fruit is often knotty and inferior.

This practice is a very erroneous one. No tree is more benefited by manuring than the quince. In a rich, mellow, deep soil, even if quite dry, it grows with thrice its usual vigor, and bears abundant crops of large and fair fruit. It should therefore be planted in a deep and good soil, kept in constant cultivation, and it should have a top-dressing of manure every season when fair and abundant crops are desired. As to pruning or other care, it requires very little indeed—an occasional thinning out of crowding or decayed branches being quite sufficient. Thinning the fruit when there is an overcrop improves the size of the remainder. Twelve feet apart is a suitable distance at which to plant this tree.

The Quince, like the apple, is occasionally subject to the attacks of the borer and a few other insects, which a little care will prevent or destroy. For their habits, we refer the reader to the Apple.

VARIETIES.

ANGERS.

This is the variety most generally used for stocks on which to bud the pear. It is only within a few years that its value as a fruit has been known. The tree is one of the most

thrifty growing, and an abundant bearer. It does not cook quite as tender as the apple, but will keep much longer. In form it is much like the apple, but the flesh is a little harsher and more acid.

APPLE-SHAPED QUINCE.

Orange Quince.

This is the most popular variety in this country. It bears large roundish fruit, shaped much like the apple, which stews quite tender, and is of very excellent flavor. It also bears most abundant crops. Leaves oval.

There are several inferior varieties of the Apple Quince. The true one bears fruit of the size of the largest apple, fair and smooth, and a fine golden color.

PEAR-SHAPED QUINCE.

Oblong Quince.

The Pear-shaped Quince is drier and of firmer texture than the foregoing. It is rather tough when stewed or cooked, the flesh is less lively in color, and it is therefore much less esteemed than the apple-shaped variety. The fruit is of medium size, oblong, tapering to the stalk, and shaped much like a pear. The skin is yellow. The leaves are oblong ovate. It ripens about a fortnight later than the apple-shaped, and may be preserved in a raw state considerably longer.

PORTUGAL QUINCE.

The Portugal Quince is rather superior to all others in quality, as it is less harsh, stews much better, and is altogether of milder flavor, though not fit for eating raw. For marmalade and baking it is much esteemed, as its flesh turns a fine purple or deep crimson when cooked.

The leaf of the Portugal Quince is larger and broader than that of the common quince, and the growth of the tree is stronger. The fruit is of the largest size, oblong ovate, obtuse. The skin is in color not so deep an orange as that of the other sorts.

The Portugal Quince is unfortunately a shy bearer, which is the reason why it has never been so generally cultivated as the Apple Quince.

REA'S SEEDLING.

Van Slyke.

A new seedling, raised by Joseph Rea, Coxsackie, Greene Co., N. Y. It is a superb fruit, averaging one-third larger than the apple or orange quince, of the same form and color, fair and handsome, and equally as good, and by some preferred to the apple quince for culinary purposes. Tree healthy, a thrifty grower, and moderately productive—an acquisition.

Ornamental Varieties.—There are two or three ornamental varieties of the Quince, which are natives of China and Japan, and are now among the most common and attractive of our garden shrubs. They are the following:—

CHINESE QUINCE.

We have had this pretty shrub in our garden for several years, where it flowers abundantly, but has as yet produced no fruit. The leaves are oval, somewhat like those of the common Quince, but with a shining surface. The flowers are rosy red, rather small, with a delicate violet odor, and have a very pretty effect in the month of May, though much less showy than those of the Japan Quince. The fruit is described as large, egg-shaped, with a green skin and a hard dry flesh, not of any value for eating. The leaves assume a beautiful shade of red in autumn.

JAPAN QUINCE.

Cydonia Japonica.

Pyrus Japonica.

The Japan Quince is a low thorny shrub, with small dark green leaves. It is the most brilliant object in the shrubbery during the month of April, the branches being clothed with numerous clusters of blossoms, shaped like those of the Quince, but rather larger, and of the brightest scarlet. The fruit which occasionally succeeds these flowers is dark green, very hard, and having a peculiar and not unpleasant smell. It is entirely useless.

The WHITE, or BLUSH JAPAN QUINCE (*C. Jap. fl. albo*), resembles the foregoing, except that the flowers are white and pale pink, resembling those of the common apple-tree.

CHAPTER XXXI.

THE RASPBERRY.

Rubus Idæus, 4; *Rosaceæ*, of Botanists.

Framboisier, of the French; *Himbeerstrauch*, German; *Framboos*, Dutch; *Rovo ideo*, Italian; and *Frambueso*, Spanish.

THE Raspberry is a low deciduous shrub, which in several forms is common in the woods of both Europe and America. The large-fruited varieties most esteemed in our gardens have all originated from the long cultivated *Rubus Idæus*, or Mount Ida bramble, which appears first to have been introduced into the gardens of the South of Europe from Mount Ida. It is now quite naturalized in some parts of this country. Besides this, we have in the woods the common black raspberry, or thimbleberry (*Rubus occidentalis*, L.), and the red raspberry (*Rubus strigosus*, Michx.), with very good fruit.

The name raspberry (*Raspo*, Italian), is probably from the rasping roughness of prickly wood. The term *raspis* is still used in Scotland.

USES.—The raspberry is held in general estimation, not only as one of the most refreshing and agreeable subacid fruits for the dessert, but it is employed by almost every family in making preserves, jams, ices, sauces, tarts, and jellies; and on a larger scale by confectioners for making syrups, by distillers for making raspberry brandy, raspberry vinegar, &c. Raspberry wine, made in the same way as that of currant, is considered the most fragrant and delicious of all home-made wines.

Succeeding the strawberry at the beginning of summer, when there is comparatively little else, this is one of the most invaluable fruits, and, with the strawberry, generally commands the attention of those who have scarcely room for fruit-trees. It is, next to the strawberry, one of the most wholesome berries, and not being liable to undergo the acetous fermentation in the stomach, it is considered beneficial in cases of gout or rheumatism.

PROPAGATION.—The raspberry is universally propagated by suckers, or offsets, springing up from the main roots. It may also be grown from pieces of the roots, two or three inches long, and planted in a light sandy soil early in the spring, covering about one inch deep, and adding a slight coat of light mulch to prevent the earth from drying or baking. The Black Caps, Yellow Caps, and the Purple Cane

varieties are grown from burying the tips of canes in the latter part of August or September, or as soon as the ends of the canes stop growing, about one inch deep, when they will form roots and make good plants for transplanting the following spring. Seeds are only planted when new varieties are desired. The seedlings come into bearing at two or three years of age.

SOIL AND CULTURE.—The best soil is a rich deep loam, rather moist than dry, but the raspberry will thrive well in any soil that is rich and deep.

In making a plantation of raspberries, plant the suckers or canes in rows, from three to four feet apart, according to the vigor of the sort. Two or three suckers are generally planted together, to form a group or *stool*, and these stools may be three feet apart in the rows, or they may be set one plant in a place, at distances of one foot to eighteen inches along in the row.

The plantation being made, its treatment consists chiefly in a single pruning every year, given early in the spring. To perform this, examine the stools in April, and leaving the strongest shoots or suckers, say about three or five to each stool, cut away all the old wood and all the other suckers. The remaining shoots should have about a foot of their ends cut off, as this part of the wood is feeble and worthless. It is also a good plan, soon after the fruit is gathered, to cut out the old canes which have fruited, so as to give the new a better chance to ripen. With a light top-dressing of manure, the ground should then be dug over, and little other care will be requisite during the season, except keeping down the weeds.

When very neat culture and the largest fruit are desired, more space is left between the rows, and after being pruned the canes are tied to long lines of rods or rails, like an espalier, by which means they are more fully exposed to the sun and light.

For field culture, the European varieties ought to be planted four or five feet apart each way, which gives room for the plow and cultivator to work both ways. The Black Cap varieties should be five or six feet each way, and the growing canes of these should be stopped or shortened in when about three feet high, which causes them to grow stocky and throw out lateral shoots, and these should be cut back to within eighteen inches or two feet the following spring.

A fine crop of the autumnal varieties of raspberries is readily obtained by cutting down the canes over the whole

stool, in the spring, to within a few inches of the ground. They will then shoot up new wood, which comes into bearing in August or September.

We have found a light application of salt, given with the top-dressing of manure in the spring, to have a most beneficial effect on the vigor of the plants and the size of the fruit.

A plantation of raspberries will be in perfection at the third year, and after it has borne about eight or ten years it must be broken up and a new one formed on another plot of ground.

All the raspberries, except the hardy American varieties, should be pruned in the fall. After which bend the canes gently on the ground, and cover them an inch or two deep with earth; let them remain in the spring until the cold winds are over, or until the buds begin to swell, then take them up and tie them to stakes or frames.

VARIETIES.—The finest raspberries in general cultivation for the dessert are the Hudson River Antwerp, Fastolf, Orange, Belle de Pallan, Knevett's Giant, French, Franconia, and Clarke.

The common American Red is most esteemed for flavoring liqueurs or making brandy, and the American Black is preferred by most persons for cooking and drying. The Ever-bearing varieties are valuable for prolonging the season of this fruit till late frosts.

ARNOLD'S ORANGE.

Originated with Charles Arnold, Paris, Ontario, C. W. Canes strong, branching, yellowish brown, almost smooth, and produce but few suckers.

Fruit large, somewhat shorter than Brinckle's Orange, and of a darker orange color, unsurpassed by any for rich flavor. (Arnold's MS.)

BELLE DE PALUAU.

A new French variety, of good promise. Canes strong, vigorous, upright. Spines short, purplish, rather slender, and numerous at base.

Fruit very large, conical, a little obtuse, bright light crimson. Grains large, regular, a few hairs. Flesh quite firm, juicy, rich. Very good. Separates freely from the germ in picking.

CLARKE.

Raised by E. E. Clarke, New Haven, Conn. Canes very strong, vigorous, upright. Spines, purplish, rather long and

stiff. Foliage large, flat, and thick, and endures heat and cold better than any European kind we have. It is not entirely hardy, but more so than any foreign sort, and produces better crops by being covered. It is better suited to light sandy soils than any of its class.

Fruit large, conical, regular. Grains large, quite hairy, bright crimson. Flesh rather soft, juicy, sweet, and excellent.

DOOLITTLE.

American Improved.	Joslyn's Black Cap.
Doolittle's Black Cap.	Joslyn's Improved.
Joslyn's Improved Black Cap.	

Introduced by Leander Joslyn, of Phelps, Ontario Co., N. Y. Canes very vigorous, branching. Spines whitish, stout, and numerous. Very productive.

Fruit similar to American Black, but an improvement on it, and is one of the best of its class for market.

FASTOLFF.

Filby.

The Fastollf Raspberry is an English variety of high reputation. It derives its name from having originated near the ruins of an old castle so-called, in Great Yarmouth. Canes strong, rather erect, branching, light yellowish brown, with few pretty strong bristles.

Fruit very large, obtuse or roundish conical, bright purplish red, rich and high-flavored, slightly adhering to the germ in picking.

FRANCONIA.

Abel.

This was imported from Vilmorin, of Paris, under this name, by S. G. Perkins, Esq., of Boston, some years ago. Its crops are abundant, the fruit is firm, and bears carriage to market well, and it ripens about a week later than Red Antwerp. It is one of the finest for preserving. Canes strong, spreading, branching, yellowish brown, with scattered, rather stout purple spines. Leaves rather large, very deep green.

Fruit large, obtuse conical, dark purplish red, of a rich acid flavor, much more tart and brisk than that of the Red Antwerp.

Naomi so closely resembles this in growth, fruit, &c., that we are unable to see any difference, yet it is claimed to be a

seedling, differing in the canes being more hardy and the grains of less size, &c.

GOLDEN THORNLESS.

A large variety of the American white or yellow, introduced from the West by Purdy & Johnston, of Palmyra, N. Y. It is moderately vigorous, very productive, and has but few spines.

Fruit equal in size to the McCormick, oblate, occasionally conical, slight bloom, dull orange or darker than the American yellow, rather, firm, juicy, sweet and pleasant.

HORNET.

Raised by Souchet, near Paris, very productive. Canes very strong, vigorous, upright. Spines purplish, rather stout, and numerous at the base.

Fruit very large, conical, often irregular. Grains large, quite hairy, compact, crimson. Flesh rather firm, juicy, sweet, and good. Separates freely.

HUDSON RIVER ANTWERP.

New Red Antwerp.

Origin unknown, but as far as we have been able to trace it, was first brought to this country by the late Mr. Briggs, of Poughkeepsie, N. Y. Its firmness of flesh and parting readily from the germ, together with its productiveness, render it the most popular variety for market. Canes short, but of sturdy growth, almost spineless, of a very peculiar gray or mouse color.

Fruit large, conical. Flesh firm, rather dull red, with a slight bloom, not very juicy, but of a pleasant, sweet flavor.

KNEVETT'S GIANT.

This is one of the strongest growing varieties. Very productive, and of excellent flavor. Canes strong, erect. Spines small, reddish, very few.

Fruit of the largest size, obtuse, conical, deep red, firm in texture, and hangs a little to the germ in picking. Berries sometimes double, giving them a cock's-comb appearance.

McCORMICK.

Miami Black Cap.	Large Miami Black Cap.	Mammoth Cluster
Collinsville Miami.	Improved Miami.	Superior Miami.

A variety of the American Black Cap, with stronger and more vigorous canes, having fewer spines, and more productive, and is the largest and best Black Cap we have yet seen.

Fruit similar in form to American Black Cap, but of much larger size, of deeper color, more bloom, juice, and sweetness.

OHIO EVER-BEARING.

Ohio Raspberry.

This is a native of Ohio. It is precisely like the American Black Raspberry, or Black Cap, in all respects, except that it has the valuable property of bearing abundant crops of fine fruit till late in the season.

ORANGE.

Brinckle's Orange.

Originated with Dr. W. D. Brinckle. It is unquestionably the largest and finest flavored light-colored Raspberry yet known, and deserves a place in every garden. Canes strong, branched. Strong white spines. Very productive.

Fruit large, conical, sometimes ovate, beautiful orange color. Grains large. Flesh juicy, a little soft, sweet, rich. Excellent.

PHILADELPHIA.

Supposed a chance native variety, found wild in the county of Philadelphia, Pa. The canes have proved hardy, very productive, and well suited to light soils in the southern portions of the Middle States. Canes vigorous, tall, branching, almost free from spines.

Fruit medium, roundish, dark crimson or purplish red. Flesh rather soft, moderately juicy, mild subacid; separates freely. Good.

PURPLE CANE.

Purple Prolific.	English Purple.	Red Prolific,
Huntsville.	English Red.	Allen, erroneously.

A native variety. Canes strong and tall, often branching,

reddish purple. Spines rather long, stiff, and moderately numerous.

SENECA BLACK CAP.

A variety of the American Black Cap, raised by Mr. Dell, of Seneca Co., N. Y. It is larger and later than Doolittle, very vigorous, very productive. Spines reddish, strong and numerous.

Fruit rather larger than Doolittle, not as black, but with a shade of purple, light bloom, juicy, and sweet.

SURPRISE.

This is another variety of the American Black Cap, found wild and introduced to notice by George Husman, of Bluffton, Mo. In growth its canes have few and short spines, and have stiff upright branches.

The fruit is larger, more conical, darker in color, with a peculiar deep bloom, and fewer seeds than the Common Black Cap.

CHAPTER XXXII.

THE STRAWBERRY.

Fragaria (of species), L. *Rosaceæ*, of Botanists.
Fraisier, of the French; *Erdbeerpflanze*, German; *Aadbezie*, Dutch;
Pianta di Fragola, Italian; and *Fresa*, Spanish.

THE Strawberry is the most delicious and the most wholesome of all berries, and the most universally cultivated in all gardens of temperate climates. It is a native of the temperate latitudes of both hemispheres,—of Europe, Asia, North and South America,—though the species found in different parts of the world are of distinct habit, and have each given rise, through cultivation, to different classes of fruit.

The name of this fruit is by some understood to have arisen from the common and ancient practice of laying straw between the plants to keep the fruit clean. Another reason of the origin of the name comes from the custom of children stringing the berries on straws.

In the olden times the variety of strawberries was very limited, and the garden was chiefly supplied with material for new plantations from the woods. Old Tusser, in his "Five Hundred Points of Good Husbandry," points out where the

best plants of his time were to be had, and turns them over with an abrupt, farmer-like contempt of little matters, to feminine hands:—

“Wife, into the garden, and set me a plot
 With strawberry roots, of the best to be got;
 Such growing abroad, among thorns in the wood,
 Well chosen and picked, prove excellent good.”

The Strawberry, though well known, is of comparatively little value in the South of Europe. Old Roman and Greek poets have not, therefore, sung its praises; but after that line of a northern bard,

“A dish of ripe strawberries, smothered in cream,”

which we consider a perfect *pastoral idyl* (as the German school would say) in itself, nothing remains to be wished for.

Ripe, blushing Strawberries, eaten from the plant, or served with sugar and cream, are certainly Arcadian dainties with a true paradisiacal flavor, and, fortunately, they are so easily grown that the poorest owner of a few feet of ground may have them in abundance.

To the confectioner this fruit is also invaluable, communicating its flavor to ices, and forming several delicate preserves. In Paris, a cooling drink, *bavaroise à la grecque*, is made of the juice of strawberries and lemons, with the addition of sugar and water.

The Strawberry is perhaps the most wholesome of all fruits, being very easy of digestion, and never growing acid by fermentation, as most other fruits do. The often-quoted instance of the great Linnæus curing himself of the gout by partaking freely of strawberries—a proof of its great wholesomeness—is a letter of credit which this tempting fruit has long enjoyed, for the consolation of those who are looking for a bitter concealed under every sweet.

PROPAGATION AND SOIL. The strawberry propagates itself very rapidly by runners,* which are always taken to form new plantations or beds. These are taken off the parent plants early in spring, or in August and September, and at once planted in the rows or beds where they are to fruit.

The best soil for a strawberry is a deep rich loam. Deep it must be, if large berries and plentiful crops are desired; and the wisest course, therefore, where the soil is naturally thin, lies in trenching and manuring the plot of ground

* Excepting the *Bush* Alpines, which have no runners, and are propagated by division of the roots.

thoroughly before putting out the plants. But even if this is not necessary, it should be dug deeply, and well enriched with strong manure beforehand.

The best exposure for strawberries is an open one, fully exposed to the sun and light.

CULTURE IN ROWS. The finest strawberries are always obtained when the plants are kept in *rows*, at such a distance apart as to give sufficient space for the roots, and abundance of light and air for the leaves.

In planting a plot of strawberries in rows, the rows should be two feet apart, and the plants of the large-growing kinds, two feet from each other in the rows; of the smaller-growing kinds, from one foot to eighteen inches is sufficient. The runners must be kept down by cutting them off at least three times a year, and the ground must be maintained in good order by constant dressing. During the first year a row of any small vegetables may be sown in the spaces between the rows. Every autumn, if the plants are not luxuriant, a light coat of manure should be dug in between the rows; but if they are very thrifty it should be omitted, as it would cause them to run too much to leaf.

A light top-dressing of leaves, or any good compost, applied late in the fall, greatly promotes the vigor of the plants, and secures the most tender kinds against the effects of an unusually cold winter. Before the fruit ripens the ground between the rows should be covered with straw, or light new-mown grass, to keep it clean.

A plantation of this kind in rows will be found to bear the largest and finest fruit, which, being so fully exposed to the sun, will always be sweeter and higher flavored than that grown in crowded beds.

CULTURE IN ALTERNATE STRIPS. A still more easy and economical mode is that of growing the strawberry in strips.

Early in April, or in August, being provided with a good stock of strong young plants, select a suitable piece of good deep soil. Dig in a heavy coat of stable manure, pulverizing well and raking the top soil. Strike out the rows, three feet apart, with a line. The plants should now be planted along each line, about a foot apart in the row. They will soon send out runners, and these runners should be allowed to occupy a width of one foot, leaving an alley of two feet, which is kept clear from weeds, and is used to walk in when gathering the fruit.

The occupied strip or bed of runners will now give a heavy crop of strawberries, and the open strip of two feet will serve as an alley from which to gather the fruit. After the crop is over, dig and prepare this alley or strip for the occupancy

of the new runners for the next season's crop. The runners from the old strip will now speedily cover the new space allotted to them, and will perhaps require a partial thinning out to have them evenly distributed. As soon as this is the case, say about the middle of August, dig under the whole of the old plants with a light coat of manure. The surface may be then sown with turnips or spinach, which will come off before the next season of fruits.

In this way the strips or beds occupied by the plants are reversed every season, and the same plot of ground may thus be continued for years, but less productive than when new land is taken.

It may be remarked that the Alpine and European Wood strawberries will do well and bear longer in a rather shaded situation. The Bush Alpine, an excellent sort, having no runners, makes one of the neatest *borders* for quarters or beds in the kitchen garden, and produces considerable fruit till the season of late frosts. If the May crop of blossoms is taken off, they will give a moderate crop in September.

To accelerate the ripening of early kinds in the open garden, it is only necessary to plant rows or beds on the south side of a wall or tight fence. A still simpler mode, by which their maturity will be hastened ten days, is that of throwing up a ridge of soil three feet high, running east and west, and planting it in rows on the south side. (The north side may also be planted with later sorts, which will be somewhat retarded in ripening.)

Hermaphrodite and Pistillate Plants.—A great number of experiments have been made, and a great deal has been written lately, in this country, regarding the most certain mode of producing *large crops* of this fruit.

Cultivators divide all Strawberries into classes, characterized by their *blossoms*. The first of these they call *Staminate* (or male), from the stamens being chiefly developed. The second they call *hermaphrodite* (or perfect), from their having both stamens and pistils developed. The third are called *pistillate* (or female), from the pistils being chiefly developed.

The first class really does not exist among cultivated varieties, because a pure male variety, or one producing only male flowers, cannot bear fruit.

In planting strawberry beds it is important, therefore, to the cultivator to know which are the *perfect*, or *hermaphrodite*, and which are the *pistillate* varieties—as they are found to be permanent in these characters. We have accordingly designated these traits in the descriptions of the varieties which follow.

Upon the relative proportion of *hermaphrodites*, cultivators

are not absolutely agreed. Some considering one plant of a *hermaphrodite* sufficient to impregnate ten or twelve *pistillates*; others again set twenty *pistillates* to one. The *hermaphrodite*, or perfect flowering sorts, require no special care of this kind, and are generally preferred by planters, and are considered fully as productive as an entire *pistillate*, even when most advantageously impregnated.

STRAWBERRY BLOSSOMS.



Perfect or Hermaphrodite blossom



Pistillate blossom.

Nothing is easier than to distinguish the two classes of strawberries when in blossom. In the *Hermaphrodite*, the long yellow anthers (*a*), bearing the fine dust or pollen, are abundant. In the *pistillate*, only the cluster of pistils (*b*), looking like a very minute green strawberry, is visible (that is, to the common observer, for the male organs are merely *rudimentary*, and not developed), while the perfect, or hermaphrodite flower, as seen in the drawing, has both stamens and pistils developed.

VARIETIES.

The varieties of this fruit are very numerous, indeed quite unnecessarily so for all useful purposes. They were formerly divided into classes, designated as the *pine* and *scarlet*, but the introductions of late years have become so intermingled as to make reference thereto of no practical value, if, indeed, it can be done correctly.

The characters of the flowers corresponding with the above are noted in the text by the words *Hermaphrodite* and *Pistillate*.

As before remarked, the varieties of the Strawberry are very numerous. They are also comparatively evanescent. We have, therefore, omitted to name or describe many sorts once recorded, because of a doubt as to their present existence. Again, others have perhaps only a local habitation

and name, and, possessing no superior qualities, are not worthy of perpetuation, and are therefore omitted.

AGRICULTURIST.

Abraham Lincoln.

President.

Raised by Seth Boyden, Newark, N. J. Plant vigorous, foliage dark green; hardy and very productive. Pistillate.

Fruit large, roundish conical, elongated, often with a neck. Surface somewhat uneven; first berries often cock's-comb shape, deep crimson. Flesh dark red, quite firm, juicy, sweet, and rich.

BARNES MAMMOTH.

Raised by D. H. Barnes, of Poughkeepsie, N. Y. Plant very vigorous, very productive, and said to be one of the best for market.

Fruit very large, roundish obtuse conical. Surface somewhat uneven; crimson. Flesh scarlet, firm, juicy, sprightly subacid.

BOSTON PINE.

Bartlett.

Raised by C. M. Hovey, Boston, Mass. This fine Strawberry, to have it in perfection, requires rich, deep soil, and to be grown in hills or bunches eighteen or twenty inches apart each way. Hermaphrodite.

Fruit rather large, roundish, slightly conical. Color deep glossy crimson. Flesh rather firm, juicy, rich, and of excellent flavor—an uncertain variety in many places.

BOYDEN'S No. 30.

Seth Boyden.

Raised by Seth Boyden, of Newark, N. J. Plant vigorous, very productive. Its large size and productiveness give promise as a valuable market variety near home.

Fruit very large, roundish obtuse conical, regular, often with a short neck, bright crimson. Flesh rather soft on the surface, juicy, rich, subacid.

BRITISH QUEEN.

Myatt's British Queen.

Raised by Mr. Myatt, England. Flowers hermaphrodite. Plant vigorous, rather tender, requires deep, rich cultivation.

Fruit very large, roundish conical, occasionally cock's-comb-shaped, of a beautiful shining scarlet. Flesh rather firm, juicy, rich, and excellent.

BROOKLYN SCARLET.

Raised by A. S. Fuller. Hermaphrodite. Plant vigorous and productive.

Fruit medium to large, elongated, conical with a neck, bright scarlet. Flesh rather soft, sweet, rich.

CHARLES DOWNING.

Raised by J. S. Downer, Fairview, Ky. Plant very vigorous and very productive. Hermaphrodite.

Fruit very large, nearly regular, conical, deep scarlet. Seeds brown and yellow, rather deep. Flesh quite firm, pink, juicy, sweet, rich.

DOWNER'S PROLIFIC.

Raised by J. S. Downer, Kentucky. Hermaphrodite. Plant vigorous, very productive, early. Valuable for near market growing.

Fruit medium to large, roundish conical, light clear bright scarlet. Flesh rather soft, juicy, rich, but a little acid.

FILLMORE.

Raised by Samuel Feast & Sons, Baltimore, Md. Plants moderately vigorous. Pistillate. In deep rich soils, under high culture, this is one of value for amateur cultivation; not profitable for market.

Fruit medium to large, obtuse conical, rich deep scarlet. Seeds yellow, and near the surface. Flesh moderately firm, rich, sweet.

FRENCH.

French's Seedling.

From Moorestown, N. J. Plant vigorous, moderately productive. Hermaphrodite. A fine early variety for private gardens.

Fruit medium to large, roundish obtuse conical, light bright scarlet. Flesh rather soft, rich, and good.

GREEN PROLIFIC.

Newark Prolific.

Raised by Seth Boyden, Newark, N. J. Plant hardy, very vigorous, very productive, and is highly valued by some as a market sort. Pistillate.

Fruit large, roundish obtuse, orange scarlet. Surface soft, centre of flesh firm, rather acid.

HATHAWAY.

Hathaway's Seedling.

Raised by B. Hathaway, Little Prairie Ronde, Mich. Plant vigorous, very productive. Hermaphrodite.

Fruit large, roundish obtuse or oblate. Seeds yellow and brown. Color deep scarlet. Flesh scarlet, juicy, moderately firm, rich acid.

HOOKER.

Raised by H. E. Hooker, Rochester, N. Y. Plant vigorous, hardy, and productive. Hermaphrodite.

Fruit large, broadly conical, regular, very large, specimens sometimes cock's-comb-shaped or depressed. Color deep crimson, almost maroon, with a polished surface, which is rather soft. Flesh deep crimson, rather tender, juicy, with a fine rich flavor.

HOVEY'S SEEDLING.

Young's Seedling.

Germantown.

This splendid Strawberry was raised in 1834, by Messrs. Hovey, seedsmen, of Boston, and is undoubtedly one of the finest of all varieties. The vines are vigorous and hardy, producing moderately large crops, and the fruit is always of the largest size, and finely flavored. It is well known at the present moment throughout all the States. The leaves are large, rather light green, and the fruit-stalk long and erect. Pistillate.

Fruit very large, roundish oval or slightly conical, deep shining scarlet. Seeds slightly embedded. Flesh firm, with a rich, agreeable flavor. It ripens about the medium season, or a few days after it.

JENNY LIND.

Raised by Isaac Fay, Cambridgeport, Mass. Hermaphrodite. Vines hardy, vigorous, and productive; an early

variety. Fruit medium to small, conical. Color rich crimson, glossy. Flesh rather firm, juicy, rich, sprightly subacid.

JUCUNDA.

Knox's 700.

A foreign variety, that, like some others of its class, does extremely well in some few localities, under high cultivation. Plants moderately vigorous. Hermaphrodite.

Fruit large to very large, obtuse conical or cock's-comb flattened, bright light scarlet. Seeds mostly yellow. Flesh light pink, moderately firm, sweet, not high flavor, often hollow.

KENTUCKY.

Raised by J. S. Downer, of Fairview, Todd Co., Ky. We have not seen the fruit, and give Wm. Parry's description. Plant strong, vigorous, very productive, with long fruit-stalks, bearing the berries well up from the ground, and the foliage standing the heat of summer and cold of winter, and is a week later than most varieties. Hermaphrodite.

Fruit large to very large, roundish conical, bright scarlet. Flesh white, firm, juicy, rich sweet, and of excellent quality. (Wm. Parry's MS.)

LA CONSTANTE.

A foreign variety that occasionally succeeds, but generally it burns and dies out. In quality it is excellent, and for some amateur gardens a desirable variety. Hermaphrodite.

Fruit large, roundish conical, bright lively crimson. Flesh white, tinged with rose-color, firm, juicy, rich, and delicious.

LENNIG'S WHITE.

White Pineapple.
Albino.

Albion White.
White Albany.

Origin, supposed Germantown, Pa. This is one of the very finest-flavored sorts grown; but unfortunately it does not produce but very moderate crops, and is therefore unsuited to any but amateurs. Plants vigorous. Hermaphrodite.

Fruit large, roundish oblate obtuse conical. Seeds reddish, not deep. Color whitish, tinged with red. Flesh soft, tender, juicy, sweet, rich, delicious pineapple flavor.

McAVOY'S SUPERIOR.

McAvoy's No. 12.

General McLellan.

Buffalo.

Origin, Cincinnati, on the lands of Mr. Longworth. Pistillate. Vigorous and productive.

Fruit large, roundish irregularly oblate, more or less necked. Color light crimson, becoming deep crimson at full maturity. Flesh deep scarlet, tender, very juicy, with rich vinous flavor. Surface of the fruit rather tender, and will not bear long carriage.

NAPOLEON III.

Originated with M. Gloede. Plants vigorous, productive. Hermaphrodite.

Fruit large to very large, conical, irregular, sometimes cock's-comb-shaped, light scarlet. Seeds yellow, reddish near the surface. Flesh white, rather firm, juicy, sweet, rich.

NICANOR.

Raised by Messrs. Ellwanger & Barry, Rochester, N. Y. Plants vigorous, productive, early. Hermaphrodite. Foot-stalks tall, upright.

Fruit medium, roundish obtuse conical, bright scarlet, somewhat glossy. Seeds brown yellow, not deeply embedded. Flesh juicy, reddish, rather firm, rich, sweet.

PRESIDENT WILDER.

Raised in 1860, by Hon. Marshall P. Wilder, of Dorchester, Mass., from seed of Hovey's Seedling impregnated with La Constante, and dedicated to him by the Massachusetts Horticultural Society. This new variety, as grown on the originator's grounds, promises to be valuable, and if it succeeds as well in other soils and localities, it will be an acquisition. Plant healthy, hardy, vigorous, and very productive. Fruit-stalk short, stout, erect. It is said to stand the heat of summer and cold of winter uninjured.

Fruit large to very large, roundish obtuse conical, very regular, bright crimson scarlet. Seeds mostly yellow, near the surface. Flesh rosy white, quite firm, juicy, sweet, and rich.

There is another *President Wilder*, originated in Europe, that is described as large, ovate conical, with a neck, bright

rich deep crimson. Flesh rose-color, moderately firm, juicy, rich, and excellent.

RUSSELL'S PROLIFIC.

Originated with H. Russell, Seneca Falls, N. Y. Vines vigorous, very productive. Pistillate.

Fruit large, conic, compressed, ribbed, scarlet, changing to crimson. Seeds small, pretty deeply embedded. Flesh mild, moderately rich, rather soft, pleasant.

TRIOMPHE DE GAND.

The Triomphe de Gand is a Belgian variety, which appears to stand our climate, and produce more crops in more localities than any other foreign sort. The vines are vigorous, hardy, moderately productive, and well suited to strong clayey soils; requires high cultivation, and to be grown in hills. Hermaphrodite.

Fruit large, roundish obtuse, sometimes cock's-comb shape, bright rich red next the calyx, almost greenish white at point, glossy as if varnished. Seeds light yellow-brown, near the surface. Flesh firm, white, a little hollow at core, juicy, with a peculiar rich and agreeable flavor.

VICTORIA.

Trollope's Victoria.
Union.

Golden Queen.
Trembly's Union.

An English variety, moderately productive, quite handsome. Hermaphrodite.

Fruit very large, nearly globular, regular. Calyx very large, in a depression. Color light crimson. Flesh light scarlet, tender, juicy, sweet, rich, with a somewhat peculiar aromatic flavor.

WILSON'S ALBANY.

Raised by the late James Wilson, Albany, N. Y. Although not of high quality, because of its superabundance of acid, yet no variety has become so generally cultivated as the Wilson's Albany. The vine is very hardy and vigorous, very productive, commencing to ripen its fruit early, and continuing to the latest. Hermaphrodite.

Fruit large, broadly conic, pointed. Color deep crimson. Flesh crimson, tender, with a brisk acid flavor.

ALPINE AND WOOD STRAWBERRIES.

RED-BUSH ALPINE.

Buisson.
Des Alpes, sans Filets.

Monthly, without Runners.
Commun, sans Filets.

The Bush Alpines are remarkable among Strawberries for their total destitution of runners. Hence, they always grow in neat, compact bunches, and are preferred by many persons for edging beds in the kitchen garden. The fruit is conical, and the whole plant, otherwise, is quite similar to common Alpines. We think it one of the most desirable sorts, and it bears abundantly through the whole season. The Bush Alpines were first introduced into the United States by the late Andrew Parmentier, of Brooklyn. To propagate them the roots are divided. Flowers always perfect.

RED WOOD.

English Red Wood.
Des Bois à Fruit Rouge.
Common Rouge.

Newland's Mammoth.
Stoddard's Alpine.
Washington Alpine.

This is the wild Strawberry of Europe (*F. vesca*), long more commonly cultivated in our gardens than any other sort, and still, perhaps, the easiest of cultivation, and one of the most desirable kinds. It always bears abundantly; and though the fruit is small, yet it is produced for a much longer time than that of the other classes of strawberries, and is very sweet and delicate in flavor. Flowers always perfect.

Fruit red, small, roundish ovate. Seeds set even with the surface of the fruit. It ripens at medium season.

WHITE-BUSH ALPINE.

White Monthly, without Runners.

Buisson des Alpes Blanc, &c.

This differs from the Red-Bush Alpine only in the color of the fruit, which is conical and white.

WHITE WOOD.

This is precisely similar in all respects to the Red Wood, except in its color, which is white. It ripens at the same time.

HAUTBOIS * STRAWBERRIES.

PROLIFIC OR CONICAL.

Musk Hautbois.	Double Bearing.
French Musk Hautbois.	Caperon Royal.
Sacombe.	Regent's Dwarf.
Sir Joseph Banks.	Caperon Hermaphrodite.

This is a capital variety. Its strong habit and very large, usually perfect flowers, borne high above the leaves, distinguish it. The fruit is very large and fine, dark-colored, with a peculiarly rich, slightly musky flavor. It bears most abundant crops. Hermaphrodite.

Fruit large, conical, light purple in the shade, dark blackish purple in the sun. Seeds prominent. Flesh rather firm, sweet, and excellent. It ripens tolerably early, and sometimes gives a second crop.

The COMMON HAUTBOIS, GLOBE, LARGE FLAT, &c., are scarcely worthy of cultivation here.

ROYAL HAUTBOIS.

This is one of the largest, most vigorous, and prolific of the Hautbois family.

Fruit medium to large, roundish conical, regular. Seeds yellow on the surface, rich dark crimson. Flesh whitish, soft, sweet, rich.

Key to French Standard Names of Fruit.—To meet the wants of some of our farming friends in various parts of the country, who are zealous collectors of fruit, but at the same time more familiar with plough-handles than with the sound of *Monsieur Crapaud's* polite vernacular, we have prepared the following little key to the pronunciation of such French names as are necessarily retained among the standard varieties.

So long as these sorts must retain their foreign names, it is very desirable that they should be correctly pronounced. To give to these French terms what appears to merely English readers the proper sound is often as far as possible from the true pronunciation. A skilful Hibernian gardener puzzled his employer, a friend of ours, during the whole month of

* *Haut-bois*, literally *high-wood*, that is, wood strawberries with high leaves and fruit-stalks.

September, with some pears that he persisted in calling the "Lucy Bony," until, after a careful comparison of notes, the latter found he meant the *Louise Bonne*.

We have, therefore, in the following, eschewed all letters with signs, and given, as nearly as types alone will permit us, the exact pronunciation of the French names.

KEY TO FRENCH NAMES.

APPLES.

Court Pendu Plat.—Coor Pahn du Plah.
Drap d'Or.—Drah dor.
Fenouillet Gris.—Fen-nool-yai Gree.
Male Carle.—Mal Carl.
Pomme de Neige.—Pum de Naije.
Reinette Blanche d'Espagne.—Ren-ett Blansh d'Espagne.
Reinette Triomphante.—Ren-ett Tre-ome-fant.

APRICOTS.

Albergier.—Al-bare-je-ai.
Briançon.—Bre-ahn-sohn.
Belle de Choisy.—Bel de Shwoi-sey.
Belle Magnifique.—Bel Man-gne-feek.
Bigarreau.—Be-gar-ro.
Bigarreau Rouge.—Be-gar-ro Rooje.
Bigarreau Couleur de Chair.—Be-gar-ro Coo-lur de Shair.
Bigarreau Gros Cœur.—Be-gar-ro Gro Keur-ai.
Bigarreau Tardif de Hildesheim.—Be-gar-ro Tar-deef de Hildesheim.
Gros Bigarreau Rouge.—Gro Be-gar-ro Rooje.
Griotte d'Espagne.—Gre-ote Des-pan.

GRAPES.

Chasselas Musqué.—Shah-slah Meuskay.
Chasselas de Fontainebleau.—Shah-slah de Fone-tane-blo.
Ciotat.—Se-o-tah.
Lenoir.—Lun-war.

NECTARINES.

Brugnon Violet Musqué.—Brune-yon Ve-o-lay Meus-kay.
Brugnon Musqué.—Brune-yon Meus-kay.
D'Angleterre.—Dahn-glet-are.
Duc du Tellier.—Deuk du Tel-yay.

PEACHES.

Abricotée.—Ab-re-co-tay.
Belle de Vitry.—Bell de Ve-tree.
Grosse Mignonne.—Groce Mene-yon.

Madeleine de Courson.—Mad-lane de Coor-son.
 Pavie de Pompone.—Pah-vee de Pom-ponne.
 Pourprée Hâtive.—Poor-pray Hat-eve.
 Sanguinole à Chair adhérente.—Sahn-gwe-nole ah Shair Ad-hay-rent.

PEARS.

Amiré Joannet.—Am-e-ray Jo-ahn-nay.
 Ananas.—An-an-ah.
 Ananas d'Été.—An-an-ah Da-tay.
 Angleterre.—Ahn-glet-are.
 Beurré.—Bur-ray.
 Belle de Bruxelles.—Bel-de Broos-ell.
 Belle et Bonne.—Bel-a-Bun.
 Belle-Lucrative.—Bel-lu-crah-teve.
 Beurré de Capiumont.—Bur-ray de Cap-u-mohn.
 Beurré d'Amalis.—Bur-ray Dah-mah-lee.
 Beurré Gris d'Hiver Nouveau.—Bur-ray Gree Dee-vair Noo-vo.
 Beurré Diel.—Bur-ray De-ell.
 Beurré Bronzée.—Bur-ray Brone-zay.
 Bezi d'Heri.—Ba-zee Daree.
 Bezi Vaet.—Bazee Vah-ai.
 Beurré Crapaud.—Bur-ray Crah-po.
 Bezi de Montigny.—Bay-zee de Mon-teen-gnee.
 Bon Chrétien Fondante.—Bone Cray-te-an Fone-donte.
 Boucquia.—Boo-kiah.
 Calebasse Grosse.—Cal-bass Groce.
 Capucin.—Cap-u-san.
 Chaumontel très Gro.—Sho-mone-tell tray Gro.
 Compte de Lamay.—Conte de Lah-me.
 Colmar Épine.—Cole-mar A-peen.
 Crassane.—Cras-sahn.
 Cuisse Madame.—Kuees Mah-dam.
 D'Amour.—Dam-oor.
 De Louvain.—Dul-oo-van.
 Délices d'Hardenpont.—Day-lece Dar-dahn-ponne.
 Doyenné d'Été.—Dwoy-on-nay Day-tay.
 Doyenné Panaché.—Dwoy-on-nay Pan-ah-Shay.
 Dumortier.—Du-mor-te-ay.
 Duchesse d'Angoulême.—Du-shess Dong-goo-lame.
 Duchesse d'Orléans.—Du-shess Dor-lay-on.
 Enfant Prodige.—On-font Pro-deeje.
 Épine d'Été.—A-peen day-tay.
 Figue de Naples.—Feeg de Nah-pl.
 Fondante d'Automne.—Fone-donte do-tonn.
 Forme de Délices.—Form de Day-lece.
 Forelle.—Fo-rel.
 Fondante du Bois.—Fone-dont du Bwoi.
 Fortunée.—For-tu-nay.
 Franc Réal d'Hiver.—Fronk Ray-ahl Dee-vair.
 Glout Morceau.—Gloo Mor-so.
 Héricart.—Hay-re-car.
 Jalousie.—Jal-oo-zee.
 Jalousie de Fontenay Vendée.—Jal-oo-zee de Fone-ten-ai Von-day.
 Léon le Clerc.—Lay-on le Clair.
 Limon.—Lee-mohn.

Louise Bonne.—Loo-eze Bun.
 Madeleine, or Citron des Carmes.—Mad-lane, or Cee-trone day Carm.
 Marie Louise.—Mah-re Loo-eze.
 Michaux.—Me-sho.
 Passans de Portugal.—Pah-sahn de Por-tu-gal.
 Pailleau.—Pahl-yo.
 Paradis d'Automne.—Par-ah-deze do-tonn.
 Passe Colmar.—Pass Col-mar.
 Quilletette.—Keel-tet.
 Reine Caroline.—Rane Car-o-lene.
 Reine des Poires.—Rane day Pwore.
 Rousselet Hâtif.—Roos-lay Hat-eef.
 Sanspeau.—Sahn-po.
 Sieulle.—See-ull.
 Sucrée de Hoyerswarda.—Seu-cray de Hoyerswarda.
 Surpasse Virgalieu.—Seur-pass Vere-gal-yu.
 St. Germain.—San Jare-man.
 Sylvange.—Seel-vonje.
 Vallée Franche.—Vol-lay Fronsh.
 Verte Longue.—Vairt Longh.
 Verte Longue Panachée.—Vairt Longh Pan-ah-shay.
 Virgouleuse.—Vere-goo-leuz.
 Wilhelmine.—Wil-el-meen.

PLUMS.

Abricotée Rouge.—Ab-re-co-tay Rooje.
 Diaprée Rouge.—De-ah-pray Rooje.
 Drap d'Or.—Drah-dor.
 Jaune Hâtive.—Jaun Hat-eve.
 Mirabelle.—Me-rah-bell.
 Précoce de Tours.—Pray-cose de Toor.
 Prune Suisse.—Prune Su-ece.
 Royale Hâtive.—Rwoy-al Hat-eve.



INDEX TO THE DIFFERENT FRUITS.

[The standard names are in Roman letters. The synonymous names in *Italic*.]

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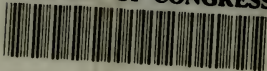


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