HAND BOOK
FOR
FRUIT GROWERS.

F. R. ELLIOTT.

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UNITED STATES OF AMERICA.

HAND-BOOK

FOR

FRUIT GROWERS,

CONTAINING

A SHORT HISTORY OF FRUITS AND THEIR VALUE — INSTRUCTIONS AS TO SOILS AND LOCATIONS—HOW TO GROW FROM SEEDS—HOW TO BUD AND GRAFT—THE MAKING OF CUTTINGS—PRUNING—BEST AGE FOR TRANSPLANTING, ETC., ETC.

WITH A

CONDENSED LIST OF VARIETIES SUITED TO CLIMATE.

(ILLUSTRATED.)

Made for Those Who Grow Fruit for Their Own Use.

BY F. R. ELLIOTT,

AUTHOR OF "WESTERN FRUIT GROWERS' GUIDE."

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PREFACE.

The preparation of the pages in this work have been instigated by a long time attention to the wants of those who yearly plant out fruit trees, vines and plants.

Visiting our yearly gatherings of men throughout the country at the local, county and state agricultural and horticultural societies' meetings, together with the fact that not an editor of a journal, more or less devoted to the improvement of rural life, and as aid thereto, gives items touching of fruit, etc., but is almost daily in receipt of questions touching the "How and when to plant?" "What varieties to use?" has brought us to write as plainly and practically as possible, and within a scale that may be sold at a price to meet the pocket of every man who desires to plant trees or vines in his ground, looking forward to their producing him valuable fruit, to minister as food toward health and longevity of life.

The works of DOWNING, THOMAS, BARRY and others, while embracing the whole matter, yet require an outlay

of money, which we hope the reader of our pages herein will find equally to his interest, and at a small pecuniary cost.

To those who can afford to buy the three to five dollar book, we say, do so; but the work we now present you may be placed in the hand of any novice connected with tree planting, and enable him to plant and trim a tree or vine in such manner that it will prove a success.

HISTORY AND VALUE OF FRUITS.

With the limited space given us by the publisher, we can but draw a few words touching the first of fruits, and the progress thereof to the present day.

As we read outside of the Bible, we find that more than 6,000 years ago the grape, apple, pear, peach, apricot and plum were grown. Even then the art of grafting was known, but the world had not then its many millions, as now, nor was a legitimate knowledge of reading and writing, among the masses of the people, then prevalent as at this time.

From the first of our biblical teaching, we learn that the apple was a feature connected with humanity; and so in every section of country and climate we find fruits, natural to the clime, are part and parcel of the food of the people.

When the first settlers of this country landed—say in 1500—they brought with them seeds of the apple, pear, etc., and many cuttings of vines and flowering plants, which they hoped could be grown in the land of their adoption. Fortunately, at that time, the forest was such as to break the storms, and leaves were so abundant, that they could protect the young plants, which soon took root in the rich, natural, vegetable loam.

Soon Virginia and other southern localities of this country were settled, and the growths of their clime came almost super-natural, to the supply of food for mankind. Little by little transportation and communication came between the north and south of what is now the United States of America, and with it has progressed every species and variety of fruit and its culture.

We have had, during the past century, many enthusiastic workers in the fruit and flower line,—those who faithfully believed in advocating to those about to plant, a careful study and knowledge from practical men in the growth of tree and fruit.

Our limits, taking in what we want to write practically, of how to grow, etc., will not permit us to enumerate by name the many men who have labored in the act practically, and writing mentally toward the advance of fruit culture. Suffice it to say, that not a state north, east, south or west but has one or more names long to be remembered by every man woman or child who resides outside of the dingy, narrow streets and dirty alleys and air of a city.

"God made the country—man made the town;" please take this old truth daily before you in thought, to a perfect digestion.

Ere I leave this chapter I must quote from one of the men who knew, believed in, and worked up his subject. Doctor J. A. KENNICOTT, of Illinois, wrote as follows:

"The free use of *ripe* fruits not only *prevents disease*, but their regulated enjoyment helps to remove that which already exists. All *ripe* fruits are also more or less nutri-

tious. It has been clearly demonstrated that the apple is superior to the potato in the principles that go to increase the *muscle* and *brain* of man; and in fattening properties it is nearly equal to any other food. Ripe grapes have cured epidemic dysentery. Families, where fruits are most plentiful, and *ripened* good, are most free from disease of all kinds, especially from fevers and bowel complaints. Most fruits aid digestion; some directly and some indirectly, and their free use lessens the desire for alcohol or other stimulents. The juicy ones act as diluents, and all as diuretics, the free acids neutralizing the earthy matters in the blood."

SOILS AND LOCATIONS BEST ADAPTED.

The above heading, in the growing of fruits, has many and multiple of views by those who have given their record in the meetings of agricultural and pomological societies. The whole, however, rests in the fact that the tree must have its roots where there is an under current of moisture, that can be taken up by the tap or lower roots, in times of dry atmosphere and lack of moisture upon the surface. Again, the tree must not be situate in a low valley, or confined air space, without an underground drainage, for here the cold is increased, and added to the moisture of the valley, is often five to seven or ten degrees of Fahrenheit below that of the high ground adjoin-

ing. The apple called Grimes' Golden, or Grimes' Golden Pippin, originated upon a high, well drained, limestone point, and is recorded for years of bearing a fine, high flavored fruit. To-day it has no favor on average soils and locations as a general fruit crop, and has only a single star, each of three states, in the American Pomological Society's transactions, 1873.

Some of the most valuable orchards known stand on elevated situations, with what is generally termed a thin, light, loamy soil, resting upon a basis of rock. In such positions the trees do not grow as rapidly as in deeper and richer soils, but they become fruitful sooner, and continue a long and productive life.

Thorough drainage in all cases is essential to healthy growth of tree and productiveness. Aspect is also a material circumstance, and should be modified by the climate and variety of fruit to be grown. A peach orchard will bear warmth better than one of the hardy, firm, wooded varieties of apples, pears and plums. It is well for the planter to study the position whereon he intends to plant, and ere deciding upon positions for certain trees, look over the surrounding country, and note the success or failure of others who have gone before him in the work. According as this is adapted to the growth of the variety planted, will be his success. It is not policy to stimulate trees into growing luxuriently, by means of manures; a healthy, steady, yearly growth, ripening the wood perfectly, forms the most permanent orchard.

HOW TO GROW FROM SEED.

The saving of Seeds—From what they should be taken.

It is a mooted point, even in this intelligent age, as to whether certain improvements in the varieties of fruits can be had by taking the seed of some one really good variety, that is surrounded by or near to other equally good varieties, and from their natural impregnations come, or whether artificial impregnation of one variety upon another of distinct character, termed *hybridizing*, is the best. The former, certainly, so far, has given the most valuable results, but the process is one slower than the latter, by which results can be shown in about one-half the time. As we are now not writing a scientific treatise, but trying to make plain, practical matter, by which he who reads can practice; and as we know that the artificial impregnation of one flower upon another of a distinct class is attended with a knowledge of time to study and practice, we shall advise the growing from seed taken carefully from some healthy, hardy tree, producing the best of fruit, and which is surrounded by others of a different yet good character. Ninety times out of a hundred the seeds so gathered and sown have produced the most successful results.

We have read much of what has been done, but in all cases we cannot speak confidently; but to-day believe our best apples, pears, etc., have come from seeds void of man's aid in their impregnation. We do know that Prof. JARED POTTER KIRTLAND, of Cleveland, Ohio, by taking seeds of the cherry from one tree that was near to others of different varieties, has produced varieties that to-day rank as first class, not only in this country but in England and France. Although we shall again name these in our list of varieties to plant, let us name here of the Kirtland cherries, the "Black Hawk," "Brant," "Delicate," "Ohio Beauty," "Cleveland," "Rockport," and "Pontiac." This same amateur grower has produced of the Tree Peony, varieties of greater beauty than any we have received from abroad.

Having now said from what seeds varieties of fruits should be grown, or the stocks used to graft or bud upon, leaving the two or three lower limbs to show the fruit of the seedling, we will say, that no fruit seed should ever be permitted to get dry. It should be gathered, washed cleanly, and then packed in light layers among clean sand or charcoal dust, and kept free from heat or warmth, until the ground in spring is warm enough to sprout vegetation. The better and plain way of keeping the seed is to bury the packages on the north side of a building, and covering with three to four inches of earth. This keeps the seeds dormant until time for planting in spring. The nut fruit seeds, like peach and plum, had best be carefully cracked. The cherry will open of itself, and should be first planted in spring.

BEST AGE FOR TRANSPLANTING OF SORTS,

How to do it,—Also the best Season.

The best age for transplanting apples, pears or plums as standards—that is trees grown upon roots of their specific sorts,is at two years from the growth of the bud or graft. The pear grown upon the quince, the apple upon the Doucain or Paradise stock, the peach upon the plum, the apricot and nectarine upon the plum,—should be planted at one year from growth of bud or graft.

If the trees come from a nursery, not grown by yourself and upon your own ground,—then 1st, wet the package, on receipt, before opening. 2d, dig a trench in some light, dry soil, into which you can heel in the trees or shrubs. Lay these trees at an angle of about forty-five degrees, the tops at the south and so that the roots and half the length of the bodies be covered with earth. The roots eighteen inches deep, and the bodies ranging from six to two inches as you go from the upper or crown roots of the tree to the top.

Trees received in autumn too late for planting, throw some brush over the whole and scatter thereon straw or leaves, to shield from sun and cold during winter.

Trees can be transplanted safely at any age, but in the work there must be knowledge of the man who guides it, as well as workmen careful of their work among the roots. The old practice of moving trees by frozen balls of roots caused by digging around in late autumn and left to freeze, and be moved in mid-winter we have long since abandoned, knowing that careful digging of the roots and preserving them, either early in autumn or early spring, the tree can be moved with better success and less expense than the old ball handling.

The writer of this has moved trees—both deciduous and evergreen—in mid-summer, without failure. The growth of the season, however, must have formed and ripened with a terminal bud, and when deciduous trees were removed at that time, the foliage was all removed by clipping it from the petiole half way to the bud. With evergreens we clip back nearly all of the present year's growth, leaving one bud only upon the wood of the present year.

The best season to plant out, we may say, is very early in autumn or early spring. Location and climate must, however guide the rule. In the Southern States mid-winter is the time. In the Southwest, March and April, not later, is the time. In the temperate, or zone of most of our hardy trees, early autumn for apple, pear and plum ; for peach, apricot, grape, nectarine, early spring. The North, as of Minnesota, Canada, etc., had best obtain their trees in the autumn, heel them in as we have described, and not plant until the ground is a little warmed in spring.

Ere we leave this chapter on planting, let us remind those who plant, that the holes should be four inches at least larger than the diameter of the roots; that the base center of the hole should be just a little crowning; that the roots should be carefully spread as they naturally grow, and fine, rich earth—no manure—placed in and around them, by the fingers of the hand outspread. Place the tree so that its upper tier of roots will be covered four inches. Do not tread with the foot upon the loose ground over the roots, for it only has a tendency to bend them out of place, and a crooked root is sure to make a crooked tree. The hand or spread finger pressure of the earth firmly at the base of the tree will cause it to stand firmly and never need a stake or outside support. The writer of this has planted thousands of trees from one foot to forty feet in height, and never used a stake. Mulching, with coarse manure at first, then in June with fresh mown grass, a distance of say six feet diameter around the body and over the roots is what is needed the first year after transplanting.

WHEN AND HOW TO BUD OR GRAFT,

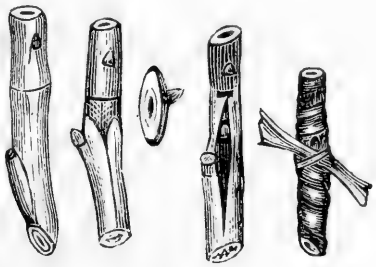
Or make Cuttings or Layers.

Budding is a process of propagation of varieties; so also grafting and growing from cuttings or layers. There are various modes of performing the work, and however well we or other authors may describe it, we advise every new beginner to visit a leading nurseryman or amateur fruit grower in his immediate neighborhood, where he can learn more in a half day of observation than all of what is printed. In order to be successful, both the stock and graft or bud should be in a healthy, vigorous state.

The time to bud is generally with the cherry and plum, in August following with pear, apple and peach. The name of the month here specified is indicative of the season, and taken as a guide for the northern and middle States. The grafting period is usually upon the approach of spring, but grafts, in large quantities are made upon pieces of roots during winter and packed away in sand to be planted in spring.

Cuttings of buds, for budding, may be made at any time when the tree has formed its terminal buds of growth for the year and the buds are ripe.

Grafts may be taken from the tree or vine any time after the leaf of the year has fallen, reference however being had to the temperature of atmosphere, which should never be below freezing. The various modes of budding may be described as follows :



FIGS. 3 5 4 6 7

American Shield Budding, first described by FORSYTH in 1802. It differs from the common shield budding only in leaving a small piece of wood at the base of the bud inserted, instead of taking all out. An incision is made lengthwise through the back of the stock, and a small cut at right angles at the top, the whole somewhat resembling the letter T.—(see fig. 3.) A bud is then taken from a shoot of the present year's growth, by shaving off the bark an inch or so in length, with a small part of the wood directly beneath the bud.—(see fig. 4.) The edges of the bark, at the incision in the stock, are then raised a little—(see fig. 5,) and the bud pushed downward under the bark.—(see fig. 6.) This work is generally performed with what is termed a budding knife, one end of the handle of which is of ivory or bone, and so smoothly shaped that removing or loosening the bark to admit the bud, does not injure the tender fibrous lines beneath.

A bandage of bass bark—(from what is known as Russia matting, or made from stripping of our Linden or Bass-wood trees in the spring, and tempered into strips by keeping it in water for a time,) is then wrapped around, commencing at the bottom and passing the bud, returning again and tying just below, covering all but the bud.—(see fig. 7.) The pressure should be just sufficient to keep the inserted portion closely to the stock, but not such as to crush or bruise the bark. Woolen yarn, or soft strips of old cotton cloth may be used as substitutes for ties in place of the bass bark.

In about ten days or two weeks after insertion, the strings or bandages will require to be loosened, and at expiration of three weeks removed altogether.

The ensuing spring, as soon as the buds begin to swell strongly, cut off the stock about six inches above the bud ; and as the shoots of the bud grows, tie it with any soft material to the piece of stock above its insertion, until about mid-summer, or when it has made two feet of growth, when the stock should be cut away above the bud—back of it, and leaving a sloping cut downward from the top of the insertion of the bud.

When you are inserting buds, never put the bases of the stems on which they are, in water. Keep them wrapped in a damp cloth, free from the sun's influence. Again, when you cut the shoots or buds for insertion, at once cut away the leaf, otherwise the evaporation will exhaust and injure its vitality.

Buds, having the leaf removed, may be kept fresh and full of vitality for a number of days, if placed in a cool

room and wrapped in damp moss or cloths. If they are to be mailed they should have damp moss wrapped around them, and then be enveloped in oiled silk or linen.

Ring Budding is another style, adapted to hard wood wood trees, as the chestnut, magnolia, etc. It is questionable whether this is as good as *side grafting*, for which see heading. In performing this a ring of bark is taken from a limb or stock, and one of corresponding size, containing a bud, is put in its place. (see fig. 8.) Trees

FIG. 8.

that have been girdled by mice or rabbits during winter, may be restored by the process of simply putting in live bark from a tree of its kind. Another way is to insert a number of grafts early in spring, each cut with a sloping cut on the inside at both ends, meeting with the albumen or sap rising formation in the large limb or stock.

In either of these practices, the whole should be covered with grafting wax, either applied with a brush or having been spread upon cloth, and then wrapped over the whole.

GRAFTING.

This, like budding, has numerous modes of being performed. It is perhaps one of the most plainly understood, practically, from reading, of any course of propagation.

Whip or Tongue Grafting. — This is most generally practised when the stock and scion are nearly of an equal size. The whole gist of it lies in so forming the graft and stock that the two outer surfaces of albumen, or wood of last year's growth, meet one with the other; or if the stock or scion be either too large, the outer line of the last year's growth shall match on one side.—(see fig 10.) The tongue is a notch cut in the stock, corres-

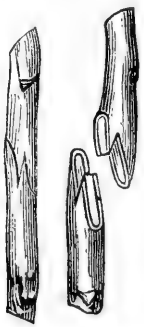


FIG. 10.

ponding with one cut in the graft, each having a lip, as it were, to meet each other, and when put together, serve as

a support in steadying the graft, until the circulation of the sap has united it with the stock.

This system is practised largely by nurserymen in the propagation of the apple, and is generally called root grafting. The work as we have before said, can be done in mid-winter,—the roots and grafts kept in sand for spring planting; or it can be done upon stocks in the open ground in spring, or upon limbs of trees in bearing, and upon which the owner desires to see many varieties.

Splice Grafting is similar to the foregoing, except that no slit is made in either stock or graft, and consequently it is not counted as desirable.—(see fig. 11.)

FIG. 11.

Crown Grafting is another mode. It is rarely done, however, except upon small stocks standing in the ground near the upper rootlet or fiber.—(see fig. 12.)

Saddle Grafting.—This is one which we have found practically of value with the cherry, peach, plum, apricot, etc., and especially if we had a new variety that was received late, (fig. 13,)—shows it with the stock pared obliquely on both sides until it becomes an inverted

wedge. The scion is then slit up the center and sides pared down to fit the sides of the stock.

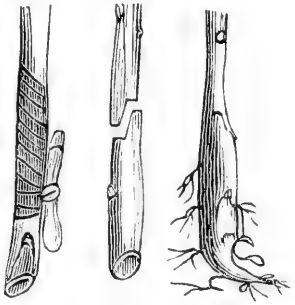


FIG. 12.

Side Grafting.—This is one of the modes best adapted in the grafting of the cherry, peach, plum, grape, magnolia, chestnut, etc., when grafts are not of full vigor. As

FIG 13.

may be seen in our cut—(see fig. 9)—a notch or slit of about one inch long is cut in the side of the stock—paring the outer portion, then splitting the graft and paring both the inner and outer portion, so that when in-

serted there will be a union of the bark and wood. The graft should be wrapped with grafting clay or wax—usually wax on a cloth is best—and the stock should not be headed in until the graft shows signs of union, and then, the pruning back should be gradual.

Cleft Grafting is an old mode rarely now practised. It consists in sawing the stock or limb off square, then splitting it down with grafting knife or chisel, cutting the lower end of the scion in the form of a wedge, and inserting it, so that one side, at least, will be in association with

FIG. 9.

the albumen or inner bark. The withdrawing of the chisel or knife holds the scion or graft firm, and it may then be protected from storms by grafting wax or clay.

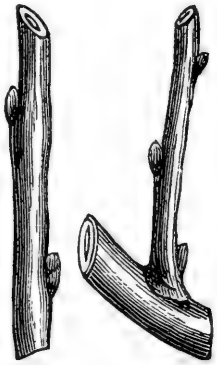
Grafting Wax is made in various ways. The following has credit of value : four parts rosin, three parts of beeswax, three parts lard. When well mixed dip cotton cloth in it while warm, and afterward cut them to meet the use you require.

Making Cuttings, whether of currant, gooseberry or grape, any time from the fall of the leaf of the season, until two or three weeks previous to the starting of spring growth is a good time.

The gooseberry and currant cuttings should be, say eight inches in length, and of the present year's growth

from the strongest shoots. The grape cuttings should be made any time from the fall of the leaf in the autumn until the buds commence to swell in the spring. At no time should they be taken from the vine, when the thermometer is below freezing.

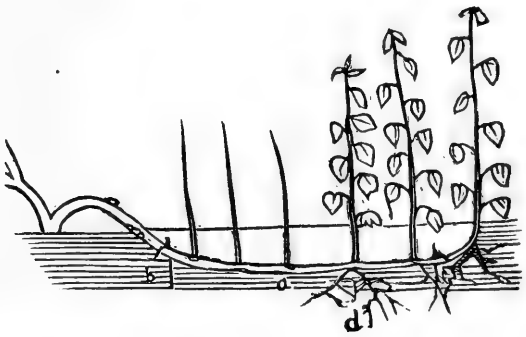
The cuttings should be of the best and ripest wood. Any well ripened wood cut with two eyes on it, as shown in figure 5, is all that is requisite; and yet we confess a penchant for the old style of mallet cutting, which is shown in our figure 6. It differs from the former only in the fact that it is made with an inch or less of the old



FIGS. 5. 6.

wood attached to the base of the cutting, and in that attachment, of base, or crown is supposed to be stored up a greater amount of vital life-giving power than can be concentrated in any one distinct bud—that junction or connection being, in fact, filled with buds, dormant so long as the main bud exists, but ready to do service as soon as that is destroyed.

LAYERING GRAPES.



Some varieties, like the Delaware, do not grow readily from cuttings when planted in the open ground. If you have a grape vine, say three years old, in spring, just as the buds begin to swell, lay down upon the ground such vines as start from nearest the crown or ground. Mark the space; then dig it away about six inches deep, in the form of a long, narrow trench. Stretch and peg down (*b*,) the vine as shown in the accompanying sketch. As soon as the buds have grown about eight inches, a slight clipping with the knife directly underneath the bud, (*a*,) and fill up the trench with a good soil, fastening the extreme end with the peg at (*b*.) In the autumn each bud or new plant will be found with roots, as at (*d*.) When one single strong plant only is wanted to be obtained by layering, bend a strong shoot and cut away the end buds back to one good strong bud, and let this alone grow.

PRUNING AT TRANSPLANTING,

AND FOR TWO OR THREE YEARS THEREAFTER OF THE APPLE, PEAR, PLUM, PEACH, GRAPE, ETC.

Trees received from the dealers, in the hands of nurserymen, are often, we regret to say, so wretchedly taken up and packed as to be almost worthless. Again there are men who as tree dealers, are just as reliable and honest as the man for whom they take an order. The buyer must beware of an agent that has no vouchers of the fact that he is their agent, and his beat, like a policeman's, is over a certain territory.

Now, when we write for the public, as to how to treat these trees, when received, and how to prune them at transplanting, we have a wide field to fill. We expect criticism from every tree salesman and so, more or less from those who send out their agents. Nevertheless, we will and must say here, and forever hereafter, that the planting of orchards, and culture of fruits, is largely due to the tree agents, who have engaged in the going among our comparatively isolated people, and showing them specimens of fruits; also colored illustrations of the same, with a promise to deliver trees that will produce

the same, at a certain time on payment of the regular rates of the growers or nurserymen.

With this preface to our treating, let us say that when your trees are to hand by means of packing, and transportation, you will from neglect of the transporters, find some dried, and others with the tops broken, etc. Some, and most, at this period, are cased in boxes, so that broken tops etc., cannot be laid to the charge of the transporters.

When the trees come to your hands, have ready a trench to imbed the roots; but ere you imbed them take each tree, and with a sharp knife, *from the under, toward the upper side of the root, cut it smooth*, taking away all the rugged lines; next take the top branches and as apparently of the roots; they should be shortened in the main branches, one-quarter to two-thirds of the past years growth, while all of the small twigs, or limbs, be cut cleanly to a line of the branch from which they grow.

This done, and our rule for planting pursued—see foregoing—no special care will be needed until one year has passed; then the trees should be gone over again, say at the time near to the formation of the terminal buds of growth of the year; care in pruning should now be especially given to the shortening in of irregular branches that show tendency to destroy the true roundish upright head; small slender twigs should be cut away close to the branch from where they have grown. Do not leave a knob of half an inch projection, but cut clean and smooth, and the wound will soon heal.

Trees pruned yearly, judiciously, without too much of thinning out of the tops, because our hot suns require foliage to shade the limbs far more than in climates of more regular and even temperature; will rarely require to have a large limb removed. Old orchards that have been neglected, it is best to go over at the same time given above for young trees. Do not practice the use of an axe and leave a knob of six inches, to either send out many sprouts, or rot and decay, sending its poison into the sap that goes to form new wood. Use a pruning saw, and trim all smooth with a knife; then paint or gum over the fresh cut.

Soft wooded trees like the peach or grape vine, a half inch or so should be left above the bud; but with these rarely is it necessary to cut limbs or canes over half to three-quarters of an inch diameter.

The standard apple, pear and plum, should have their first branches start at about three to four feet from the ground, while those to be treated as dwarfs, as the apple on Paradise stock, pear on quinces, peach on plums, should have the lower branches start from about one foot from the ground, and yearly so pruned as to cause them to form a pyramidal shape at first; this being brought into a rounded head, at the end of three or more years, by shortening the leading upper shoots the most.

There are a few leading points in the pruning and culture of trees, of which DUBREUIL, a french author who has been largely quoted, gives some good points in pruning; in others, our practice leads us to think he fails. When

he says:—we quote—" that the vigor of a tree, subjected to pruning, depends in a great measure, on the equal distribution of sap in all its branches," he is measurably correct; but when he adds: " the most vigorous parts, should be pruned short, at the same time leaving the weak shoots long," we think he errs; for our experience has been, that cutting back the strong shoots to two, or three buds, and leaving the inferior shoots long, has broken the form of growth we would have in the leading shoots, and left us at two years, with a mass of puny branches to be cut away as refuse and unsightly.

All this varies however in the varieties of trees; some have little or no tendency to throw out small twigs, as Tetofsky and Red Astrachan apple, Bartlett and Clapp's Favorite pear, etc; and while it has been said, and is by many advocated to-day, that a tree once rightly started, and then left to itself, free of pruning, will most fully develop its sap, and come into bearing more healthfully than when trained to meet the mind of man.

Again in pruning, it is said by DUBREUIL, that when the tree comes into bearing, the leaving of a large quantity on the strong shoots, and removing it mainly from the feeble, that the sap on the strong wood, will be absorbed by the fruit, and it will make little growth, while the parts will increase in size; this does not coincide with our experience. A practice of this course two years found us with little, or no good sized or rich fruit; but with our tree, all cluttered and out of shape.

We would, that the limit of the work designed by the

publisher would permit us to carry out the whole of this subject, but we fear it will not ; we will only add, that in all of pruning of the pear, apple, or cherry, and perhaps other varieties, no knife should ever be used after the first three years from transplanting ; walking through the orchard and seeing here and there a limb growing too fast to meet equality in after time of its associates ; just a pinch of the finger and thumb, breaking away to a bud ; the soft wood of the end is all the pruning that is required. Nature is wild and is responsible, like mankind ; but like mankind, she does best with just a gentle check here and there, now and then.

THE GRAPE.

We have shown in a former article, a chapter how to form the grape cutting for out of door growing. We now propose to show how to plant and prune the grape, which next to, if not superior to the pear, is bound to be part and parcel of every small homestead, and from it, on to its hundreds of acres for supply of its luscious and healthful food to the millions that have no garden grounds.

Once upon a time, the writer had much to do with varieties of grapes, the growing from cuttings, layers, etc., and came to the conclusion that a good, strong, healthy, well rooted plant, grown with space of one foot apart, was better and more likely to be successful than the plant grown from a single eye and only three inches apart in a frame. My estimate is now appreciated by one who watched my work, and who says now that every yearling grape grown from a cutting should have eighteen inches of space to make it *really* valuable.

But let me show the reader of this book my illustrations of how I made cuttings, and how the roots and growth showed. They all had the same care and soil. As before said, in an item of how to form a grape cutting for out-door culture, we present the following illustrations. Figure A shows a cutting made of two buds, all

the lower part being rasped with a coarse wood file, cross-wise over the surface, and breaking up the continuity of outline, tearing and destroying the outer cuticle or bark,

FIG. A.

and rendering the wood more accessible to the action of moisture and heat. Some growers shave all the bark off from the lower end of the cutting. There are some doubts of the practical value of this method. We have been unable to perceive that the cuttings so shaved or rasped made any more certain or vigorous growth. In Delaware and Nortons we fail to grow, say ten per cent. Why, when they all apparently are equally good cuttings, have the same handling, etc., is this so?

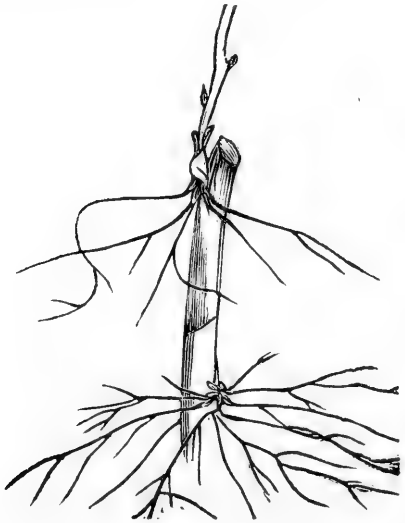


FIG. B.

Figure B is a representation of a two-eyed Delaware,

prepared and grown with the rasping process. The lower roots were strong and good, but the wood below the bud all destroyed.

The cutting called the mallet differs only in the fact that it is made with an inch or less of the old, or two-year-old wood attached to the base of the cutting; and in that attachment of base or crown, are supposed to be stored up a greater amount of vital, life-giving power than can be concentrated in any one distinct bud, that junction or bud being, in fact, filled with buds, dormant so long as the main bud exists, but ready to do service as soon as that is destroyed.

FIG. C.

Figure C shows a representation of this cutting; and we are strongly disposed to believe that when the most sound, healthy plants, vigorous in every essential of vital life, are wanted, they must be procured from cuttings made to embrace this junction of old and new wood; wherein, as in the crown of the seedling tree, the most of life-giving power exists. We do not doubt but that under care and culture, the plants grown from single eyes, or two-eyed cuttings of last year's wood, may in time become full and perfect; but their growth is constantly enfeebled, and more and more, as the buds from which they are grown are destitute of full and perfect life.

The ground in which these were planted, after being kept in sand, so that they exhibited a slight callous or

little white lip of delicate tissue, just around the outer edge of the lower cut was of a light sandy loam, and after planting the cuttings, old tan-bark was spread two inches deep over them.

Most of the cuttings were put under the soil two inches above the top of the bud.

FIG. 1.

Fig. 1 is from one of the strongest woods and buds, having an inch of wood below the bud. Its roots and top are strong; the number of large roots not as many as in fig. B; but they are longer and stronger. Let me say just here that the wood growth was not all alike

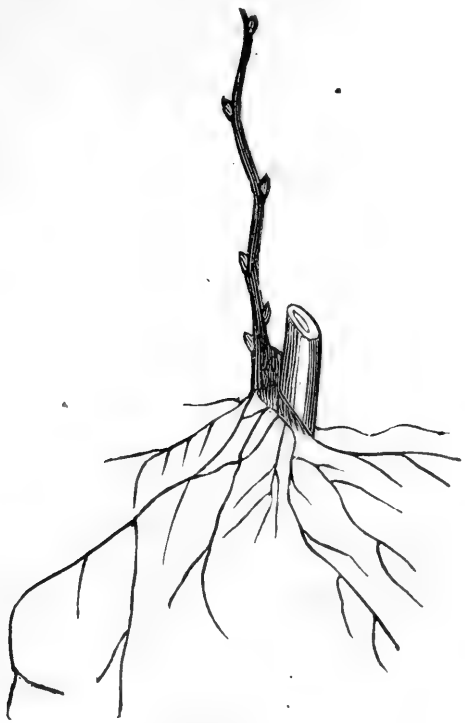


FIG. 2.

Fig. 2 is a representation of a single bud of wood like fig. 1; but its vitality was not the same, consquently the growth is not the same.

Fig. 3 shows the growth of roots and top of fig. 1, in the spring of the following year.

It is to be regretted that I have now no drawing of the roots of the best of the cuttings, as the *mallet* cutting having a piece of the old wood at the base of lower bud of the cutting.

Having shown partly, but not quite fully, the growing from the cutting, let me come to quotations of a thorough-

bred cultivator of the grape, and I believe the readers of this book will not regret it.

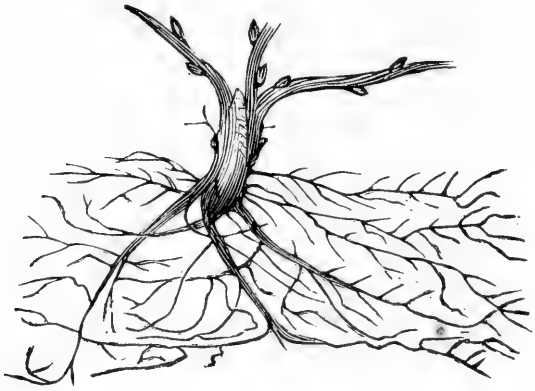


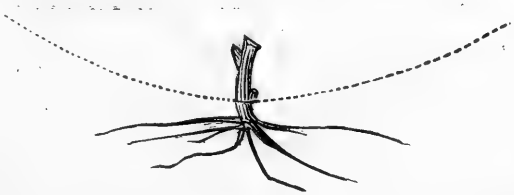
FIG. 3.

He says, "I have been looking over my former year's work, have been reading back or rather over again the views of others, and, after studying all, I took my spade and digging fork and went to an Isabella vine, planted some ten years or more since, and which has never shown any disease, but yearly ripened its fruit regularly and evenly. It was in clay soil. I dug carefully all around it a distance of four feet each way from the vine, or eight feet diameter, took out a trench with spade, then with my fork I commenced to shake out roots, but there was no direct tap-root of any size, and altogether the larger portion of the roots were within ten inches of the surface. Small roots, as large as a goose quill, it is true, were apparently down below. Some of them pulled up in lifting the vine, others broke off, but there was not a large or main root so situated.

It may not be that this is any guide showing the general

habit of roots of the vine, when grown in vineyards of clay soils and yearly pruned; but for the present I think I will so consider it, and when I plant, avoid as I have generally heretofore, setting my roots too deep. Most writers on the grape tell us that the roots must be planted deep, at least they must have ten inches of soil over and above the upper root of the plant; and they tell us that if the plants are too small for such purpose, then we must excavate a basin, set the plant, and as it grows, fill up around the stem. In my soil, if the spring proved a rainy one, were I to plant in that way I should have my labor for my pains; for all the plants would rot before they could possibly grow sufficiently to allow the earth to be drawn to a level.

The following figure shows this mode of planting as I understand it:

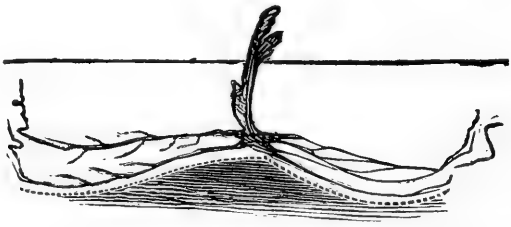


A straight line drawn across from the ends of the dotted line would show the level of the ground; the dotted line the excavation, with the plant having two eyes, and set in just deep enough to cover the lower eye or bud with soil. The roots are shortened as here shown, to about eighteen inches in length, and spread out regularly, setting the base of the main stem on a little mound or rise—not a sharp cone, but a broad mound.

I have practised this mode as an experiment, and with

a disposition to try all ways, but in three successive years I failed of getting as early a growth, nor did my vines make up for lost time in the hot months of summer, as has been sometimes stated they would.

The next manner of planting, highly recommended by good cultivators, I have followed with good results. It is to prepare the ground where this plant is to stand by finely pulverizing it, then excavate a breadth or circle sufficiently wide to admit of straightening out the entire roots of the vine without cutting away a single inch; make the excavation about six inches deep at the outside of the circle, and rising so that the center is four inches below the level of the surrounding ground. The accompanying figure shows this method, the straight line being



the surface of the earth, the dotted line below that of the mound on which the plant is placed before filling in the earth. This depth for planting I believe a good one, but I fail to find any gain from leaving so much root; and as it increases the labor and expense of planting fully one-half, I think I shall follow out my old plan, viz :—with my knife I cut away every small fiber or thread-like root, and all that are as large around as one of FABER's lead pencils, I shorten back to sixteen or eighteen inches, then

prepare my holes with the mound in center, and plant just as when the roots are of full length.

I never use any water or muck for dipping my roots when setting, but I keep them well wrapped in a wet cloth, from which I take out one at a time, as wanted for planting."

As an item of record, it may be well to say, that single grape vines trained upon a wall, say of a house or barn, and well supplied with food at the root, will often produce all that one family would need. On Kelley Island, we once saw a vine of Catawba, the roots of which were near where the daily wash of slops, soap-suds, etc., were thrown from the house, and from which, yearly, two to three hundred pounds of ripe grapes were gathered.

It is said that one of the largest grape vines in the world is at Montecilo, near Santa Barbara, California. It is estimated to be over one hundred years old, is nearly five feet in circumference, and rises eight feet erect from the root, where it branches out in every direction. It is said to have produced six tons of grapes in one season, and that fifteen hundred gallons of wine have been made from it in one year.

WHEN TO PRUNE.

The best time is just at the fall of the vine leaf in October. Let the main pruning be at that time, if it be possible to command that time; but if the work cannot then be done, do it if you can, before severe freezing weather; if not then done, postpone it until there comes

a regular thaw in winter—say a week or ten days of soft, moist weather, when the frost is nearly or quite out of the ground—and then don't neglect your duty any longer.

HOW TO PRUNE.

This is the second question, and one that is answered so variously by writers on grape growing, and is talked of so oppositely by *vignerons*, that an answer in any way will be said by some to be assuming; but, having studied the grape pretty thoroughly, and having read every treatise of which we have ever heard, and practised, or observed the practise of each writer, we feel that what we say of "How to Prune," if practised, will result in success to the proprietor of the vine on which it is performed.

Each variety almost, will, after the first two years, require a distinct system—so that any general rule for grape pruning of our vines would fall to the ground if attempted to be practised. The grape grower must first learn the habit and character of his variety, and then he can adapt his pruning and training to a mode or system consonant with its class.

But, of "How to Prune," let us say, first, that summer pruning—that is, cutting away of foliage after the blossom has opened—is now counted, by the majority of *vignerons*, as an error; and the reason for the error is, that each leaf and end of a shoot has a corresponding connection with the spongioles or feeding ends of the roots, and once the leaf or shoot connecting therewith is broken, the spongiole rootlet, or feeding mouth, is affected—is closed from

its natural action, and, as a consequence, rot and decay ensue, creating at the root of the vine, a fungoid disease which, if the same system of summer pruning were persisted in, would, in a few years, result in apparent outward disease of the vine, and in rot and mildew of the fruit.

Having said this much of summer pruning, let us now suppose you have a vine planted this past spring, and that you have permitted it, as you should, to grow just as many or just as few shoots or vines as it pleased; but now you want to put it into shape, so that next year it will increase in strength of root and prepare itself to give you fruit the year following. Take then your knife and cut away all the small canes, selecting the largest and best in the center, or as grown from the strongest center bud, and cut that so that your vine will be as represented in Fig. 1.

FIG. 1.

This first season all vines may be acceptably pruned in this way; but when the growth in spring comes, it behooves the grower to know his vine and his soil. For while a Concord, Hartford, or Norton, etc., will in good

soil be the better for permitting the three buds here shown to grow, the Delaware, Rebecca, Mottled, Elsinborough and some others, will be better to have only two buds permitted to grow. As the buds start in spring there will be more or less of sucker sprouts start from the root, and the dormant bud at base of the main bud will often start; the vine must then be watched, and as soon as a shoot appears, other than the two or three strong ones from the regular buds, they should be at once rubbed out, and thenceforward, during the summer, rub or prune no more; let all grow; for although old time cultivators will tell you to cut or pull away the laterals, we tell you that the laterals serve to add to the size and vigor of the lower part of the cane, and the buds thereon, and every additional ripened leaf adds to the volume and strength of the root for the coming year's aid.

Supposing your vine to have been a Delaware or Rebecca, or any of that class of short jointed, comparatively slow growers, it will, at the close of the second season, present much the appearance of Fig. 2; but if it has been a Concord, Hartford, Wilder, etc., then you must add a third cane to make our figure exhibit what your vine should be in September of the year.

And now your season for pruning has again come, and by its pruning you hope for fruit the coming season. Your Concord, Hartford, or other strong growing kinds, having been grown to three strong canes, if your posts and wires are put up, and it is pruned and tied, it will, or should, look very much like Fig. 3, on page 44.

Each of these canes has three buds, and the two upper

FIG. 2.

buds on each cane are to produce fruit, while the cane on the lower bud is to have whatever fruit it will set rubbed away, and the canes trained for fruiting another year.

On vines—say those of five or more years old, and with such varieties as Concord, etc.—these canes should be much longer, and have, when pruned in autumn, from eight to ten buds each, and then in spring, each alternate bud should be rubbed out, just before the blossoming of the vine. Fig. 4 is a representative of an irregular grown

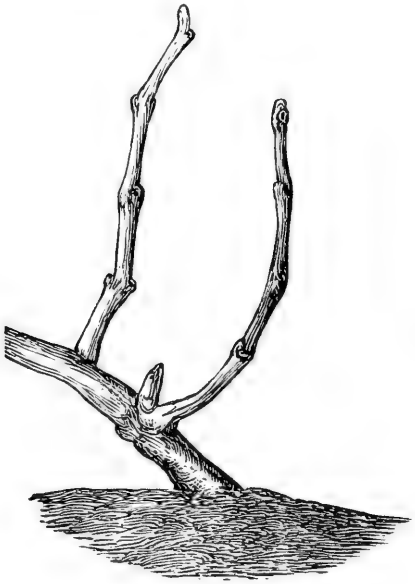


FIG. 4.

vine of the past or second year, and now cut to two canes of four buds each, with a spur cane at the base of one of them, from which to grow canes for the coming or succeeding year. This, with its four buds to a cane, it is supposed should have the lower and the third buds rub-

bed out before the setting of fruit, while the upper and second buds will give each three bunches, making twelve bunches, full as much as any young vine should bear. So much, in a condensed form, of "How to Prune."

Thus far the vines have been trained to simple rough stakes; but now the trellis must be erected, as the next or third season will require its use. Iron wire is found the cheapest and best for the purpose; the tendrils of the vine cling to it, which they never do to wood, and thus very much of the labor of tying is saved. The size of the wire generally used is classed as No. 9. It should be annealed in order to make it tough.

ROWS OF TRELLIS.

"The rows of the trellis," say some vignerons, "should run north and south, because at the period that the grapes are ripening they obtain more of the direct rays of the sun than when they run east and west; the sun being low at that season, part of the vines are always in the shade." Other practical men urge the east and west lines, "because," they say, "at the season of ripening of the grapes, the midday suns heat and reflect from the ground much stronger upon the full face of the vine, than when the rows are north and south."

I have seen the perfect ripening of both lines, and consider that more is due to the cultivation, soil and pruning than the position of the trellis.

PUTTING UP THE TRELLIS.

Strong posts are to be set at each end of the rows and braced, as shown in Figure 3. These braces are from

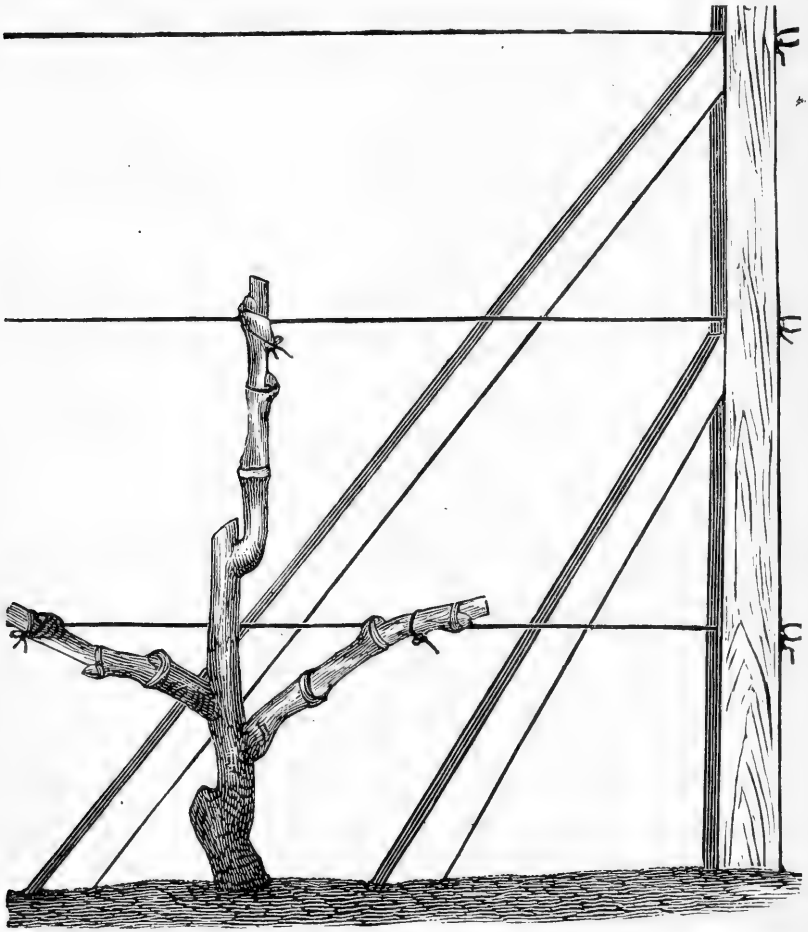


FIG. 3.

eight to twelve feet long, and fastened at the bottom to a post set firm in the ground; then at a distance of eighteen

or twenty feet on the line of the row, set other posts, leaving each post about six feet out of the ground.

NUMBER OF WIRES.

Three or four wires are required, placed at a distance of eighteen to twenty inches upward from the ground. Three wires are sufficient except for very strong vines, when the fourth is advisable for the purpose of securing the upper growths, and preventing their falling down over the lower vines and fruit.

The vines should be fastened at one end post, then stretched along the line. At each middle or intervening post the wires are raised and a staple is driven partially into the post in such manner as to keep the wire at the required height. Next, the wires are drawn as tight as possible and fastened at the opposite end, and then each staple on the intervening post is driven home, so as to fully secure the wire and cause a certain amount of strain to rest on each post.

SMALL FRUITS.

VARIETIES AND CULTURE.

There is in this class of our fruits varieties of every culture and suited to almost all soils and climates. Of course when bleak cold winds prevail during the dormant season of the year, more or less of protection must be given.

With *Strawberries* one must to a certain extent give credit to the line of latitude below 40 deg., and strange as it may seem to many, the *Wilson's Albany*, which originated at the north, and is generally grown both in family and market gardens, is the most popular berry at the south. The *Newman's* has favor from a few in South Carolina, but Georgia says, that "it is a large and showy berry, but is inferior in quantity."

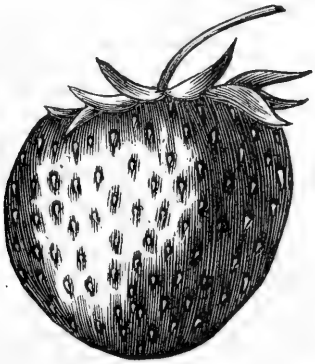
The *Triomph de Gand* holds as a family or near market berry, the first place.

Longworth's Prolific, *Downer's Prolific*, *Green's Prolific*, *Ida*, *Charles Downing* stand well in all the South. Yearly many new varieties are brought before the public, and they are often written of, yet records of associations, where people profess to meet and give information as to

value, etc., of sorts, little is obtained. The Almighty Dollar covers all of those who have invested in a variety with a view to its sale.

To amateurs, those who care only for their own table eating, we advise the *Nicanor*, *Triomph de Gand*, *Lennig's White*, and *Royal Hautbois*, adding if you have room, *President Wilder* and *Trollope's Victoria*.

We present herewith an illustration of the *Nicanor*, the name meaning "The Queen," and which F. R. ELLIOTT,



of Cleveland, had the honor of naming and first describing. It is a variety of value that should be not only in private grounds, but also of those of the market gardener.

Many more varieties it is well to mention, but our record given elsewhere covers all that can yet be depended upon.

We have *Boyden's No.*30, or *Seth Boyden*, *Barnes' Mammoth*, *Crimson Cone*, *Monarch of the West*, *La Constante*, *Mary White*, *Sterling*, *Margaret*, *Mary Stuart*, *Kentucky*, have each, in their time been lauded.

Could we who write grow the *La Constante* as does JAMES A. DOUGALL, of Windsor, Canada, a town just

opposite Detroit in Michigan, we would never be without it. It is *the* berry of all when well grown. Now don't let any obtain it, unless they intend to grow it carefully, cultivated in rich deep soil, annually surface supplied with food. We do wish it was more grown, but there is no profit in it, except to minister to the palate and pleasure of our friends.

We will now quote touching Strawberries, a few items from a writer who is posted. He says, speaking first of the Alpine or Hautbois class, as follows:—

"I have been looking over some of my old notes and comments made, and I find that they record every time the speech of men and women in favor of the delicacy and peculiar flavor that belongs to this class of strawberries—a class which is acknowledged unprofitable for the commercial grower, but for those who grow only for their own table of unrivaled flavor and excellence.

In my own garden I have grown the *Red Alpine* and *Prolific Hautbois* more than twenty-five years, and have never had a failure; and to be left without them now should feel that I was either behind the age or the age was not cognizant of the natures of these varieties for family use. The latter I *now* believe the true state of the case, but am willing to be corrected—if any one conceives it possible.

I do not believe the amateur grower of strawberries,—whether done by himself or professional employed gardener,—should ever be guided by quantity produced, or even size; for these two elements almost always militate against the quality. Let them cultivate in the strawberry

for their tables the refinement of culture they claim to exercise in that of literature and art, and they would no longer grow such varieties as *Jucunda*, *Napoleon III*, etc., which are perhaps valuable in localities for the commercial grower, and for sale, to those who have no conception of value, except it be represented outwardly to view.

With these prefatory remarks, I proceed to describe two or three varieties of the class of *Hautbois* strawberries, with a hope, knowing the satisfaction it will give, that they may be more generally grown.

Of the old varieties, none deserve higher credit or more universal cultivation than the *Prolific Hautbois*—a variety that although long known by those whose attention has been drawn to the subject, to the masses is yet a comparatively new sort. The vines are very strong, vigorous growers, sending up their long fruit-stalks nearly level with and generally above the leaf foliage, and producing fruit in abundance, of full medium size, conical in shape, of very dark, almost blackish red, when ripe moderately firm-fleshed, juicy, sweet and of a peculiarly high, aromatic, pineapple flavor, never to be once eaten but to be again desired.

The *Royal Hautbois* is another and perhaps improved variety of the above. I have only known it a year or two, and never believe in commending until I have a good fair chance of being able to sustain my comments. So far as I have practical knowledge, however, this variety is desirable. The fruit is medium to large, roundish, obtuse, conical, with a whitish, rich, sweet flesh.

The foregoing, *Hautbois*, are unpopular because not

profitable; for, people on the markets, buy by the eye, not of the palate. Few in the world have a delicacy of taste. Brought up on fried fat meats, and sweetmeats, the flavor or the palate has been as much destroyed as in that of the drinker of poor liquors. Let us hope for improvement in the education of those who are to supercede us in life.

Of others outside of the *Alpines* and *Hautbois*, there are also a few varieties that should always be in the possession of those who grow strawberries. The *Lennig*, *La Constant*, *Triomphe de Gand*, are of delicacy and richness. A new seedling under the name of *Mary White* is much after the style of *Lennig's*, only a little more flattened in form. Another called *Sterling* is after the *Triomphe de Gand*, when well and fully ripened. In form it is more conical or obovate conic, in color a rich glossy vermillion, red flesh, a little acid.

We take up some of the older sorts. *Lady Finger*, one of the old varieties, is in favor with many, while others think it too flavorless. *French Seedling*, too soft, and also wanting in flavor. *Ida*, small but prolific; one of the earliest and latest to ripen, of a quality that, when ripe, everybody likes, and one that amateurs who have grown it declare they cannot dispense with. *Michigan*, too small and unproductive, but of good flavor. *Green Prolific* is an abundant bearer, but in quality no better than *Wilson*, and not near as firm for market purposes. *Triomphe de Gand* holds its own as a fine, large and valuable sort, when well cultivated in rich, strong soil.

La Constante, *Emma* and *Hooker* are all fine flavored

sorts, but the plants require too much care to keep them going. *Napoleon III* has only found favorable record in two or three places. *Dr. Nicaise* has not been heard of since its first season. *Agriculturist* has good reports from many; and were it not so soft would probably be more grown. *Peak's Emperor* is said to be so much like *Agriculturist* that even good judges cannot distinguish them apart. It is however claimed for *Peak's Emperor* that it will succeed on soil in which the *Agriculturist* fails. *Ornament des Tables*, as heretofore, proves of the highest flavor, but unproductive. *Hovey* yet holds its own as the finest of all varieties for shipping, but it is not sufficiently productive to meet the wants of the present age.

Princess Royal and *King Arthur* are two of the foreign sorts that have favorable accounts of giving promise of value. *Tillip's Rival Queen* is also another of good record. *Lucas* has fine flavor, but too unproductive. *Belle de Bordelaise* is said to be the best of all the *Hautbois* class.

The *Culture of Strawberries*, one of what we term small fruits, has in it with others, items of practice, depth of soil, character thereof and location. Our American varieties, taking the *Wilson*, with its strong roots to a young plant, and *Nicanor*, almost equalling in this particular, while being quite as fruitful and of better quality, with *Ida*, *Green's Prolific*, *Kentucky*, and some others, may be planted in rows three feet distant, each plant set in the row one foot from each other, and when acres are grown the cultivator, propelled by the horse or mule, will do most of the cultivation. In the small garden, what is known as the Dutch scuffle hoe, followed by raking the

surface directly afterward with a common iron hand rake, is perhaps the cheapest and easiest mode that can be used by the grower. At the north, or above 40 deg. of latitude, all these require shielding in winter, which may be done by the use of straw or bog hay scattered lightly over them and held from being blown away by winds, by the use of poles or rails, two to four inches in diameter.

All the foreign varieties like the *Triomphe de Gand*, *Lennig's White*, *Trollope's Victoria*, *Monarch of the West*, *La Constante*, etc., should be cultivated in hills having one good plant, at distances say eighteen inches apart each way, the runners cut away as fast as they appear, and the whole strength of the plant thrown into the fruit. If new plants are wanted for the coming year the fruit blossoms should be picked from a few hills and the runners left to take root. In the States or sections below 40 deg. of latitude, the strawberry is grown with little care or culture. They need no winter protection, and the crop ripens ere the hot suns injure the vine.

RASPBERRIES.

New varieties are easily grown from seed, but they have a tendency to change from the parent. A fully ripe berry should be taken and planted about one inch deep in light loamy soil, and shaded, until it has made a growth of two leaves. A cheap box frame, with slats over the top, answers well, and when the plants are grown six inches high they should be transplanted, shaded, and protected the first winter. Suckers, or offsets, can be transplanted

either in autumn or spring, taking the growth of the season with root, and cutting the stem to four inches of the crown of the root. Plants, the growth of the early season, may be taken up and transplanted by removing most of the foliage, as with the strawberry. The *soil* best suited to grow the finer varieties, is a rich deep loam, where there is moisture, but such drainage that water will not stand.

Soils and locations unfavorable can be made good by deep culture, and by placing at the bottom of a deep trench along the row line, coarse barn-yard manure or leaf litter. Then, after transplanting, mulch the surface with any refuse straw or hay. Generally an open airy location is advised, but where shade can be given without exhausting the soil, by trees, it is desirable, and especially with the southern portions of our States and the valley regions. The systems of growing vary, and perhaps are equally profitable. Most planters grow the plants three feet apart each way, with two to four canes to a hill, according to the soil. Some keep them upright by stakes and wires, others by simply bending the bearing cane in spring, to form arches along, leaving the present years to grow upright, then cutting away yearly, or soon after the crop is gathered, the last bearing canes.

Hardiness of varieties is a feature that greatly depends on location. In Philadelphia, parts of New Jersey, the south shore of Lake Erie, and the eastern shore of Lake Michigan, most of the foreign varieties and their American seedling offspring, generally prove fruitful without the laying or bending down and covering. So also there are

localities adjoining our inland lake bodies of water, where with careful looking to no standing water in the soil, and by carefully pinching back the canes for next year's bearing, from time to time, varieties prove almost hardy. It is impossible to write definite instructions for the general readers, and the territory of the United States.

Of the hardiest varieties of this class, i. e. the foreign and their American seedlings, we will start with those we count the best, and in the order of ripening. The *Kirtland* is hardy, in size almost, if not quite equal to the Clarke; is the earliest of all to ripen; of fine quality for the table, but too soft for distant market transportation. It should be in the garden of every fruit grower.

The *Clarke* is not as hardy as *Kirtland*, nor will it bear as well transportation. Next it is a question between *Naomi* and *Knevet's Giant*, and when the product, size and quality of fruit is counted.

Naomi—of which (see illustration) herewith a drawing, is one that has made some noise, and whether nine hundred and ninety-nine out of every ten hundred that have been sold under this name prove *Franconia* is doubtful. It is a distinct sort, and side by side with *Franconia*, of which it is doubtless a seedling, it has stood the winter uninjured, when its parent has killed to the ground. In its general appearance it is not unlike the *Franconia*; but in its quality it is sweeter and richer.

Knevet's Giant, a variety of which no record seems to be found in any but American works, is of acknowledged foreign origin, and has, in years gone by, proved fine.

NAOMI.

Belle du Paluan is another foreigner of good show. All speak its praise, but from what we have known of it the canes are not hardy, and therefore the public as a public, the growers all over the country, will not have it.

The *Hudson River Red Antwerp*, is so often written of by journals, and as nearly every town has heard of it, it is needless to write, more than to say, that on deep rich soil, laid loose and lightly covered in winter, it is productive, and one of the best in every respect. *Franconia* is an old variety, large fruit, deep purplish red and productive.

Herstine is one of recent production, an abundant bearer of large fruit.

The *Highland Hardy*, *Brandywine* and *Turner's Seedling* are among a large lot of new named varieties. Their value must be learned by years of cultivation in varied locations. Of the late or autumnal varieties of foreign origin, the *Belle de Fontenay* is one of the best, but has a strong tendency to sucker, and the grower must destroy a large portion of them in its cultivation.

A word in favor of *Belle de Fontenay*, a variety that because of its disposition to sucker freely has been almost discarded. By or from pure contrariness, a man in the writer's employ, three years since, in hoeing, cut away in spring all the suckers; and so all summer, when hoeing, he would let but one or two grow, cutting away all others as weeds. The result was a good crop of fruit not only on the canes of the previous year, but on those of the same season's growth; and repeating

the process, with like results, up to the present, we now have fruit on the young canes just as that on the canes of last year's growth. As a variety for private gardens, it is worthy of more general planting than it has received, but all should remember to cut away the suckers freely, as so many weeds. The drawing is one of thirteen clusters on a stem or cane of the year's growth.

BELLE DE FONTENY.

The *Large Fruited Monthly* and *Merville de Four Seasons*, are of those that have had the longest test, and counted among the best.

Of the *Native Varieties*, classed generally with *Purple Cane*, *Mrs. Wood*, and then as *Black Caps*, varieties that so long as the public remain without education of the delicacy and richness that belongs to fruit, we suppose will

be grown, as they can be grown profitably, with the least knowledge of how to gather, pack or ship.

The *Doolittle* and *Davison's Thornless* are about the same in time of ripening, are medium-sized fruit and good bearers. The *Doolittle* is most profitable. *Ellisdale*, *Minnesota*, *Miama*, *Ohio Ever-Bearing*, *Lum's Ever-Bearing*, *Golden Thornless*, *Black Cap*, *Surprise*, and several others, are no better than hundreds of the old wild American Black and White-Caps, to be found in fence corners all over the country; and a man owning ground on which the natives grow, who should cut them away for the purpose of planting either of the above, ought to be sent to a lunatic asylum or made to attend Horticultural Conventions one year. It is questionable if he got away from either with any improvement of mind or judgment.

Philadelphia is too well known to speak of, for in quality it is unworthy, and only for markets near by will it answer, on account of the softness of the berry, but for a market near by, and to supply at low rates it is profitable. *Mrs. Wood* is equally productive with *Philadelphia*, and for family use is a far superior berry. It is of a purplish red and matures its crop late. It is a larger berry than any other belonging to the hybrid class of a cross between the common American Black and the foreign varieties.

The *Miami*, *McCormick* or *Mammoth Cluster*, all one and the same, should be, with *Mrs. Wood*, the only two of our natives to cultivate.

Many more varieties of these classes might be noted,

but we count it wise to advise the culture of only a few of the best, for the market, the farm and the garden.

BLACKBERRIES.

The culture of Blackberries is similar to that of the Raspberry, except they are of stronger and longer growth of the stem, and therefore should be planted at least six to eight feet apart. Rich soil is a requisite of success, and often after planting a mulch of four to six inches deep is better than hand or plow culture.

This fruit is indigenous to this country, is easily grown from seed, and our best known varieties, under name, have come to us from observation and the gathering of wildings. As long ago as 1845 the writer saw fruit, grown from plants obtained from the woods, that measured over five inches in circumference. Trimming and training with the Blackberry differs little if any from that of the Raspberry.

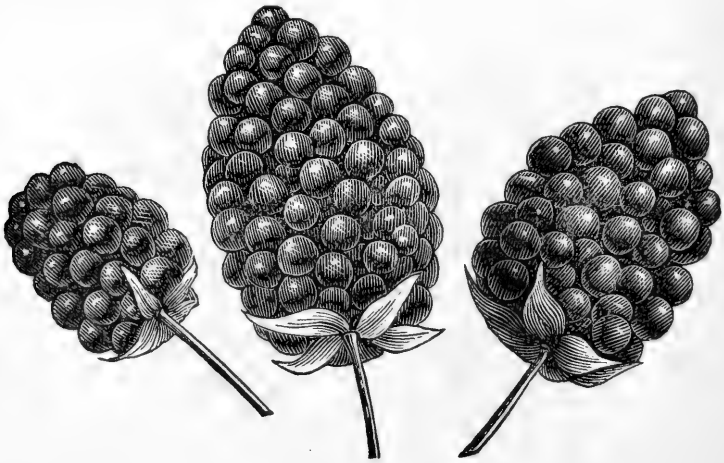
The terms of Blackberry, Dewberry or high and low Blackberry, all come from the same bramble, and the *Wilson* comes the nearest of any in cultivation to the wild Dewberry. Of the varieties, *Kittatinny* stands first, as a general fruit for home use or market. *Dorchester* is a sweeter berry, the sweetest of all, but it is not *very* productive. *New Rochelle* or *Lawton*, is a large berry, but it is almost impossible to gather a quart of sweet fruit from the canes. *Wilson's Early*, a low growing sort, is a variety that should be grown, as its canes can easily be protected in winter. Its fruit is large and of good quality. *Doctor Warder*, *Newman's Thornless* and *Duncan's Falls*

are among the best new sorts named of the black colored fruit. The *Duncan's Falle* is after the habit of growth of *New Rochelle*, but it ripens earlier, is productive, with berries large and sweet when gathered. *Missouri Mammoth* and *Sable Queen* coming from two extremes of our States, viz : the first from Missouri, the second from Massachusetts, have each claims, but they must take time to show which quarter of the nation is best.

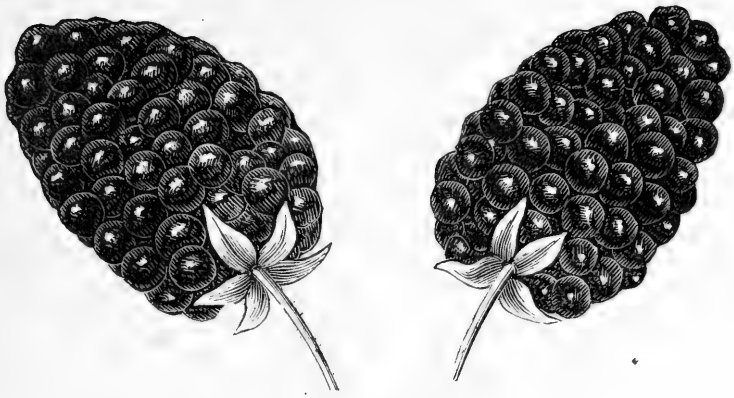
Colonel Wilder and *Crystal White*, two varieties sent out from Albion, Illinois, have fruit, the former medium size, oblong form, light cream color ; the latter has fruit large, oval roundish, white, sweet and high flavor. Neither of these are valuable for market.

The *Alger*, originated at Cleveland, Ohio, is of good size, oblong in form, of a deep claret color, sweet and rich.

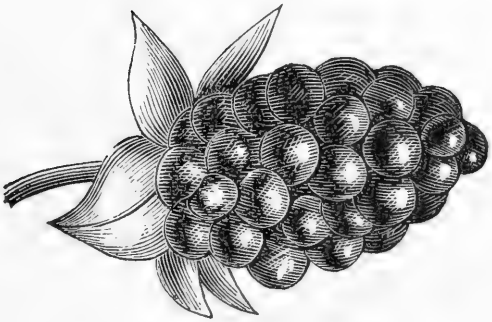
We group some berries of varieties.



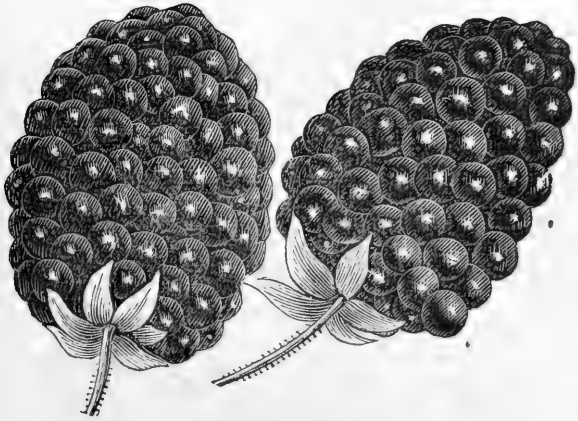
WILSON'S EARLY.



KITTATINNY.



ALGER.



NEW ROCHELLE.

OPENING OF FRUIT BLOSSOMS.

When watching the opening of leaf and blossom of varieties of cherry, pear and peach, during their period of returning life and promise; for in this their period of spring bloom we think there is not a little yet to sway us in our judgment of their value as adapted to localities.

Rostiezer pears were in full bloom before Tyson had burst the leaf shell; Dutchess was in full bloom before Beurre d'Anjou had more than just opened. Hale's Early peach was the first to open, except one or two seedlings, which are of no value in fruit; Crawford's Early came next, then Sturtevant and Red Cheek Melocoton, and then Old Mixon Free.

Among cherries, one of the very latest ripening sorts was the first to open its blossoms, while Early Purple Guigne came with Black Tartarian, and then followed Red Jacket, which is one of the late ripening sorts. Belle Magnifique opened before Arch Duke or Late Duke, and full a week before Reine Hortense or the common Morello. Early Richmond and Kirtland opened just after Late Duke, and Louis Phillip came in two days thereafter.

These notes are made from numerous varieties noted, and if others count the point anything, we hope they will communicate or publish their observations.

Without presuming that the blooming period of strawberries has aught to do with the period at which they ripen their fruit, as it is well known some mature quickly after blooming, while others occupy a greater length of time, yet as we went among our strawberry beds, we could but note that of Wilson, Downer and Nicanor quite a show of flowers appeared. Large Early Scarlet, Green Prolific, La Constante, Triomphe de Gand, Jucunda, and Lady Finger had each a few, while Ida, Hovey, Lucas, Napoleon III, Agriculturist, Kramer, Bishop, French's Seedling, King Arthur, and many more, had scarce a bloom open.

PROFUSION OF BLOOMS,

AND WHAT TO DO, ETC.

Years ago we wrote as follows, but deem it to-day applicable, and so quote one of our old articles :—The profusion of bloom on my dwarf pears admonishes me of what must be required of the roots to enable them to set and *hold* their fruit. I know they will set ; but soon after that, unless the roots are all vigorous and supply food in abundance, more or less, and perhaps all, will drop ; so now is my time to go among them and clip away. I know it seems bad at first view, but all horticulturists must remember that it takes time to mature fruit or flower ; such creations are not like mechanics, the work of hands, and controlled by man at will, but must be controlled by the laws of nature while guided by the hand of man. So let us cut away as soon as the flower opens, if

we can, but any way as soon as the fruit sets, and so deliver the tree of its over-burden, and save to ourselves a fair crop of fine fruit.

Now is my time too, I think, to sow my plaster, and I shall take my early morning time, when the dew is heavy, and sow from half a pint to a pint over each tree, for as it falls on the foliage and flower it will hold and assimilate the ammonia, making apparent its good effects for several weeks to come.

Yesterday was half rainy, and, looking over my record, or map, of the trees, etc., on my place, it occurred to me that some had died and been replaced, with varieties of another sort. So I went over my ground in the intervening of showers, took down names, and then, in the house, recorded them in my book. I have found the best way of labeling trees or vines for permanent orchard or vineyard, is to make a little map of the grounds, and then designate row, number, and position in row, of each kind, in a book. The loss of labels attached to each tree or vine is then of little account, as a reference to the book enables me to correct or supply the name without error. It also enables me to say of a surety from whom I received the plant, because at the end of each name of the variety, I add the initials or name of the person, or persons, from whom received; and so, if the variety prove incorrect, I know whom to blame.

VARIETIES OF FRUITS.

In the preparation of this work no attempt at strictly pomological description of any variety is offered. The object being to make plain; after instructions how to plant, bud, graft, etc.; the varieties that it is most politic to obtain and cultivate.

A selection has been carefully made, for sections according to latitude of climate, and a table made giving the true name of the variety, and its size, form, color, quality, use and season, following the terms of the American Pomological Society. The period of ripening cannot be given in a simple table, because of the varied climate in which the fruit may be grown. A few varieties are suited to all our climates, but the period of maturing varies.

It is unnecessary to give a list of the 2700 varieties of apples, or more, as well as that of pears, whose numbers are nearly the same, as it would be for a fruit grower to grow them all and expect profit. The cherries, plums, peaches, grapes, etc., number about one-third each of apples and pears, and yearly of all fruits new varieties are introduced.

The writer has had forty years of knowledge in the study of fruits and their culture, over a large territory, and the making of the selection of a few, which in truth

is best for the grower, has given him many hours of thought. It is not presumed that the lists given will meet every man's ideas, but it is assumed that the varieties named are among the best and the longest tested as to hardihood and productive value, and therefore best for him who wants to plant for profit or his own use. The amateur can expend money and time perhaps to good advantage for his own knowledge, and that of others, if he has the courtesy to publish what he has learned. The leading nurserymen are alive to the subject matter, and ready to supply buds, grafts or small trees of sorts new, and sent out as exceedingly valuable.

THE APPLE.

We count the Apple as the *King* of fruits, because it is more generally known and used than any other. Apples are considered more nutricious than potatoes, indeed, many go so far as to think that they contain more brain food than any other fruit or vegetable. However that may be, they certainly exert a healthful influence upon the whole system when eaten raw or cooked in the most simple manner. When compounded with butter, eggs and flour, they are far less wholesome than when baked or steamed. Apples nicely baked and served with cream are a delicious dish, and an ingenious housekeeper can easily devise numerous ways of preparing them for the table. Many methods have been suggested for keeping apples in a good condition through the winter. One is to

wrap each apple—as oranges and lemons are wrapped for importation—in paper; old newspapers will answer. Paper is not only impervious to air, but serves to keep the fruit at a uniform temperature. Another method of preserving apples is to put some dry, fine sand into each barrel and shake it down very gently; powdered plaster is sometimes used instead of sand. Another way is to pit the apples in a dry sandy soil. A hole three or four feet deep should be dug, the fruit put in upon dry straw and covered with a layer of straw and dry earth. The earth should be raised above the general level of the ground, so as to shed rain. When thus protected, the apples are said to keep well until spring.

With the rapidly increasing settlement of our Northwestern States and Territories, and the universal desire of an intelligent people to cultivate fruit, the subject of varieties adapted to the climate becomes yearly more and more important. Although it has been somewhat extensively discussed, the vital point, even at this time, is comparatively but little understood. That the apple, in some of its varieties, can be grown wherever a crop of corn can be ripened, is beyond doubt; yet the selection of varieties, to command success, has thus far been an item of costly experiment, and to-day is but imperfectly known. But one single variety, belonging to the class designated by botanists as *Pyrus malus*, named and described in the books as the Duchess of Oldenburgh, has fully stood the test uninjured in all locations. Many others prove comparatively hardy; and, as both variety as well as period of maturity are required, the planter has necessarily had

to assume a risk in selection, which, in some cases, has been well rewarded, while in many others it has failed. The record of one dealer is, that "out of one hundred thousand apple trees, comprising varieties such as Northern Spy, Fall Pippin, etc., sold by him and planted in Minnesota, not one hundred remained at the expiration of ten years."

It may be this is an extreme case; but certainly the failures have been more numerous than the successes, until many have said our Northwestern States were not adapted to the growth of any but the small fruits, such as currants, gooseberries, etc., etc. Enthusiasm, careful observation and perseverance, however, in this, as in all pursuits, is destined to secure success; and to this end we find the fruit growers, both professional and amateur, of the Northwest have, during the past few years, devoted themselves so assiduously that the exhibition tables of Horticultural Societies have this past season been supplied with a new class of apples, which, while they have not the size of a large proportion of old named varieties of the *Pyrus malus*, possess richness of flesh and eatable quality almost, if not quite, equaling them; and from their botanical character in tree—the *Pyrus baccata*—a hardihood that insures success to the planter.

With the apple, therefore we commence our table list of the varieties we advise mainly to plant. As before said, there are numerous varieties which can be obtained, but many of them have only a local reputation of experience touching their value.

The abbreviations in the following table of apples, are

to be understood following the columns, say of *Size:* l., for large; m., medium; s., small. The *Form*, r. c., for roundish conical; ob., oblong; r. ob., roundish oblate; r., roundish. The *Color*, y. r., for yellow and red; r. s., for red striped; g. y., for greenish yellow; rus., for russetted; y. rus., for yellow and russet. The *Quality*, g., good; v. g., very good; b., best. *Use*, f., fruit valuable for all family purposes; k. m., valuable for kitchen or market; f. m., family or market. *Season*, s., summer; e. a., early autumn; l. a., late autumn; w., winter; *Origin*, Rus., for Russian; En. for English; Am., for American; Ger., for German; F., for Foreign.

All these characters, of course, only designate leading, positive features, and vary in their distinctness according to soil and climate in which they are grown.

TABLE OF SIZE, FORM, COLOR, ETC., OF VARIETIES.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Season.	Origin.	REMARKS.
Am. Golden Russet..	s. m.	r. c.	y. r.	b.	f. m.	w.	Am.	One of the best.
Am. Sum. Pearmain.	m.	o. b.	y. r.	b.	f.	e. a.	Am.	Valuable for the table.
Bentley's Sweet.....	m.	r. ob.	g. y. r.	v. g.	f. m.	w.	Am.	Profitable.
Benoni	m.	r. ob.	y. r.	v. g.	f. m.	s.	Am.	Profitable.
Bethlehemite	m.to l.	r. ob.	y. r.	b.	f. m.	w.	Am.	Profitable, like N. T. Spitz.
Baldwin.	m.to l.	r. c.	r; g.	v. g.	f. m.	w.	Am.	Profitable.
Baltimore	m.	r. c.	r. y.	v. g.	f. m,	w.	Am.	Profitable.
Ben Davis	l.	r. c.	y. r.	g.	k. m.	w.	Am.	Profitable.
Broadwell	m.	ob. c.	y. r.	v. g.	k. m.	w.	Am.	One of best sweet varieties.
Buckingham	l.	r. ob.	y. r.	v. g.	f. m.	e. w.	Am.	Profitable for market.
Coral Crab.	s.	c.	y. r.	v. g.	f. m.	e. w.	Am.	One of the best of its class.
Chicago Crab	s.	r. c.	y. r.	g.	f. m.	w.	Am.	One of the best.
Chase's wint. Swt. Cb.	m.	r. ob.	y. r.	g.	f. m.	w.	Am.	Valuable for its sweet.
Cherry Crab	s.	r.	y.	v. g.	f.	e. a.	Am.	A fruit to eat from the tree.
Cogswell	m.to l.	r. ob.	y. r.	b.	f. m.	w.	Am.	Of the best in quality.
Carolina Red June...	m.	r. c.	r. s.	v. g.	f. m.	s.	Am.	Profitable where it succeeds.
Duchess of Oldenb'gh	m.to l.	r. ob.	y. r.	g.	f. m.	s.	Rus.	One of the hardiest.
Early Strawberry....	s.	r. c.	y. r.	v. g.	f.	s.	Am.	One desirable to every fam.
Evening Party.....	m.	r. ob.	r.	v. g.	f.	w.	Am.	Delicate and good.
Fallawater.....	l.	r. c.	g. y.	g.	m.	w.	Am.	Profitable for market.
Fameuse.....	m.	r. ob.	r. s.	v. g.	f. m.	w.	F.	For eating from Nov. to Jan.
Fall Pippin.....	l.	r. ob.	g. y.	v. g.	f. m.	l. a.	Am.	Profitable where it succeeds
Gilpin.....	s.	r. c.	y. r.	g.	m.	w.	Am.	Profitable everywhere.
Gravenstein	l.	r. ob.	y. r.	v. g.	f. m.	l. a.	Ger.	Desirable with all.
Golden Sweet.....	l.	r.	g. y.	v. g.	f. m.	.	Am.	Profitable for stock.

TABLE OF SIZE, FORM, COLOR, ETC., OF VARIETIES.—CONTINUED.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Season.	Origin.	REMARKS.
Green Cheese.....	m.	r. ob.	g. y.	v. g.	f. m.	w.	Am.	Valued South.
Hyslop Crab.	m.	r. ob.	r.	g.	m.	l. a.	Am.	Valued for cider.
Hutch's wint swt crab	m.	r. ob.	y. r.	g.	m	l. a.	Am.	Val. swt cb for cid or cooking
Hawthornden	m.	r. ob.	g. y.	g.	k. m.	e. a.	F	Much like Maiden's Blush.
Hubbardst'n Nonesch	l.	r. c.	y. r.	v. g.	f. m.	w.	Am.	One of best where it succeeds
Hewes Virginia Crab.	s.	r.	y. r.	g.	cider.	l. a	Am.	Valuable as a cider apple.
Jersey Sweet.....	m.	r.	y. r.	v. g.	f. m.	e. a.	Am.	One of best of sweet apples.
Jonathan	m.	r. c.	y. r.	b.	f m.	w.	Am.	Valued wherever grown.
Jefferies.	m.	r. ob.	y. r	v. g.	f.	e. a.	Am.	A valuable fall fruit.
Keswick Codlin	m.	r. c.	g. y.	g.	k. m.	e. a.	En.	One of most valuable sorts.
Lady Crab.....	s.	r. ob.	r. rus	v. g.	f. m.	l. a.	F.	One of value in its class.
Lady Apple.....	s.	r. ob.	y. r.	v. g.	f. m.	w	F.	Upright tree, prod'tve & proft
Lowell	l.	r. c.	g. y.	v. g.	f. m.	e. a.	Am.	Profitable for market or use.
Lady's Sweet	l.	r. ob.	y. r.	v. g.	f. m.	w.	Am.	One of best wint swt apples.
Large Yellow Bough.	l.	r. ob.	g. y.	v. g.	f. m.	s	Am.	The best of summer varieties
Marengo Crab.....	m.	r. ob.	y. r.	v. g.	f. m.	w.	Am.	One of the best of its class.
Maiden's Blush.....	m.	r.	g. y.	g.	f. m.	e. a.	Am.	Profitable and good.
Mother	m.	r. c.	y. r.	b.	f. m.	w.	Am.	Valuable where it succeeds
McAfee's Nonesuch..	l.	r. ob.	y. r.	v. g.	f. m.	w.	Am.	One of best, has 22 synonyms
Northern Spy.....	l.	r. c.	y. r.	b.	f. m.	w.	Am.	Among the best where hardy
Nickajack	l.	r. ob.	r. s.	g.	f. m.	w.	Am.	Valued at the South
Ohio Nonpariel.....	l.	r. ob.	y. r.	v. g.	f. m	l. a.	Am.	One of best autumn fruits.
Porter.....	m.	ob.	g. y.	v. g.	f. m.	l. a.	Am.	Valued in localities.
Powers' Large Crab..	m.	r. ob.	y. r.	v. g.	f. m.	e. a.	Am.	One of the good crabs.
Pryor's Red.....	l.	r. ob.	y. r.	v. g.	f. m.	w.	Am.	Valued south and west.

TABLE OF SIZE, FORM, COLOR, ETC., OF VARIETIES.—CONTINUED.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Season.	Origin.	REMARKS.
Pome Gris.....	s.	r. ob.	y. rus.	b.	f.	w.	F.	A delicious winter apple.
Peck's Pleasant.....	m.	r.	g. y.	v. g.	f. m	w.	Am.	Successful on clay soils.
Rawles' Janet.....	l.	r. c.	y. r.	v. g.	f. m.	w.	Am.	One of best for the south-w't
Red Canada.....	m.	r. ob.	y. r.	b.	f. m.	w.	Am.	One of best of winter fruits.
Red Astrachan.....	l.	r.	y. r.	g.	k. m.	s.	F.	A popular market fruit.
Rhode Island Green'g	l.	r. ob.	g. y.	v. g.	f. m.	w.	Am.	No equal as a cooking fruit.
Smith's Cider.....	l.	r. ob.	y. r.	g.	f. m.	w.	Am.	Profitable and good.
Swaar.....	m.	r. ob.	g. y.	b.	f. m.	w.	Am.	One of the best winter sorts
Shockley.....	s.	r. c.	y. r.	g.	f. m.	w.	Am	Valued at the South.
Summer Rose.....	s.	r.	y. r.	b.	f.	s	Am.	One of the best in its season.
St. Lawrence.....	l.	r. ob.	y. r.	v. g.	m.	l. a.		Valued at the North.
Tetofsky.....	m.	r. ob.	y. r.	g.	m.	s.	F.	One of the earliest to ripen.
Tewks'by Wint Blush	s.	r. ob.	g. y.	v. g.	f. m.	w.	Am.	Valuable in all climates.
Transcendant Crab...	m.	r.	y. r.	v. g.	f. m.	e. a	Am.	One of the best of the Crabs.
Winesap.....	m.	r.	r.	v. g.	f. m.	w.	Am.	Successful and profitable.
White Winter Crab..	m.	r. ob.	y.	g.	f. m.	w.	Am.	A variety of value.
Wealthy.....	m.	r. ob.	r. s.	v. g.	f. m.	w.	Am.	Esteemed where known.
Williams' Favorite..	m.	r. c.	r.	v. g.	f. m.	s.	Am.	Popular where known.
White Wint Pearmain	m.	r. ob.	y.	v. g.	f. m.	w.	Am.	Esteemed in the mid. west.
Willow Twig.....	l.	r. c.	y. r.	g.	f. m.	w.	Am.	A late keeper.

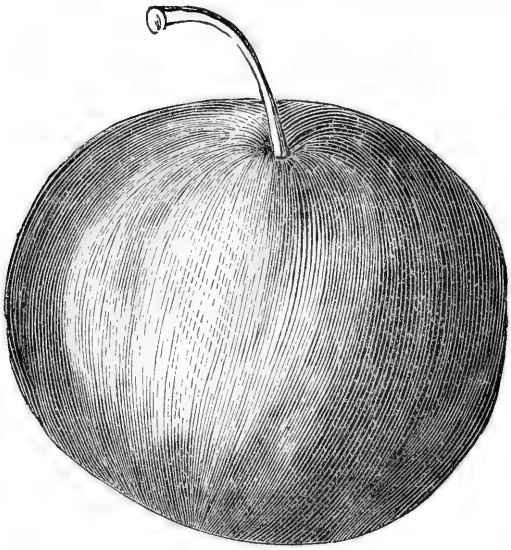
VARIETIES SUITED TO LATITUDES.

Having now given a table of a select list of varieties of the Apple, we will here designate those which we count most valuable for the range of climate. The periods of ripening are given in the foregoing table, as near as can be computed, over the whole territory of the United States.

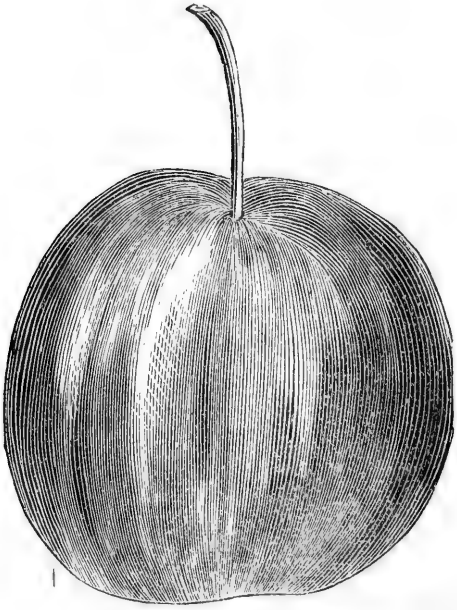
LIST FOR THE LATITUDE ABOVE 43.

Varieties: Gravenstein, Duchess of Oldenburgh, Tetofsky, Red Astrachan, Hawthornden, are varieties of foreign origin, but trees hardy and productive. Bentley's Sweet, American Golden Russet, Porter, Fameuse, Jonathan, Winesap, Benoni, Ohio Nonpariel, Pome Gris, Red Canada, Lady Apple, Maiden's Blush, Bethlehemite, Keswick Codlin, Wealthy, Gilpin, Ribston Pippin, Mother, Lowell, Early Strawberry, Peck's Pleasant, St. Lawrence, Tewksbury, Winter Blush, are varieties of reputed hardihood, and productive. Lady Crab, Marengo, Hyslop, Coral, Chicago, Chase's Winter Sweet; Cherry, Hutchinson's Winter Sweet, White Winter, Transcendant, Powers' Large, are of the Crab-apple class, and all regarded as of value, where others fail. The above line of latitude ranges all above the vicinity of Boston, Mass., striking above Buffalo, N. Y. and Lansing in Michigan, and so on to the Pacific Ocean, with varying ideas of that broad shore.

We present herewith a few illustrations of what are called Crab-apples, believing them to be of value where trees of a more delicate nature cannot be grown.



MARENGO.



TRANSCENDANT.

LIST OF LATITUDES FROM 43 DOWN TO 40.

This line includes Boston, Mass., and reaches down on the Atlantic to Burlington and Trenton, in New Jersey, to Philadelphia and Wheeling, in Pennsylvania and West Virginia, ranging fifty miles or more above Columbus in Ohio, about the same above Indianapolis, Indiana, striking near Springfield, Illinois, and somewhat above St. Joseph, in Iowa, Lincoln or Nebraska City in Nebraska, and so on to Salt Lake City.

Varieties: American Summer Pearmain, Benoni, Red Astrachan, Early Strawberry, Williams' Favorite, Summer Rose, Ohio Nonpariel, Maiden's Blush, Large Sweet Bough, Golden Sweeting, Keswick Codlin, Gravenstein, Lowell, Porter, Jefferies, Fameuse, Duchess of Oldenburgh, Jersey Sweet, Bethlehemite, Baltimore, Broadwell, Bentley's Sweet, Evening Party, Winesap, Baldwin, Cogswell, Wagner, Westfield Seeknofarther, Hubbardston, Nonesuch, Fall Pippin, Rhode Island Greening, Swaar, Mother, Lady's Sweet, Lady Apple, Jonathan, Red Canada, Smith's Cider, Northern Spy, Wealthy.

LIST FOR LATITUDES FROM 40 DOWN TO 37.

This takes in Maryland, most of West Virginia and Virginia, North Carolina, Southern Ohio, Southern Illinois, Southern Indiana, somewhat of Iowa, most of Missouri, some of Kansas and Kentucky.

We feel compelled to select list for the latitude of 40 to 37, to twenty varieties, as follows:

Carolina Red June, American Summer Pearmain, Red Astrachan, Summer Rose, Maiden's Blush, Smith's

Cider, Ben Davis, Buckingham, Winesap, American Golden Russet, McAfee's Nonesuch, Pryor's Red, Shockley, Rawles' Ganet, Hewes' Virginia Crab, Willow Twig, Yellow Newtown Pippin, Nickajack, Gilpin, Green Cheese.

THE LATITUDE BELOW 37.

It is reckless and useless to make any list of apples to be grown in this region of our United States territory. Evidently, from what we read, the growers themselves know not of what they grow or its value.

Editors and critics who doubt this statement, may turn and take from the best records of the American Pomological Society's Transactions, and learn what the fruit growers of the grand South know relative to the value of apples in their region. It has been the unfortunate lot of the writer, ever to have met one from the extreme South who could give favorable record of any one variety of the apple.

PEARS.

The Pear is said to be the *Prince* of fruits, because of its delicacy, juiciness and rich melting flesh. In this work, written for the plain public, we have classed the apple as *King*.

Our selection of varieties, will by many be ignored, yet we feel that when we name a variety to be grown, we do so knowingly of its past-time value, and hence the probability of its future. Willing to give credit to those who have aided in the introduction and culture of this valuable fruit, we must say that there is in it a feature of

decay called "blight," that appears all unknown. The most intelligent of horticulturist apparently have no explicit idea of what the blight is, or how it may be checked.

Various remedies for the blight have been recommended, but no one proves a specific. A healthy growth of the tree, in a soil moist yet dry, i. e., void of stagnant water at the base of the roots, is about the only preventive.

As, with the apple, the selection of varieties has been made to meet the wants of the public rather than ministering to the fancy of amateurs. So, also, has our list been classed as to latitude, fully designated as to boundaries under head of the apple.

In the list of size, color, form, etc., we here also copy from the American Pomological Society's Catalogue, as follows :

The columns explain. *Size*—s. small ; l. large ; m. medium, *Flower*—p. pyriform ; r. o. p. roundish, obtuse pyriform ; r. a. p. roundish, acute pyriform ; ob. p. obtuse pyriform ; r. roundish ; r. ob. roundish obtuse. *Color*—y. g. yellow or yellowish green, with a red or russet-red cheek ; y. r. yellow and russet ; y. when mostly yellow or yellowish. *Quality*—g. good ; v. g. very good ; b. best. *Use*—f. valuable family desert ; k. m. kitchen and market ; f. m. family and market. *Season*—s. summer ; l. s. late summer ; a. autumn ; e. a. early autumn ; l. a. late autumn ; w. winter. *Origin*—En. English ; Am. American ; F. French ; Fl. Flemish ; B. Belgium ; H. Holland.

With apples, our list ranges ten to forty ; with pears we reduce and make it ten to thirty. Our list of the best is as follows :

CATALOGUE TABLE OF PEARS.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Season.	Origin.	REMARKS.
Abbot,.....	m	ob p	y r	v g	f	e a	Am	One of value for the table
Ananas d'Ete,.....	l	p	y g	v g	f m	e a	H	As profitable as Bartlett.
Bartlett,.....	l	ob o p	y	v g	f m	l s	En	Well known
Belle Lucrative,.....	m	r o p	y g	v g	f m	e a	H	Very productive.
Beurre Bosc,.....	l	p	y r	b	f m	l a	B	One of the best.
Beurre Clairgeau,...	l	p	y r	g	m	l a	F	Large and showy.
Beurre d'Anjou,.....	l	ob p	y g	v g	f m	l a	F	One of the best.
Beurre Giffard,.....	m	p	y g	v g	f m	s	F	Profitable and good.
Beurre Superfin,....	m	r p	y r	v g	f	a	F	Valuable for family use.
Beurre Easter,.....	l	r ob p	y r	v g	f	w	B	Valuable in all south-west.
Beurre Diel,.....	l	r ob p	y r	v g	f m	l a	B	Good bearer and profitable.
Beurre Coit, ...	m	ob p	y r	b	f m	a	Am	Hardy and productive.
Bloodgood,.....	m	r	y r	v g	f	s	Am	A fine early variety.
Brandywine,.....	m	r o p	y g	v g	f m	s	Am	Esteemed where known.
Buffum,.....	m	r o p	y g	g	m	e a	Am	A hardy tree.
Beurre Langlier,....	m	ob p	y r	v g	f m	w	F	A fine winter sort.
Clapp's Favorite,....	l	ob o p	y g	v g	f m	s	Am	New but of promise.
Dearborn's Seedling,	s	r p	y	v g	f	s	Am	Valuable for house use.
Doctor Reeder,.....	s	r o p	y r	b	f	l a	Am	One of best in quality.
Doyenne Boussock,..	l	r o p	y r	v g	f m	e a	B	Profitable.
Doyenne de Comice,.	l	r o p	y g	b	f m	l a	F	Esteemed where known.
Doyenne d'Ete, ...	s	r o p	y g	v g	f	s	B	One of the earliest pears.
Dana's Hovey,.....	s	r ob p	y g	b	f	w	Am	Fine for the family.
Duchess dAngouleme	l	ob o p	y	v g	f m	a	F	One of the most profitable.
Emile de Heyst,.....	l	ob p	y r	b	f	l a	B	One of the best.
Fulton,.....	s	r ob	y r	v g	f	a	Am	Very hardy.

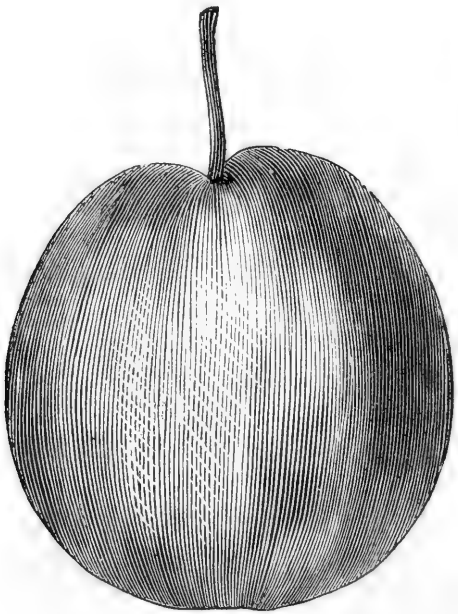
CATALOGUE TABLE OF PEARS—CONTINUED.

REMARKS.	Size.	Form.	Color.	Quality.	Use.	Season.	Origin.	REMARKS.
Flemish Beauty,.....	l	r ob p	y g	v g	f m	a	B	Profitable west.
Goodale,.....	l	r ob	y r	v g	f m	w	Am	A native of Maine.
Glout Morceau,.....	m	ob p	y	g	f	w		Valued south-west.
Howell,.....	l	r p	y g	v g	f m	e a	Am	Valued where known.
Josephine de Malines,	m	r ob p	y r	v g	f	w	F	A choice winter pear.
Jaminette,.....	m	r ob	y r	v g	f m	w		Old variety, hardy and good.
Kirtland,.....	m	r ob	y r	v g	f m	e a	Am	Equal to Seckel.
Lawrence,.....	m	r o p	y r	v g	f m	w	Am	Profitable and hardy.
Louise Bon de Jersey,	m	ob p	y g	v g	f m	e a	F	One of the most profitable.
Marechal de la Cour,.	l	ob p	y g	v g	f m	a	F	Valuable.
McLaughlin,.....	l	ob p	y g	v g	f m	w	Am	One of the hardy sorts.
Mount Vernon,.....	m	r o p	y r	v g	f m	l a	Am	Of peculiar flavor.
Madeline,.....	m	p	y g	v g	f m	s	F	An old variety, valued.
Onondaga,.....	l	ob p	y g	v g	f m	l a	Am	Profitable.
Princes St. Germain,.	m	r o p	y g	v g	f m	w	Am	One of the best varieties.
Rostiezer,.....	s	p	y g	b	f	s		Especially valuable.
Seckel,.....	s	r	y g	b	f m	a	Am	Well known.
Sheldon,.....	m	r	y g	v g	f m	a	Am	One of the best.
Stevens' Gennessee,.	l	r	y	v g	f m	e a	Am	Reliable.
St. Michael Archangel	l	r p	y g	g	f m	a	F	Saleable.
Saint Ghislain,.....	m	p	y	g	f m	e a	B	Hardy and productive.
Tyson,.....	m	r o p	y g	b	f	s	Am	Valuable.
Vicar of Winkfield,..	l	p	y	g	k m	w	F	Profitable.
Winter Nelis,.....	m	ob p	y r	b	f m	w	B	Hardy and profitable.
White Doyenne,.....	m	ob p	y g	b	f m	a	F	Valued west.

LIST OF TEN TO THIRTY VARIETIES,

Valuable north of 43 degrees of latitude for our range. For the period of ripening, etc., see table :

Abbot, Ananas d'Ete, Bartlett, Belle Lucrative, Beurre Bosc, Beurre d'Anjou, Beurre Diel, Beurre Giffard, Beurre Superfin, Bloodgood, Brandywine, Buffum, Clapp's Favorite, Fulton, Dearborn's Seedling, Flemish Beauty, Doctor Reeder, Howell, Kirtland, Lawrence, Louise Bonne de Jersey, Onondaga, Tyson, Seckel, Winter Nelis, McLaughlin, Beurre Coit, Souvenier de Congress, Goodale, Doyenne Boussock.



DOCTOR REEDER PEAR.

This exceedingly valuable new pear originated with Dr. HENRY REEDER, Varick, Seneca county, N. Y., from seed of a Winter Nelis pear, the tree of which grew near

a Seckel. The fruit in form resembles the Seckel, while, with the rich, honied sweetness of that variety, it has also the juicy, sprightly vivacity of the Winter Nelis. The original tree is about twelve years old, and as yet has been but little disseminated. We are indebted to Messrs. ELLWANGER & BARRY of Rochester, N. Y., for specimens from which we have made the accompanying drawing and description. The variety is generally known under the name of Dr. Reeder's Seedling, by whieh it was noticed first in American Pomological Society's Transactions by CHARLES DOWNING.

Fruit small in size, globular, obtuse pyriform, pale yellow, mostly overspread with a smooth, warm, cinnamon russet,—stem slender, nearly three-fourths of an inch long, set in a broad, open, moderately deep cavity, having occasionally a slight lip on one side; calyx open, large for size of fruit, with erect, divided, rounded segments; basin shallow, broad, smooth and open; flesh yellowish white, fine grained, juicy, melting, almost buttery, sprightly, sweet, and slightly aromatic; *best* in quality; core medium; seeds blackish; season early November.

The list for latitude 43 down to 40, we advise the following:

Bartlett, Belle Lucrative, Beurre Bosc, Beurre Clairgeau, Beurre d'Anjou, Doyenne de Comice, Beurre Giffard, Beurre Superfine, Brandywine, Marechal de la Cour, Clapp's Favorite, Doyenne Boussock, Doyenne d'Ete, Duchess d'Angouleme, Flemish Beauty, Glout Morceau, Howell, Josephine de Malines, Kirtland, Louise bon de Jersey, Lawrence, Onondaga, Rostiezer, White Doyenne,

Seckel, Sheldon, Tyson, Stevens' Genesee, Vicar of Wakefield, Winter Nelis.

From latitude 40 down to 37, we offer the following as the best list:

Ananas d'Ete, Bartlett, Belle Lucrative, Beurre Bosc, Beurre Clairgeau, Beurre d'Anjou, Beurre Giffard, Beurre Langlier, Beurre Superfine, Clapp's Favorite, Dana's Hovey, Dearborn's Seedling, Doyenne de Comice, Marechal de la Cour, Emile de Heyst, Beurre Easter, Glout Morceau, Duchess d'Angouleme, Doctor Reeder, Josephine de Malines, Lawrence, Louise Bonne de Jersey, Mount Vernon, Onondaga, Rostiezer, Princes St. Germain, Tyson, and Winter Nelis.

From latitude 37 and below the following have repute:

Bartlett, Belle Lucrative, Beurre Clairgeau, Beurre d' Anjou, Beurre Superfine, Bloodgood, Buffum, Brandywine, Doyenne d'Ete, Beurre Easter, Duchess d'Angouleme, Howell, Lawrence, Onondaga, Kirtland, Seckel, Doctor Reeder, Beurre Bosc, Beurre Giffard, Flemish Beauty, Rostiezer, St. Michael Archangel, Tyson, Winter Nelis, Madelaine, Dearborn's Seedling, Jaminette, Josephine de Molines, St. Ghislain.

THE CHERRY.

This fruit has its special localities, perhaps more than any other; and while at the extreme north some varieties succeed, most of the sweet varieties fail. From latitude 43 down to 40 we may count as the region for the profit-

able growing of good, rich, sweet cherries. Below the latitude of 40, say to 37, some varieties succeed, and it is well to keep planting. The same varieties named in our remarks hereafter as best, for from 40 to 37, are equally good for the lower and warmer latitudes. Although the Cherry numbers less of varieties than the Apple or Pear, the selection of those suited to various sections is one requiring careful thought and knowledge. We have made our list to run from 10 to 20 varieties for latitude. Our table of terms, as to size, form, etc., is made from the American Pomological Society's Catalogue, for we have full confidence in that Association, made up of the best pomological intelligence of the world.

Size—l, large; m, medium; s, small. *Form*—ob h, obtuse, heart shape; r, ob, h, roundish, obtuse, heart shape; r, h, roundish, heart shape, roundish or round. *Color*—l, r, lively bright red; d, r, dark red, almost black; a, m, amber mottled with red; y, r, yellow ground shaded and mottled with red. *Class*—H, Hearts, or tender fleshed sweet cherries; B, Bigarreau, or firm fleshed; D, Dukes, having a character in tree and fruit midway between the Hearts and Morellos; M, Morello, having acid fruit, and the tree of small growth. *Use*—f, family, for dessert; f m, family or market; k m, cooking or market; m, market. *Season*—e, early; m, medium, l, late. *Origin*—f, foreign; a, American.

CATALOGUE TABLE OF CHERRIES.

NAMES.	Size.	Form.	Color.	Class.	Use.	Season.	Origin.	REMARKS.
Arch Duke,.....	l	ob h	d r	D	k m	l	F	A profitable variety.
Belle d'Orleans,.....	m	r h	y r	H	f m	m	F	One of value as to earliness.
Belle de Choisy,.....	m	r	a m	D	f	m	F	Most delicious cherry.
Belle Magnifique,....	l	r h	l r	D	k m	l	F	Distinct and valuable.
Black Hawk,.....	l	ob h	d r	B	f m	m	Am	One of the best black cherries.
Black Tartarian,.....	l	r h	d r	H	f m	m	F	Well known.
Carnation, ...	m	r	a m	D	k m	l	F	Valuable in certain localities.
Caroline,.....	l	r h	a m	H	f m	m	Am	Should be on every table.
Coe's Transparent,..	m	r	a m	H	f	m	Am	One of best of the light colors.
Dacotah.,.....	l	ob h	d r	H	f m	m	Am	Little known but valuable.
Donna Maria, ...	m	r	d r	M	k m	m	F	One of the best Morellos.
Downer's Late,.....	m	r h	y r	H	f m	l	Am	A variety of value.
Dauphine, ...	m	r	l r	M	f m	m	F	Little known but valuable.
Early Purple Guigne,	m	r h	d r	H	f m	e	F	One of the best early sorts.
Early May,.....	s	r	l r	M	f m	e		Dwarf growing sort, pro'tive.
Early Prolific,.....	m	r ob h	y r	H	f m	e	Am	One of best sweet cherries.
Elton, ...	l	r h	y r	B	f m	m	F	Profitable and of the best.
Flemish,.....	l	ob h	l r	M	f m	l	F	Peculiar with many synoyms.
Governor Wood,....	l	r h	y r	H	f m	m	Am	Tree very productive.
Gridley.....	m	r	d r	B	m	m	Am	Poor in quality but profitable.
Imperatrice Eugenia,	l	ob h	d r	D	f	m	F	Little known but valuable.
Imperial Morello,....	m	r	d r	M	f m	l	F	Early bearer and productive.
Jeffrey's Duke,.....	m	r h	l r	D	f m	m		Compact upright tree, prod'e.
Kennicott,.....	l	r ob h	y r	B	f m	l	Am	Productive and very good.

NAMES.	Size.	Form.	Color.	Class.	Use.	Season.	Origin.	REMARKS.
Kentish, or Early Richmond, ..	s	r	l r	M	f m	e	F	Valuable, has many synonyms
Kirtland's Morello,..	l	r	d r	M	f m	l	Am	Should be better known.
Late Duke, ...	l	ob h	d r	D	f m	l		A profitable and hardy sort.
Louis Phillippe,.....	l	r	d r		f m	l	F	Best, cross bt. Duke and Mor.
May Duke,.....	l	ob h	d r	D	f m	e	F	Known & est'd under 18 nam's
Morrello, English,...	l	r h	d r	M	k m	l	E	One of the best of its class.
Powhattan, ...	m	r h	d r	H	m	l	Am	A profitable market sort.
Plumstone Morrello,.	l	r	d r	M	k m	l	F	A healthy hardy tree.
Pontiac, ...	l	ob h	d r	H	f m	m	Am	One of the best of its class.
Nouvelle Royale,....	l	r	l r	D	f m	l	F	New but valuable.
Ohio Beauty,.....	l	ob h	y r	H	f m	m	Am	One of the best sweet cherries.
Reine Hortense,.....	l	r	l r	D	f m	l	F	A fine late variety.
Red Jacket,.....	l	ob h	y r	H	f m	l	Am	Most valuable of late varities
Royal Duke,.....	l	r	d r	D	k m	m	F	Valued in its class.
Rockport,.....	l	r ob h	a m	H	f m	e	Am	Best of early sweet cherries.
Sparhawk's Honey...	m	r h	a m	H	f m	m	Am	A hardy tree and productive.
White French Guigne	s	r	a m	H	f m	l	F	Little known but good.
Vail's August Duke,	l	ob h	l r	D	f m	l	Am	One of value.

LIST OF VARIETIES FOR LATITUDES.

The range of latitude our readers will please refer to the apple.

SELECTIONS FOR LATITUDES ABOVE 43.

Arch Duke, Belle de Choisy, Belle Magnifique, Carnation, Dauphine, Donna Maria, Early May, Flemish, Imperatrice Eugenie, Imperial Morello, Jeffreys' Duke, Kentish or Early Richmond, Kirtland's Morello, Louis Philippe, May Duke, Morello *English*, Plumstone Morello, Reine Hortense, Royal Duke, Vail's August Duke.

SELECTIONS FROM 43 DOWN TO 40.

Arch Duke, Belle de Choisy, Belle of Orleans, Black Tartarian, Black Hawk, Coe's Transparent, Caroline, Dacota, Early Prolific, Early Purple Guigne, Elton, Governor Wood, Kennicott, Kentish or Early Richmond, Louis Philippe, Ohio Beauty, Pontiac, Powhatan, Rockport, Red Jacket.

SELECTION OF LATITUDE 40 DOWN TO 37.

Arch Duke, Belle Magnifique, Belle de Choisy, Carnation, Donna Maria, Kentish or Early Richmond (all one and the same), Downer's Late, Dacota, Flemish, Gridley, Late Duke, Louis Philippe, May Duke, Morello *English*, Nouvelle Royale, Powhatan, Reine Hortense, Red Jacket, Sparhawk's Honey.

The above list is as valuable for all latitudes below 37 degrees as can be made under the present record of intelligence.

We give here illustrations of Ohio Beauty, Fig. 1, and Donna Maria, Fig. 2.

FIG. 1.

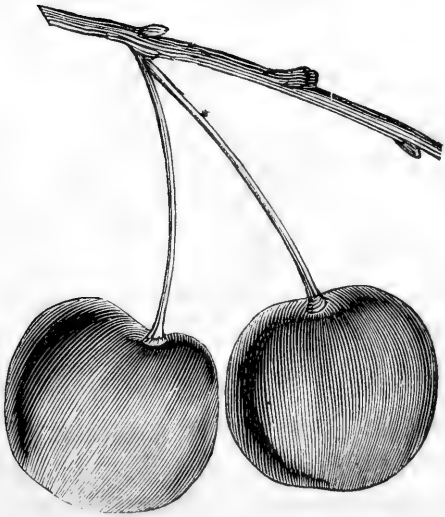


FIG. 2.

APRICOTS AND NECTARINES.

Of these only a few can be grown by the multitude of the people. Too much care in the pruning is requisite, and also it is requisite that an exposure of heat and sun light be given the tree.

The Apricot is beautiful in its growth, and especially when it is in bloom. It should be worked upon the Plum, and the growth yearly kept shortened by pinching off the ends of strong shoots and rubbing away the feeble buds. We make no table for these two varieties of fruits, viz., Apricots and Nectarines, for the reason that above 42 of latitude it is unwise to attempt to grow them.

We name but few, but those we do name are of the hardiest in tree and best in quality.

Breda — is small, said to originate in Africa. The tree is one of the hardiest. The fruit, roundish in form, a dark orange in color, with flesh orange colored, rich and high flavored.

Hemskirke — is one of the largest and best. Orange color, with a red cheek; flesh bright orange color; juicy, rich and lucious flavor.

Large Early — This comes to us from France. The tree is vigorous and it is early in ripening. Fruit of medium size, pale orange, with blotches of red in the sun; flesh, orange colored, separating readily from the stone, rich and juicy.

Moorpark — Has a great reputation. It is large when grown with care, but not productive. Orange color.

Roman — One of the hardiest of trees. Fruit of middle size, pale yellow; flesh soft, but rather dry.

THE NECTARINE.

With this we shall deal less in number than with the apricot. Unfortunately the curculio is the destroyer of these as well as of the plum, and few care to fight against it. To grow it successfully even more attention and care is requisite than with the Apricot or Plum.

Early Newington — is a clingstone. Fruit large, roundish ovate; color, a green ground nearly covered with red of mottled and marbled shades. The flesh is of a greenish white, deep red at the stone; juicy, sugary, and excellent.

Elruge — Esteemed as one of the best. It is of English origin, and when correctly trained by pinching of the shoots it is one of the most productive. Unless this is done no grower need to expect to furnish good nectarines.

Violette Hative — This variety, with fifteen or more synonyms, has been everywhere grown, and to-day has the highest rank in its class. It is of delicious flavor, hardy and productive. It is of French origin, and has fruit rather large, narrowed at the top. *Color*, pale yellowish green, with marbled red in open sun. *Flesh*, whitish, but much rayed with red at the stone; melting, juicy, rich, and high flavored.

THE PEACH.

The Peach is a native of Persia and China. It was brought into this country somewhere about 1680. Its success here has been to make it the *Queen* of fruits.

A selection of varieties to the various latitudes is a difficult matter, yet we shall try to do it.

Above 43 it cannot be grown in the open air.

The list of new varieties is yearly on the increase, and some prove of value. The greater number, however, fail to meet expectations.

The following remarks of J. J. THOMAS, one of our most intelligent horticulturists, in a report to the American Pomological Society, deserve thought and attention of every fruit grower:

"During the early period of fruit culture in this country, a *long* list of varieties was regarded as a special merit in any collection, and the nurseryman who could present the largest catalogue stood at the head of his profession. This led to the cultivation of many sorts of little value, and it became an object of importance to separate the valuable from the worthless. * * * A great change has taken place of later years, and collections of fruits for profit, as well as for home use, have been reduced to a few select sorts, the amateur and student of pomology only desiring a wider range. * * * The lists which are now wanted are of such sorts as the cultivators may plant for use."

The variation of our climate and soils, makes this selection of a few out of the hundreds one of the difficult tasks. In this little work we have attempted it, but without doubt we have omitted many varieties that are of value in their special localities; but while we have tried to confine our range to climate rather than to soil, we have also in our chapter on soils and locations endeavored to briefly state the subject. The rules of *time* and *how* to prune have also changed, and while our chapter on pruning may not meet the views of many growers, yet we have written what practise and observation have taught us. Authors disagree, and synonyms of varieties abound.

We shall make our table descriptive of form, size, etc., as before, in one, and then name the varieties suited, as we judge best, for the range of country our latitude lines state. The columns explain as follows:

Size—l, large; m, medium; s, small. *Class*—f, freestone; c, clingstone. *Color*, relative to the flesh—w, white or pale colored; y, yellow or yellowish; g, greenish white, red at stone. *Quality*—j v, juicy, vinous; m j r, melting, juicy, rich; s j, sweet, juicy *Glands*—s, serrated, without glands; g, glands globose; r, glands reniform. *Season*—In forming this table we have endeavored to follow the American Pomological Society's catalogue, but find that there the terms of period of ripening take 43 degrees of latitude, so in our list of varieties for each latitude we shall designate them as *very early*, *early*, *medium*, *late*, and *very late*.

The column of *origin*, Am. is a designation of American, f, of foreign.

TABLE LIST OF VARIETIES.

NAMES.	Size.	Class.	Color.	Quality.	Glands.	Origin.	REMARKS.
Alexander,.....	m	F	w	m j r		Am	New and said to be early.
Amelia,.....	l	F	w	m j r	r	Am	A southern variety.
Alberge Yellow,.....	m	F	y	s j	g	Am	An old sort, but valuable.
Amsden's June,.....	m	F	w	m j r		Am	New and untested.
Bergen's Yellow,.....	m	F	y	j v	r	Am	Every where good.
Chick's Early,.....							A southern variety.
Cole's Early Red,.....	m	F	w	m j r	g	Am	Profitable for market.
Cooledge's Favorite,.....	l	F	w	s j h	g	Am	One of the best for family.
Connor's White,.....							A southern variety.
Crawford's Early,.....	l	F	y	j v	g	Am	Too well known for a remark.
Darby,.....	l	C	w				A southern variety.
Early York,.....	m	F	w	m j r	s	Am	Should be in every collection.
Early Beatrice,.....	m	F	g	m j r	g	F	An early sort of high promise.
Foster,.....	l	F	y	j v	g	Am	One of the best.
George the Fourth,.....	m	F	y	m j r	g	Am	Old but of the best.
Grosse Mignonne,.....	l	F	w	s j h	g	F	A delicious fruit.
Haine's Early Red,.....	m	F	g	s j	g	Am	Early market sort.
Governor,.....							New southern seedling.
Hyslop's Cling,.....	l	C	w	m j r	r	Am	One of the best late clings.
Improved Pyramidal,....							New southern variety.
Jacques Rareripe,.....	l	F	y	j v	r	Am	Fine market sort.
Lemon Cling,.....	l	C	g	j v	r	Am	Very profitable.
Late Admirable,.....	v. l	F	y g	m j r	g	Am	One of best late freestones.
Lady Palmerston, ...	l	F	y	j v		F	New, of promise.

TABLE LIST OF VARIETIES—CONTINUED.

NAMES.	Size.	Class.	Color.	Quality.	Gland.	Origin.	REMARKS.
Morris White,	m	F	w	m j r	r	Am	A very distinct sort.
Magdalea,	m	F	g	m j r		F	A peach of peculiar flavor.
Muskegon,	l	F	w	m j r		Am	Resembles Columbia.
Noblesse,	l	F	w	s j	s	F	Too little known.
Old Mixon Free,	l	F	g	s j h	g	Am	Best and profitable.
Salway,	l	F	y	j v		F	Of market value.
Smock Free,	l	F	y	j v	r	Am	Late market sort.
Snow,	m	F	y	j v	r	Am	Valuable for family.
Scott's Nonpariel	l	F	y	j v		Am	Market sort.
Stump the World,	l	F	w	s j h	g	Am	Productive and valuable.
Surpasse Melocoton,	l	F	y	j v		Am	Seedling, Ellwanger & Barry.
Susquehanna,	l	F	y	s j v	g	Am	A fine late sort.
Thurber,	l	F	w	j v		Am	A Georgia seedling.
Tuskeena,	l	F	w	j v		Am	The best late free.
Ward's Late Free,	m	F	w	r j s	r	Am	Southern variety.

VARIETIES OF THE PEACH ADVISED FOR LATITUDE 43 TO 40.

We name as *very early*, Early York and Haine's Early; for *early*, Alberge Yellow and Yellow Rareripe; for *medium*, Oldmixon Free and Crawford's Early; for *late*, Foster and Late Admirable; for *very late*, Hyslop's Cling and Ward's Late Free. If it be desirable in a large orchard to extend the list to twenty varieties, then Alexander, Early Beatrice; for *very early*, Cole's Early Red; for *early* to medium, Cooledge's Favorite, Grosse Mignonne, George the Fourth, Jacques' Rareripe, Morris White, Snow, and Magdala.

PEACHES FOR LATITUDE 40 TO 37.

Alexander, Amsden's June, Early Beatrice, for *very early;* Alberge Yellow, Bergen Yellow, Early York, for *early;* Cooledge s Favorite, Crawford's Early, George the Fourth, Snow, Grosse Mignonne, Oldmixon Freestone, Scott's Nonpareil, Noblesse, for *medium;* Lemon Cling, Surpasse, Melocoton, for *late;* Smock Free, Stump the World, Susquehanna for *very late*.

PEACHES FOR LATITUDE BELOW 37

Nearly all of the above named varieties are valued at the South, and the range from 40 may be strictly and truly said to cover the whole list of varieties we have given. The only item in all is, the popularity of a variety as to its value for market. From 40 degrees of latitude down, the seedlings are yearly being brought to notice and commended. We shall only name a few, viz.: Alexander,

Chick's Early, Connor's White, Darby, Governor, Improved Pyramidal, Amelia, Muscogea, Thurber, Tuskuna.

PLUMS.

The Plum is highly esteemed both as a dessert and cooking fruit. It is stated that the original parent of our cultivated varieties is a native of Asia. There are besides the cultivated varieties, known botanically as *Prunus domestica*, many others, native of our own country. They are known under various botanical terms, *Prunus Chicasa*, *Prunus Americana*, *Prunus Maratima*, and in general terms called *Chickasaw*, to the latter of which belong the varieties called *Wild Goose*, *Newman*, *Mountain Plum*, *Indian Chief*, one of the *Chicasa* family. The North and the South can depend for hardiness only upon what we call native varieties. Vermont can do little with our cultivated varieties, except in certain localities, and so with all the extreme north ; while the records from South Carolina, Georgia, Tennessee, etc., give place only to our native wild varieties. Ohio and westward had originally many varieties of wild Plums, from round to oval, color from dark purple to red and yellow, time of maturity from September to midwinter, if the later were not gathered. The trade in these native wild plums was at one time a large source of profit, but the clearing up of the country has destroyed them as it has blackberries.

The plum to be of value should hang upon the tree until perfectly ripe, no matter what the variety. This,

with every other fruit, requires thinning to give it size and flavor. Certain varieties are made into what we call Prunes, such as the St. Catherine and Prune d'Agen. The Blue Plum, Damson, Frost Gage, German Prune, Cruger's Scarlet, also may be used for this purpose in our warm sections of climate.

ACCLIMATION, INSECTS, ETC.

Many discussions in regard to the hardihood and productiveness of trees have been written by capable men, South and North. This acclimation of trees to a climate has been the talk of some tree dealers South and West, they claiming great superiority for those of the same sorts when grown in Tennessee and Alabama over the growths of New York and Massachusetts; but after traveling not a little, and carefully examining, we have failed to find anything to support the statements — in fact we have frequently found orchards of trees obtained from the North superior to those of trees grown from the bud at the South. We have, therefore, no faith in acclimation. We do not believe change of climate will change the natural order of the tree or plant. If any one does, we should like him to give some tangible proof of his beliefs — something beside imaginary theory.

The insects, etc., connected with Plum culture has occupied many pages of matter of late years, but mainly results in the fact that to preserve the crop from the curculio or plum weevil (*Rynihanus Nenuphar*), a small dark brown beetle with spots of white, yellow, and black. The remedies given for destruction of this insect, or for prevention

of its destructive agency, are many, but the two we now name are the most reliable.

One is of a man whose orchard of plums was in a sandy, loamy soil. It was plowed lightly with a one-horse plow early in spring, the plow cutting a little more than two inches deep. During the summer, until about the first of August, it was cultivated with a horse cultivator about once in two or three weeks, or just often enough to keep the weeds down. As soon as the plum trees opened their blossoms, boys of about fourteen or sixteen years of age were employed at a cost of eight dollars a month and board. In the hands of each boy was placed a pole about ten feet long, on the end of which was fastened a broad-mouthed tin cup, holding about three half-pints; and these boys were kept from the first rays of light in the morning until sundown, going from tree to tree, dipping the sandy loam into their cups and then scattering it among and through the branches of the trees, thus so disturbing the curculio that he failed to inflict any material injury on the fruit. In fact the result was, the owner almost wished the boys were not quite so faithful in their work; for, if he could have had one-fourth the plums thinned out, the crop would have been better, becaues the plums would have been larger.

This work of curculio hunting or disturbing was continued steadily from the time of the first setting of the fruit — which is even before the whole of the blossoms have fallen — until it was more than half grown. Some few trees which were outside of the regular orchard, in turf ground, or where the surface could not well be stirred,

were supplied with a heap of ashes or sand from which to load the cups.

The second prevention, and one now most generally, is that of giving the tree a sudden and severe jar by means of a mallet or pole, so protected with India rubber or gutta percha that it will not bruise the bark. When it can be done, without injury to the tree, a large lower limb is sawed off square about two inches from the body of the tree, and the blow given on it to create the sudden jar.

THE BLACK KNOT on plum trees has in many places been a destructive enemy to the trees. We have known the following to be successful as a remedy :—Take a paint brush, dip it in spirits of turpentine, and thoroughly saturate the knot, being careful not to touch the tree except in the diseased part. It stops the knot, and the tree puts out healthy branches below it. Be careful to burn all branches removed in pruning. As the summer is the time the mischief is done, every fresh excrescence should be pared off, the turpentine applied, and it will harden in a week.

Having said so much touching the value and troubles of the plum and its culture, we will make out our regular table list, copied in form from the Am. Pom. Society, and following as with other fruits, give our views of the values in certain latitudes to a certain number of varieties. The columns explain after names as follows : *Size*—l, large ; m, medinm ; s, small. *Color*—p, purplish or very dark red ; r, reddish or copper color ; y, yellow ; g, y, greenish yellow ; y, r, yellowish with shades and spots of red. *Form*—r, roundish ; o, oval; r, o, roundish oval ; o, ob,

oval obolate. *Quality*—g, good; v, g, very good; b, best. *Use*—f, family; m, market.

In our table we must drop the naming of the season, inasmuch as the one who made up the Am. Pom. Society's transactions in 1873, undertook to control them as ripening at a high latitude, rather than take an average center of the United States.

The *Origin*—Am, American; F, Foreign, we give in column,—and in our names of varieties of latitudes will try to keep in mind record of the period those counted as very early, early, medium, late and very late.

We make what we think is a select list of varieties, and yet, we, in naming twenty varieties for one man's culture, may omit others that with care and attention would prove equally good.

TABLE LIST OF PLUMS.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Origin.	REMARKS.
Blue Imperatrice,	m	o ob	p	v g	f m	F	A fine market sort.
Bavay's Green Gage,	l	r	g y	b	f	F	One of the best plums.
Bleeker's Gage,	m	r o	y	v g	f m	Am	Few of more value.
Bradshaw,	l	o ob	p	v g	f m	Am	Profitable.
Cherry,	s	r	r	g	f m	Am	A novelty desirable.
Chickasaw,	s	r	y r	g	m	Am	Valued South.
Coe's Golden Drop,	l	o	y r	v g	f m	F	Valuable where it ripens.
Copper,	m	o	r	g	f m		Good cooking sorts.
Crugar's Scarlet,	m	r o	r	g	f m	Am	A profitable variety.
Damson,	s	o	p	g	m	Am	Family and market.
Duane's Purple,	l	o	r p	g	f m	Am	Very profitable.
De Caradeuc,							Southern wilding.
Frost Gage,	m	r o	p	v g	f m	Am	One of the best.
Green Gage,	s	r o	g y	b	f	F	Best in quality.
German Prune,	l	o	p	v g	f m	F	Profitable.
Indian Chief,							Southern wilding.
Imperial Gage,	l	o	g y	b	f m	Am	One of the most profitable.
Italian Prune,	m	o	p	g	f m	F	Hardy and productive.
Jefferson,	l	o	y r	b	f m	Am	One of the best.
Jaune Hative,	s	o	y	g	f m	F	Very early.
Lawrence's Favorite,	l	r	g y	b	f m	Am	One of the best.
Lombard,	m	r o	r p	g	f m	Am	One most free of curculio.
McLaughlin,	l	r	y r	b	f m	Am	One of the best.
Mountain Plum,							Southern wilding.

TABLE LIST OF PLUMS—CONTINUED.

NAMES.	Size.	Form.	Color.	Quality.	Use.	Origin.	REMARKS.
Newman,							Southern wilding.
Ontario,	l	r	y r	g	f m	Am	Seedling of E. & B., Rochester.
Red Gage,	s	o	r	b	f m	Am	One of the best.
Sharp's Emperor,	l	r o	y r	v g	f m	F	One of the best.
Smith's Orleans,	l	o	r p	v g	f m	Am	Valuable every where.
St. Lawrence,	l	r	p	v g	f m	Am	A clingstone seedling of E. & B.
St. Catherine,	m	o b	g p	v g	f m	F	Profitable.
Temple,							Southern wilding.
Peter's Yellow Gage,	m	r	y r	v g	f m	Am	Reliable.
Pond's Seedling,	l	o	y r	g	m	F	Profitable for market.
Prince's Yellow Gage,	m	o	y	v g	f m	Am	Very productive.
Purple Favorite,	m	r ob	p	b	f m	Am	A delicious variety.
Washington,	l	r o	g y	v g	f m	Am	Well known.
Wild Goose,	s	r	y r	g	f m	Am	Like all wild plums.
Yellow Egg,	l	o	y	g	f m		Profitable.

VARIETIES FOR ABOVE LATITUDE 43.

For *very early*—Cherry, Jaune Hative. For *early* or *medium*—Bleeker's Gage, Copper, Cruger's Scarlet, German Prune, Italian Prune, Lombard, Red Gage, McLaughlin, Peter's Yellow Gage, Prince's Yellow Gage, Purple, Favorite, St. Catherine, Sharp's Emperor, St. Lawrence. For *late*—Chckasaw, Damson, Frost Gage, Wild Goose.

VARIETIES FOR LATITUDE 43 TO 40.

For *very early*—Cherry, Jaune Hative. For *early* and *medium*—Bleeker's Gage, Bradshaw, Duane's Purple, Green Gage, Imperial Gage, Jefferson, Lawrence's Favorite. Lombard, McLaughlin, Prince's Yellow Gage, Purple Favorite, Red Gage, Smith's Orleans, St. Lawrence, Washington. For *late*—Blue Imperatrice, Bavay's Green Gage, Coe's Golden Drop.

VARIETIES FOR LATITUDE 40 TO 37.

For *very early*—Cherry, Jaune Hative. For *early* to *medium*—Bleeker's Gage, Bradshaw, Duane's Purple, German Prune, Green Gage, Imperial Gage, Jefferson, Lawrence's Favorite, Lombard, McLaughlin, Red Gage, Sharp's Emperor, Smith's Orleans, St. Catherine. For *late*—Bavay's Green Gage, Coe's Golden Drop, Frost Gage.

VARIETIES FOR LATITUDE BELOW 37.

Our list for this lower line of latitude, we make more from the reports of Southern fruit growers than from our own knowledge. One of the most capable pomologists of

the South writes touching the plum as follows :—" The finer classes of plums, such as Gages, etc., cannot be grown except in poultry yards, and then only, if the trees are carefully watched during the period when they set fruit, and until the latter has attained at least half size. Our improved varieties of the *Chickasaw* type are less liable to the attack of the curculio, and from this type we reap full crops every year. Many new varieties have lately been introduced, and we are confident, that before long, we shall possess a race of plums that will comapare favorably in quality with the Gages, but with the additional merit of being better growers and less liable to the attack of the curculio. The season of maturity ranges now from the end of May until the beginning of September."

With this knowledge from one of the best Southern pomologists, we shall only add a few varieties to their native seedlings. We will start our list with Cherry, Chickasaw, Damson, De Caradenc, Frost Gage, Indian Chief, Lombard, Mountain Plum, Miner, Newman Temple, and Wild Goose.

THE QUINCE.

The Quince is indigenous to Germany and the south of Europe. It is a well known hardy fruit tree, and perhaps pecuniarily one of the most profitable of all fruits. Botanically it is called *Cydonia vulgaris*, this name said to have come from the city of Cydon in Crete. Its fruit of fine golden yellow when ripe, resembling that of the orange,

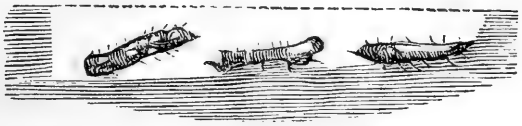
together with its white and pale pink blossoms, when nearly all the blossoms of other fruit trees are gone, make it both a profitable and ornamental tree of what we may call as second class of growth, for the Quince rarely grows higher than fifteen feet, with a spread of branches fully equal to the height.

As a fruit for eating raw or uncooked it is not esteemed, but cooked, stewed, or made into marmalade it has few equals. As a jelly it is often used as an appetizer to meats, especially those of delicate poultry. Its juices are said to have a beneficial effect upon *asthmatic* patients, while mingled with the apple, even when dried, it gives a piquancy to the sauce beyond that of any other fruit.

It is quite productive when young, and meets a ready market at remunerative prices. It is so firm that it can be shipped long distances without injury; in fact, carefully packed and confined in a barrel it improves in appearance for many days. The Quince can be easily propagated from seed, cuttings, layers, or small pieces of roots.

Cuttings prepared in autumn and heeled in during winter, then planted out in spring, generally make fine stocks or plants on which to engraft or bud varieties of the pear. The fact of the quince making the most of its roots near the surface, and those small, has a tendency to check the growth of the pear and so cause it to form fruit buds. Propagation by small pieces of the roots is one of easy and all time practice. Simply dig away around an old or well grown tree, and cut from the roots pieces two to four inches in length; set these at an angle of forty-five de-

grees in any soil and cover two inches over the top, and growth will ensue. Here perhaps it may not be inappropriate to place the accompanying cut, showing how not only the Quince proper, but the Blackberry, Raspberry, Japan or Flowering Quince, Sweet Scented Shrub, and other plants that naturally throw up suckers, may be propagated.



The soil that best suits the Quince is that of a loamy deep character, and overflowed at times of freshets for a day or two. But the tree can be grown profitably upon the poorest soil, by applying on the surface a rich dressing of well rotted manure, and then mulching with old litter, leaves, etc.

The pruning of the Quince is a mere nothing. While young, and even when old, sucker shoots will appear near the crown of the root; these should be removed, and occasionally one of the leading, rapid-growing branches on the tree will require to have three or four inches taken from its end, so as to cause it to make stronger lateral branches, and so produce fruit without any breaking down. Like all other fruits, the thinning out when one-fourth grown of one-fourth of the fruit will cause the balance to become larger, and fully pay the expense of pruning from its increased value.

Of varieties, the *Apple-shaped* or *Orange-shaped* has long been counted the most tender and best. The *Por-*

tugal is, however, superior in quality, but not as productive. *Rea's Seedling* has a reputation over the *Apple* or *Orange* shaped. It is somewhat larger, but not as productive. The most productive and profitable as a market sort is the *Angers*. The trees are healthy, very productive, and when well ripened and colored will rarely be classed by dealers as other than the *Apple* or *Orange*.

The *Pear-shaped* is unworthy of culture, and there is a *sweet quince*, but it is doubtful whether it will fill the place of others.

ADDENDA.

HOME ADORNMENTS.—THE BEAUTIFYING THEREOF.

The enthusiastic, energetic, world benefiting publisher of this little book, has insisted upon something touching the naming of some of the best flowering shrubs, roses, budding-out plants, perennials, low growing evergreens, vines, etc., etc., and, rather than neglect a duty, we shall attempt to write somewhat of practical use. We do not propose to write an essay on æsthetic horticulture or the science of the art, for all such are but as the bloom from seed first sown in the garden of Eden. But when one has an old barren piece of ground with a tenement upon it, we wish to show how a few hardy flowering shrubs and seeds can make of it a place of beauty, where the children can play and enjoy themselves without hindrance or scoffing from their neighbors.

Strange ideas enter into the minds of many persons, when the subject of beautifying home surroundings is mentioned in their presence. They will usually utter the far too common and absurd remark that such things are costly, and it is only the rich who can afford them. It certainly costs no more, as a general rule, to build a house ten rods from the highway than one as many feet from it; and still these latter unsuitable and inappropriate locations

are being occupied almost every day. If lawns are named, rollers, particular kinds of seeds, and lawn mowers are brought to mind ; and while we are ready to admit that a good lawn cannot be made nor kept in first-rate condition without these implements, still a grass plat, large or small, occasionally mown, is far better than none. Even a meadow or pasture in front or near a dwelling might add something to its general good appearance.

The far too common style of arrangement of country homes, is to place the mansion within a few feet of the public road, the barn a few rods in the rear, and the intervening space is filled with wood piles or necessary outbuildings. If there is a kitchen garden it is usually situated near the road, at one side of the house, and then enclosed with a picket fence, painted white or whitewashed. Where a man owns but a fraction of an acre, such a cluttered arrangement may be admissible and passed without comment; but upon farms of many acres in extent, it not only shows a sad want of taste, but of broad ideas in regard to the fitness of things in general. A few trees from the forest, planted here and there, cost but little or nothing, and yet how much they add to the beauty and elegance of home surroundings, besides affording an agreeable shade in summer to both man and beast.

Our idea of an elegant but inexpensive home on a farm where pasture or a meadow is a requisite, is to so arrange it that with moveable fences they can pasture what may be termed the lawn, and yet keep the beauty of flora's gifts. In fact, there are many ways of making home surroundings elegant without incurring any extra expense.

Farmers in particular are prone to emagine that they cannot afford to spend much time or money in outside decorations of their homes, and in many instances it would not be advisable; but little forethought in the general arrangement of buildings, planting of trees and seeding down land for meadows and pastures, would give to thousands of homes an air of elegance and refinement without a penny of additional expense. And after all it is the thinking that is necessary. The man who thinks learns to desire; and desiring learns to act.

And he who sees daily the products of the Creator in the form of blossoms to produce fruit, flower, grain or grass, should remember that all of this brought daily to the observation of his children is leading them to purity and truth.

As an illustration of what may be done at a small expense we offer the following. The property was almost a barren, but in five years paid $4,000 per year from the crops:

The boundary line on the street and each side is grown with hedge of varieties — some of evergreen, some of flowering shrubs, willows, etc., etc. As you enter from the street — which is on the north of the place — at the left hand is the pond, about in form as per outline on ground plan; at the south end is a little rock work planted with shrubs, vines, etc., and so more or less of rocks, vines, shrubs, etc., dot the banks of the pond, while trees of ultimate majestic growth cast their shadows over the water.

Continuing on south beyond the pond is, say eighty

feet from it, a rustic summer house, with evergreens, shrubs, etc., surrounding and vines entwined upon it. And then the straight lines mark the rows of grapes, while bordering the footpath is a belt of perennials, shrubs, etc., etc., until you reach indications of trees by dots; then skipping a space of some twenty feet, for the purpose of passing a wagon, should it be desirable ever so to do, comes a bank, *en masse*, of flowering shrubs against the footpath, backed up with dwarf apples and pears, until within about twenty feet of the line boundary, which space is devoted to strawberries.

Going back now to the entrance, on the right of the entrance and the carriage road we have beds or masses of rock work, evergreen and flowering shrubs, with elm, weeping poplar, birch, etc., while bordering the carriage way, most of the way to the house, are cherries. A quince and dwarf pear orchard is off at the right, two or three rows of grapes, and then the vegetable garden; while the stiffness of the avenue of cherries has been broken by throwing out other trees and grouping from place to place, something as my dots indicate.

An apple and standard pear and peach orchard is south of the garden plot, while on the lawn the flower beds are shown, cut out of and surrounded by grass.

Directly in front of the house, some twenty feet or so wide, is a bank of rock work planted with vines and evergreen shrubs. Evergreen trees, as well as deciduous ornamental sorts, are at the right of the house and in among the orchard. The rear portion of this place is blocked out and planted in lines with fruit trees, vines, small fruits,

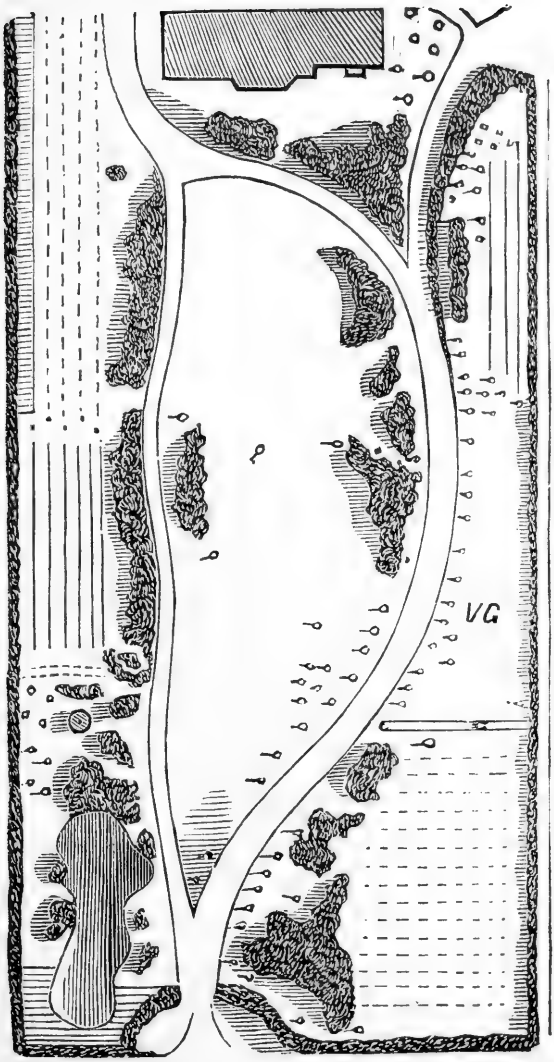


FIG. 1.—PLAN OF GROUND.

in great abundance; and in the rear of the house are groups of deciduous and evergreen trees for screen, shelter, and ornament.

THE ROSE.

Now, as the Rose is the pre-eminent flower of all the world and holds supremacy everywhere, we will take hold of it as in the spring.

The blooming season of roses is again upon us, and every garden is gay with flowers. The more common old sorts of June roses have among them many superb varieties unsurpassed in perfection of form and color of flower, if, indeed, they are equaled by any of the Perpetuals or Teas. No Perpetual or Tea can vie in black, deep, velvety richness with the old African Belle, or present the rich, purple red of George the Fourth; and when we look at Cerisette, King Richard III, and many others of the old Junes, we cannot refrain from wishing them always with us; but it cannot be, or rather it is not now, and as we must have roses all the time, now let us be content with the splendor of such Perpetuals as General Jaqueminot, or the fulness of good old Baronne Provost, touching up the lines with a host more of shades, then resting the eye for a moment on Marshal Neil—for its brilliancy will not admit of long continued gazing at it—and be satisfied.

After all, while the old June roses are full of beauty,

yet possibly we have got about their equals when we come to look over; for in fact Prince Camille de Rohan will almost equal in intensity of rich blackness old Belle Africaine; and Madame Victor Verdier is quite equal to Cerisette; and then, if we manage them rightly, they give us more or less of blossoms all summer long, and even up to the frosts of winter.

Each planter must use his own judgment as to selection of kinds and classes, and so, also, as to arrangement of colors. We would not arrange colors at all, the more mixed the better — both colors and sorts, Teas, Bourbons, Noisettes, and Perpetuals; only, in large beds, we should try to place our largest and strongest growers at the back and in the center, keeping the dwarf sorts, such as Dupetit Thouars, Bourbon, or Lady Byron, Bengal, etc., in front.

TRAINING ROSES.

There is also great diversity of opinion as to the form the plants should assume. A good way is the pinching in the ends of the shoots as they grow, and thus compel the plant to throw out side branches, and so perfect the rounded form at the same time that it increases the number of flowers. To our eye, a bed kept in this way is much more attractive than when the plants are permitted to make long, straggling stems here and there.

Another practice, which is also effective, is to peg down the shoots as they grow, and so literally carpet the whole ground with roses. In beds mainly composed of large old plants of Perpetuals the practice is a good one. Especially if only the long canes of the last year are pegged, while

the older or two or more years' wood is all cut away; but in newly planted beds, or those of mixed sorts, we prefer pinching to form little bushes.

The ground for roses cannot be too deep, nor too rich, if only the enriching compost be well and thoroughly rotted. Roses budded give larger and better blooms than when grown on their own roots, but so few appear to recognize the necessity of cutting away the suckers which at times come from the stock, that it is advisable to plant only those grown on their own roots. If, however, the plants cannot be had otherwise than budded, then always plant so as to cover the point where the bud was inserted at least two inches in the ground, and then, if you wish to make the plant strike roots from itself, as soon as it is well established take a knife and make a few slight notches just at the point where it is budded, and from these notches, or wounds, new roots will soon strike, and when well grown the old root below can be cut away.

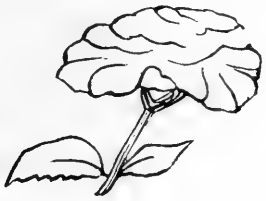
FORMS OF ROSES.

CUPPED.

In almost every catalogue descriptive of roses, as well as in the rose books, there are certain terms used to indicate the forms of flowers—terms which, though apparently plain, yet are often seemingly misunderstood. We copy here sketches of the forms of roses, with their appropriate terms.

Although the actual form of a flower varies with its growth—some roses being globular when partly blown, and cupped or expanded when fully developed—it should

always be understood that this point should be decided when the flower is at its best, or just before its "blase"



EXPANDED.

REFLEXED.

GLOBULAR.

HALF CUPPED.

development by sun and air, and that its true contour can be most distinctively ascertained from a profile view, the flower being held level with the eye, because then differences can be most distinctively perceived.

PLANTING ROSES.

Roses may be planted at any time in the growing season, because nearly all commercial rose growers on a large scale have them in pots from which they can be transferred to the ground at any time without risk. In transferring roses grown in the open ground, of course early Spring or Fall must be the time; but in our experience some of the best rose beds—filled with blooms up to Winter's frosts—that we ever saw, were turned into the ground from the pots in June.

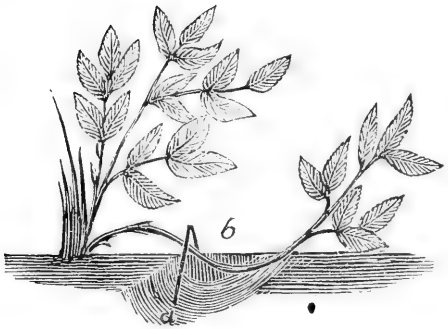
GOOD ROSES NAMED.

Among the many good roses, let us name the following, although there are many more perhaps equally good; indeed, we suppose the first reader will accuse us of leaving out one with which he is acquainted and that he thinks best of all; but as we can't print the whole list of many hundreds, we must risk our list, knowing that all in it are good.

Of Hybrid Perpetuals.—Mademoiselle Jennie Maux is a new one of bright rose color, large and of fine form. Beauty of Waltham is a bright rosy crimson, very large, and a free bloomer. Chas. Rouillard is of a bright rose color, large and full, and a free bloomer. Francis Arago is of a rich, velvety maroon. General Washington is a brilliant rosy carmine, almost scarlet, also a free bloomer. George Prince is of a dazzling red, tinged with rose. Mademoiselle Bertha Seveque is a pure white, with a shade or tint of rose color late in Autumn. Maurice Bernardine is a brilliant vermillion, blooming in clusters. President Lincoln is a dark red, with a crimson shade. Panache d'Orleans is a white and rose color striped.

Of Bourbons.—Appoline is a light pink; Blanche Lafitte is flesh color; Decandole is purplish red; Hermosa, rosy blush; Souvenir de Malmaison, clear, flesh color; Louis Margottin a satiny rose color.

In Teas and China and Bengal Roses one can hardly go amiss, for all are good, and each one you buy and flower will beget a desire for another.



LAYERING ROSES.

This is a very simple and easy way of propagating hardy roses; and the last of June is a good time to do it. Select a good strong shoot that has just done flowering, bend it over and see just where it will come when pegged down, then excavate a little trench on the line four inches deep; if the soil is clayey, scatter on the bottom of this trench an inch of sandy loam, then bend down the branch, fasten it with the peg *a* in sketch; then take a sharp knife and cut a notch on the upper side, *b*, or make a long slit, as you please; but if you choose the latter, insert between a bit of stick or a pebble stone; then bend up the shoot, as shown in sketch, and fill in with sandy soil, pressing it firm with your hand, but avoid treading for fear you will break the layer.

The dirt being filled in around it, trim off the half ripe wood and leaves, leaving about four to five of the strongest and about as many inches of wood above ground; finally, finish by scattering over and all around for a foot or more a mulch of either new mown grass, straw, moss, etc., to keep an even temperature and assist the root formation at

the point where you made the cut. The soil is warm, but if you let the sun on strong, and a dry time comes, the young roots that are naturally forced out of the plant will decay.

Herewith we show an illustration of how a rose can be trained to make a perfect rounded mass of bloom. Two to three inches of the main stem at the base have all the buds nibbed out, and any suckers from the roots below are destroyed. When the plant has made six inches of growth pinch the ends of the upright shoots and throw strength into the side branches. Continue this course as the plant grows, and with many varieties the illustration given will be overshadowed.

Ere we leave the roses let us say that where the Bourbons, Noisettes, Chinas, Teas, etc., are often winter killed if left out in the open ground; that if they are taken up ere there is two inches deep of frost in the earth, and heeled in to a common hot-bed frame, then covered with small brush and over that a covering of leaves, then boards put over so that water will not come in, they will find the roots of the plants in spring as good as new. When planting out be careful to keep the roots from the air, and cut the tops down to three or four inches from the crown of the roots. All varieties are the better for being cut down near the ground in early spring, then the leading shoots pinched back from time to time and the faded flowers picked off. Never refuse to give your friend a boquet of roses if you do not cut the fresh opening buds. This remark I acknowledge is a little out of my line, for I always cut the faded roses and drop them on the ground, while I put the buds and half blown ones into my friends hands.

Each year brings new varieties of roses, and while we cannot give the whole list, we will here give a short list of the latest and best new ones:

MAY TURNER—*English Verdier*.—A very hardy Hybred Perpetual rose of 1875; the foliage light green; flowers large, full and of good form, of a delicate salmon-rose, with the under surface of the petals of a deeper shade.

REINE DES MASSIFS—*Levet*.—A vigorous new Noisette rose of 1875. Flowers medium in size; fine salmon-yellow, sometimes coppery, magnificent; of a very free blooming habit; adapted for masses.

BERNARD VERLOT—*Eng. Verdier*.—A Hybrid Perpetual rose of 1875; the flowers large, full and finely formed, in the way of Lord Raglan, but more globular; poppy red, the center shaded with violet-purple; very hardy and well spoken of.

SHIRLEY HIBBERD—*Levet*.—A new Tea Rose of 1875 and quite new in color, being a handsome nankeen yellow. The flowers of medium size, full, of a flattish cup form, and very freely borne.

ANTOINE MOUTON—*Levet*.—A Hybrid Perpetual Rose of 1875; flowers very large and full, well formed, in the way of *Centifolia*; beautiful bright pink color, reverse of the petals silvery; plant vigorous; extra good.

MARIE GUILLOT—*Guillot Junior*.—A new Tea Rose of 1875, vigorous in its habit of growth, clothed with handsome foliage of good substance. Superb, nearly white flowers, just faintly tinged with a delicate shade of lemon.

MONSIEUR E. Y. TEAS—*Eng. Verdier*.—This Hybrid Perpetual Rose is a large rose, the color deep cerise red, bright and striking; of globular shape, full and well formed.

JEAN DUCHER—*Madame Ducher*.—A very vigorous growing new Tea Rose of 1875, with large, handsome and healthy foliage. It has proved to be a very free bloomer; the flowers are large, full and globular, salmon-yellow, the interior shaded with peach color.

PERLE DE LYON.—A magnificent rose, and a rival to the celebrated *Marechal Niel*. The flowers are large, of firm texture, and of a richer, deeper yellow than *M. Niel*, holding on well; of exquisite shape and borne freely on short shoots, as it is not of a running habit.

The following are new English varieties. All are Hybrid Perpetuals, except *Dutchess of Edinburgh*:

CLIMBING JULES MARGOTTIN—*Cranston*.—A sprot from *Jules Margottin*; flowers exactly similar to its parent; a free and vigorous climber, branching freely. A great acquisition as a free growing, perpetual climbing rose, of handsome form and color, growing from eight to ten feet in a season.

CRIMSON BEDDER—*Cranston*.—As a crimson bedding rose this variety is said to surpass every other rose for brilliancy of color and perpetual blooming; its habit of growth is moderate and the shoots short jointed, producing a mass of flowers all over the bed from June till November. Color, scarlet and crimson, very effective and lasting; foliage, clean, glossy, and free from mildew.

JOHN STUART MILL—*Turner*.—A fine flower of superb form; of a bright, clear red color, very rich and distinct; large globular and very full. An excellent exhibition

flower and useful for garden decoration; its constitution is good and its habit of flowering free.

MISS HASSARD—*Turner*.—In the way of *Baronness Rothschild* and much better; the flowers are large, very double, of a beautiful flesh pink, with petals of splendid substance and delightfully fragrant. It is a vigorous grower and a very desirable acquisition.

REV. J. B. M. CAMM—*Turner*.—Very deep rose-pink flowers, large and of a beautiful globular form and of superb quality; very sweet and constant. "In color, form, and exquisite fragrance all that can be desired."

ROYAL STANDARD—*Turner*.—Flowers large, of a soft, satiny-rose color, wonderfully full and exquisitely formed.

STAR OF WALTHAM—*Wm. Paul*.—Deep crimson, color very rich and effective; a magnificent flower of immense size, very double. Foliage very large, without being coarse, of a rich dark green color, forming a beautiful contrast with the flowers.

DUCHESS OF EDINBURGH—*Veitch*.—"This new Tea Rose will make the eyes of Rosarians sparkle with delight." Flowers, brilliant vermillion shaded with a rich velvety maroon, very large indeed, and full in the highest sense of the word. The foliage is handsome, of a rich dark green color, and finely serrated.

ROSES IN POTS FOR HOUSE CULTURE.

Nearly all of the classes called Tea, or Bengal, are adapted to the growing in pots, and kept in the ordinary sitting room of the family. Duchess de Brabant, Bella,

Bon Silene, Saffrano, and Isabella Sprunt rank among the best for this purpose. To make sure of having good blooms in winter, the plants should have been grown in pots during the summer previous, and not too much exposed to the sun or the pots exposed, but either plunged in the ground or wrapped with moss or grass and kept cool. If during winter the green aphis gets upon the plant, make some weak tobacco water, warm — not hot — and dip the plants into them, immediately thereafter into clean, soft, tepid water.

Hardy bulbs, such as Hyacinths, Tulips, Crocus, Lilies, etc., make up great beauty in a homestead, and they may be planted, and as they grow in spring, flowers of *Verbenas*, *Petunias*, *Sweet Alysum*, *Aster*, *Balsam* or *Lady's Slipper*, Carnation, Pinks of varieties, Clarkia, Sweet Pear, Heliotrope, Lantana, Lychnis, Crocus, Narcissus, Nasturtium, Phlox Drummondi, Portulacca, Salvia Tube roses and Zinnias may be worked in to make up the beds of floral beauty around the house.

And now we will say to our readers that the formation for beds for flowering summer plants, such as Geraniums, Petunias, Salvias, Herbaceous Pæonias, equal in beauty to Rhododendrons or Tree Pæonias, Phloxes, Chrysantheunms, Double Flowering Hollyhocks and Dahlias, mingling with them many of the hardy perennials as the Achillea, Aconitum, Aquilygea, Bocconia, Campanula of many colors; Iris of over seventeen varieties; Liatris, Sedums of more than twenty varieties and of great beauty in a rough, rocky bed; Spirea,s Statice, Tritoma, Veronicas, Vincas and Yuccas, that from these plants, oval beds

or diamond formed, or made from the shape of an oak or maple leaf. Studying the subject quietly, and then in preparing the bed make it four to six inches higher in the center, and planting the strongest growing plants and deepest colored flowers in the center, toning out to the border with low growing light colored flowers.

Again we will suggest that we make groups of Hardy Deciduous Flowering Shrubs. Suppose our border be oblong in form along the foot-path, or breaking the form of a carriage road, let us use varieties of Altheas for the center, surround them with varieties of Wiegelas; then again a belt of tree or upright Honeysuckles, then with Lilacs mingled with the shrubby Hydrangeas, then here and there a purple Magnolia and two or three varieties of the Japan Quince; now two or three of Syrengas, and then bound the whole with Spireas, Calycanthus and Deutzias.

So much for a group of Hardy Flowering Shrubs. Now suppose we take a long oval bed of twenty by forty feet, and count it a break from the front lawn, overlooked by the windows and porches in front of the house. Suppose we plant at each end of the oval a *Juniperus, prostrata. densata nana, repens, Squamata, Sabina alpina* and *Nipartita :* next back of them, or if you will, intermingled by one who knows of their growth, *Sabina Tamariscifolia, Sabina variagata, Chinensis oblonga pendula, recuma, densa, Reevesii Rigila, Thurifera, Virginiana Pendula ;* and next in back of the foregoing to fill up the center, fore and back ground—*Abies Excelsa Inverta, A. Excelsa Mucronata, A. Excelsa Pygmæa, A. canadensis, A. canadensis nana,*

A. canadensis microphylla, *A. Pumila Nigra*, *Pinus strabus nina*, *Thuia occidentalis pendula*, *Thuja Hoveyi*, *Thuja Siberica*, *Thuja compacata*, *Thuja Pygmæa*, *Pinus pumila*, *Pinus Mugho*, *Pinus Mugho Rotundata*, *Pinus Cembra*. There is the grouping and filling of the whole shade from the Euyonymus or Strawberry Tree, or Burning Bush as it is variously called. The Berberry, Cornus or Dogwood, Forsythia, High Bush Cranberry, Japan Quince, in varieties, mingled indiscriminately at distances of two to four feet apart in the bed, and yearly pruned back to keep a true yet graceful form.

In cemeteries or burial grounds, this grouping of low growing evergreens, shrubs, such as Deutzia Spirea, Weeping Norway Spruce, and other low growing evergreen shrubs, is far better than planting large growing trees upon small lots. The large growing trees in a cemetery, or a small house ground, should mainly be planted on the road lines.

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ADDENDA.

This portion of the Index is distinct from that on Fruits.

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