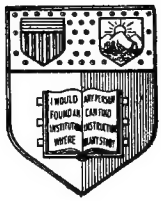

PREFACE.

One object we have in offering this little work to the Public is to simplify the growing of small fruits, and to tell what we have learned from twenty years' practice and observations. We desire to explain the *practical* part in as few plain English words as possible, and leave to others to write books made up of Latin and Greek and theoretical statements. Our purpose is to show the reader *how* and *what* to do to obtain *fruit* in the simplest way, and leave to others the dry talk about botanical terms—the formation of wood, leaves, &c, &c., and, too, we shall take up the space with the living subject, instead of going back to Pliny's time to find out why this kind or that is called by this name or that. Our observations have shown us that the American people want plain, practical statements and experience, that will show them *how* a thing is to be done, in the *fewest* words, and this we shall endeavor to do

It will be remembered that we have agreed to furnish a new and enlarged edition, as soon as possible, of some such work as we had in press at the time of the great fire in Rochester, in which that matter was destroyed We had intended, after deciding on publishing the FRUIT RECORDER, a monthly paper that we are now editing, at one dollar per year, to give up publishing a new edition of our SMALL FRUIT INSTRUCTOR, but the demand has been so great for such a work from us, and the inquiries coming in thicker and faster regarding it, that we have concluded to issue this work at the present time—to satisfy this demand—hoping at some future day, if our life be spared, to publsh a more complete and finished work. The reader will please remember that this has been hastily gotten up, and is not intended for the critic's eye. With many thanks to the kind friends who have complimented our former edition so highly, and hoping that this will be received with equal favor, and that it will be the means of inducing thousands to plant fruit who have not heretofore enjoyed the luxuries, and many homes made to rejoice with plenty where barrenness now prevails, and that we may all remember the Great Giver, who has so bountifully blessed us, is the earnest wish and ardent desire of the WRITER.

NOTICE.

All persons will notice that this work and its title is copyrighted. This is done to prevent parties who have been in the habit of getting up Catalogues, &c., copying our directions and instructions almost word for word, without giving the proper credit.

We have no objections to Editors copying from it, providing the proper credit is given.

Those who have sent us 10 cents, from seeing the advertisement of our old work, (the copies of which are all gone), will please notice that the price of this is 25 cents, and will oblige us by forwarding 15 cents additional.

We know there is more or less repetition in this work, on account of copying from the old INSTRUCTOR, but on account of the short time we have had to prepare it in, sickness in our family, and other urgent duties to attend to, with the publication of THE RECORDER on our hands, we could not revise it. The critic will please overlook such and all other mistakes.

SMALL FRUITS FOR THE FAMILY.

[FOR PURDY'S SMALL FRUIT INSTRUCTOR.]

Every family should have an abundant supply of strawberries, currants, raspberries, and blackberries. These four kinds will give loaded dishes on the table daily throughout the summer months. They will contribute to health, comfort and economy—save butchers' and grocers' bills, and make home pleasant. One-fourth of an acre, as well cultivated as a good field of corn and potatoes, will furnish all these luxuries. The same amount of substantial benefit cannot be had so cheaply in any other way.

Every one likes good fruit. It has been eaten by old and young for six thousand years, and there is no reason why it may not for six thousand more, if the world continues. The appetite for it is natural, healthful, and universal. Boys will often steal hard green apples rather than be deprived of fruit; and girls will make long walks through bushes and briars to get a few small, imperfect berries in their baskets, when they might be had incomparably better, and far more abundantly in the well cultivated garden row at home. The great difficulty is, the owners of gardens will not take the pains to procure the plants; or, after they have procured them, they are badly neglected. The farmer, too, often leaves the care of his garden the last thing. He should always take it in hand first of all, and then cultivate and hoe his corn and potatoes afterwards. The garden, for the amount of labor, pays much the best, and is soon through with. Always put it first on the list, and the farm crops afterwards.

Strawberries are as cheaply raised as potatoes after the plantation is made, if done right. Badly cultivated, they are costly. It is very common to get from a clean bed of the Wilson, cultivated on the hill system, at the rate of two hundred bushels per

acre. How much shall we need for the family? We want an average of two quarts on every breakfast and tea table, which would be nearly or about one bushel a week. By planting three or four sorts, we may have them for a month. We must, therefore, provide for four or five bushels. At one-half the amount per acre just indicated, one twentieth of an acre would do, or eight square rods. Prepare the ground at once, set out the plants, keep the rows clean and free from runners, and you cannot fail to be highly gratified with the result. Remember the condition—KEEP *the rows clean*—for if you allow them to become weedy, they will bear but little, and will soon run out; and you will probably come to the conclusion that strawberries "won't pay," and are "a humbug." You would have the same opinion of raising corn if you planted it without plowing the ground, or allowed the weeds and grass to overtop the corn. Strawberries are as easy to hoe as corn.

Currants follow strawberries. They come at a time when every farmer has plenty of cream to add to them. The Red Dutch, the White Dutch, the Cherry or Versailles, and the White Grape, furnish an excellent supply. Take the two last named, mixed together, the one cream white, and the other deep crimson, and both nearly as large as medium grapes, and they present a rich and attractive appearance, fit for the table of a sovereign—as every American voter is. Currants scarcely ever fail—but to be really fine they must be properly pruned, and kept well cultivated. Neglect them, allow them to become stunted and full of brush, and the finest will be small and sour; but thin out judiciously the old wood and needless shoots, and by good cultivation put life and vigor into the bushes, and they will bear trusses of large berries worth seeing. As a general rule, neglected bushes growing in grass, bear currants about one-fifth the size of those properly cared for. It is not uncommon to find Cherry and Versailles currants five-eighths of an inch in diameter, and White Grape currants half an inch, when well cultivated.

Raspberries ripen about midsummer in the north. It is wholly needless to say a word in favor of their excellence; the only point is to induce landowners to plant and take care of them—the latter the most difficult of all. Not that there is any particular difficulty in their management, but they are too often entirely neglected. They are as easy to hoe as cabbages, and not harder to prune than to whittle. A little practical attention will teach any one how to do it. Any one who has seen such a fruit as the Mammoth Cluster, yielding berries under good culture three-fourths of an inch average diameter, and at the rate of one hundred good bushels to the acre, ought to be easily persuaded to set out two or three dozen bushes, and to give them some attention. Mixed in a dish with the Golden Thornless, which are about the same size, they form a fine ornament to the table.

Last of all, during the latter part of summer, come the Blackberries. Within a few years, greatly improved varieties have come into cultivation. The Kittatinny is becoming a general favorite at the east and west, its extreme hardiness giving it an important advantage over most other and tenderer varieties. The most common mistake in the management of blackberry bushes, is, in not pruning them right—or, rather, they are not pruned at all. The shoots grow six or eight feet in one season, bend partly over, obstruct the passage half a rod wide, and catch with their numerous spines every person that comes near them. Allowed to run in this way, they do not bear well. The right way is to pinch them in while growing so as to prevent their becoming more than three or four feet high. When they attain this height, nip off with the fingers the green tips of each stem; and after they throw outside shoots a foot or so, pinch them off too. Keep pinching as often as necessary, so as to keep them within bounds. Thus treated, they will not require staking, they will be hardier, will bear more abundantly, and will not spread themselves beyond discreet bounds,—four important advantages.

Now, who will hesitate to devote a fourth or an eighth of an acre to small fruits for his family? The labor and attention to keep them all in good order, will be small, if begun early. If left till the weeds have full possession, the work will be increased at least twenty fold, and the plants will be nearly ruined besides. Do the work well and early, and it will require but little labor and expense. A supply of these delicious luxuries through the whole summer, will have an excellent effect in making home attractive to the young people, and thus tend to keep them away from grog shops, midnight parties and carousals. It will have a humanizing influence on all the members of the family, and be worth more than any one eloquent sermon on the amenities and affections of civilized life. Do not omit making provision for a bountiful supply.

J. J. THOMAS.

THE HOMES OF THE FARMER.

The following remarks made by the author at the "Farmers' Club," Rochester, N. Y., are copied from *The American Farmer:*

At this stage of the proceedings the President stated that A. M. Purdy, a well-known fruit grower of Palmyra, was present and ready to respond to the invitation sent him to address the Club. He was then introduced, and spoke at great length on the subject of farming and horticultural operations, to the evident satisfaction of the assemblage. Did our space permit, the address would be given in full, but as our restricted limits forbid this, we must content ourselves with a condensed notice and such extracts as the space allotted to this department will allow.

He commenced by saying that it was not his purpose to discuss the subject of growing fruits or carrying them to market, nor to assume to determine what the profits of the business might be. He then proceeded:— "As I understand this matter, I am now before a Farmers' Club, made up largely of farmers, or those who are interested in farming. I recognize the fact that this beautiful city of Rochester is the center of as fine a farming country as can be found in the State, or in the United States. I recognize the fact that there is no section of the country where the farmers are more successful, or have been more successful than in this and adjoining counties, and take it for granted, that the men who are before me to-day are representative men of this class. I take it for granted that the men who are before me are practical farmers, and to such I desire to address myself. The first point that I wish to notice is how to make the farmer's life pleasant, as well as profitable—so that the sons and daughters of such will form a love and attachment for the farm and country life, so that no allurements can draw them away."

The propensity of farmers' sons to leave the farm and try other roads to fortune was next adverted to, and the consequent disinclination of many farmers to give their sons such an education as will make success in other callings easy to them. This was regarded as an unnecessary restriction as well as an impolitic one. Besides, farming life was not opposed to the cultivation of the intellect, but rather invited to it, if properly pursued. The professional and mercantile departments are overstocked now, and those who are successful in them are few, compared with the vast numbers who fail. Make home life—farm life—attractive, as it may be, and the desire to leave it will be greatly diminished. To accomplish this, a picture of farm life and its surroundings as they should and ought to be, was thus sketched:—"Suppose we take our carriage and ride through the country. Ah! do you see this neat farm we are passing, and the residence we are approaching! Do you see those beautiful well-proportioned maples scattered here and there? Do you see those clumps of evergreens, to act as wind breaks, yet arranged with such artistic taste as to show off the house to the best advantage? Do you see that gracefully drooping weeping willow at the rear of the house, near the sink's outlet? Mark that beautifully arranged flower garden on one side of the house, in full view of the sitting room window, and yet showing off beautifully from the highway. Its high colored flowers, and its shrubbery, making a lovely contrast to the well kept lawn in front. See the majestic oak, the symmetrical Norway spruce, the silver-leaf maple, blending their foliage together. See that neatly arranged trellis in the rear with the grape vine trained properly over it. Mark the latticed arbors covered with the fragrant rose, the honeysuckle, and the woodbine. How straight are the rows, and well trimmed and kept those pear, plum, and cherry trees in the fruit garden! See the well kept fruit and vegetable garden, sufficiently stocked to supply the table with an abundance of the choicest vegetables and most delicious fruits. The house kept well painted, with blinds, and with verandahs, the walks leading to it well kept, all in fact, show thrift, refinement, and contentment. Enter the house, and the same neatness pervades all. The table filled with entertaining books and papers. The wife and the mother with smiling face, endeavoring by kind words and winning ways to make home pleasant and happy. The table supplied with the best fruits and vegetables the garden can grow, and when seated around the same, the family enjoying a feast of conversation and reason, as well of bread and meats. The children encouraged by the parents to plant trees, to set out orchards, to grow live stock, or in fact anything that will make them more strongly attached to home and a farmer's life. One son may have his mind run largely on growing fruits, another on

live stock, another on implements. Not a discouraging word comes from the father, but all that he says is encouragement, and what is the consequence? Those sons become attached to country life, and have no desire to change their condition. Good breeding, good manners, are taught in that home, so that when the sons and the daughters associate in company they do not feel awkward and out of their place. Books are read, papers are perused in long winter evenings, and above all, that best of books, the Bible, finds the first place in that family and in the heart of each of its members. They are a family of Christians, and Christianity brings contentment and peace in every home circle."

A picture, the reverse of this in every particular, was drawn, but the observation and experience of each will readily suggest the lineaments of it. The address then proceeds:—"Let me reiterate, then, what I would advise all farmers to do. Encourage your sons into a more scientific system of farming. Countenance them, by every means in your power, to form higher and more ennobling views of farming. Don't compel your boys to work from week in and week out, from sunrise to sundown, at hard drudgery. Have your fruit orchards and your fruit gardens, your tool house, and your live stock, plenty of good reading, and good things to eat; make an associate of your boys; bend to them occasionally, and give up to some of their desires, instead of riding rough-shod over them."

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"There is nothing, my friends, that will make the attachments for home and the farm more endearing and binding than to have it surrounded with plenty of fruit—and why is it that so few farmers have such a poor assortment—especially of what are termed the small fruits? Let me just give you the answers that I have heard time after time when I put this question to the farmer:—"We have n't the time to attend to them, and besides it is too puttering work." Now, I admit, that as a class, the farmers are *not* 'lazy,' (I don't refer to that class of farmers who have drift sand that is so poor that it will not grow white beans, and that the more of it you have the poorer you are.) I believe that as a class they overwork. The great trouble with the farming community is, they are constantly grasping for more land. They are working for more property, and by so doing making slaves of themselves and their family. There is no necessity for their doing so. They should look to the comforts and enjoyment of life more. They should take a certain portion of their time to grow these luxuries, and after they had had one year's experience in having their table supplied with these most delicious fruits they could not be prevailed upon to go without."

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"What farmer is there but can find near his house a piece of ground of one, two, or three acres, on which he would like to plant potatoes or beans. These things are generally planted out in rows three to three and a half feet apart. Now, suppose on one side of this plot of ground, and nearest the house, he gets out a row or two of standard and dwarf pears, a few cherry, plum, and peach trees, (we, of course, calculate that he has an apple orchard.) These trees are set in rows eighteen, twenty-four and thirty feet apart, as the different kinds may require. A furrow is plowed these distances, and the trees set in the same, the proper distance apart. Now plow out furrows between them one foot apart, and in them set your gooseberries, currants, and blackberries, say three feet apart in the row, and also in the rows in which the trees are planted. Also plow out furrows and set strawberry plants, say three or four rows, simply placing the plants as fast as a boy can drop them against the land side of the furrow, one foot apart, and drawing in dirt with one hand against them. Now you have them set out, just let your boys, when they cultivate your potatoes, pass through the trees and small fruits at the same time, and when you have run them through thus, you will scarcely miss the labor you bestow on them."

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"Again, I hear farmers say it is too much trouble to keep raspberries and blackberries within bounds, and as for staking them, it is impossible. Now, it is the simplest thing in the world. Just let them grow the first season without any trimming, (although it is better to nip off the tip when they get one to two feet high,) and the next winter pass over them and cut them back at least one half of the growth. The next season you have your corn knife sharp, and when they get three to four feet in height, pass over the rows and cut them back to two feet. These will soon form a mass of lateral branches, which can be cut back to within two feet of the main stalk, cut off the suckers close to the ground through the winter, as you may have the time, that grow out between the rows, although it is better to do it through the summer

season when they are growing—hoeing them off just as you would weeds. If you thus prune them back, no stakes will be required, and if very heavily mulched right along in the rows, with coarse litter of any kind through the winter season, no weeds will grow to speak of, directly in the row, so that if they are merely cultivated each season twice or three times, when you are cultivating out the potatoes or beans near them, you can rely on a beautiful crop."

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"As for the kinds to plant, I cannot at this time name them or their peculiarities, but would simply give you a short list that has proved productive and hardy *everywhere;* and in giving this list I shall leave out many varieties that succeed well here or there, or in this soil or that, or with this kind of cultivation or that, merely giving you the names of a few old standard sorts that will bear well even with neglect. Of Strawberries, for early, the old Early Scarlet, or Early Washington; medium, Wilson's Albany; late, Green Prolific, or in *rich, heavy* soil, the Triomphe de Gand. Of Raspberies, of the black sorts, Doolittle and Mammoth Cluster, or Seneca Black Cap; and of the red sorts, Kirtland and Philadelphia. Of Blackberries, Dorchester, for early; Kittatinny, for medium; and Lawton, for late. Currants—Red Dutch, or if you want larger and finer sorts, the Cherry, White Grape, or La Versailles. Of Gooseberries, Houghton Seedling. Grapes, Hartford Prolific, Concord and Isabella, or Diana—the last two for keeping fresh in the winter."

The address closed with an exhortation to farmers to use all practical means to make their homes attractive: to make neighborhoods social by the exercise of kindly feelings, and to pay more regard than they have done to the selection of persons to represent them in the halls of legislation, that the tendency to extravagance and corruption may be checked, and public morals improved.

ADVICE TO NEW BEGINNERS.

We are in receipt of a great number of letters making enquiries as to Small Fruit growing—how to be successful, &c. These are hard questions for us to answer, for all localities and all persons. Many fruits that are profitable in one locality are not in another, while varieties that will succeed and prove profitable in the hands of one person, with his manner of high culture, &c., will prove a failure in the hands of his more careless and slovenly neighbor. Our first advice is: Procure land as close to a town as possible. If you intend to go into fruit largely, you must calculate to locate where plenty of pickers are to be had. We would prefer to pay two hundred dollars per acre for land, for this purpose, that lay within a mile of town, than one hundred dollars per acre if over a mile, or fifty dollars per acre if over two miles. Let any one calculate the difference in interest on the cost of such land, and compute it with the disadvantages one works under with it away from all the conveniencies that surround the first named locality, and they will see the force and importance of our statement. Help *must* be convenient and plenty if you would be successful. Manure should be as close by as possible. The market, express office, and railroad or steamboat station, near by; all of these have their importance, that cannot be fully appreciated and valued until tried.

The best soil for growing Small Fruits, is of a light, sandy or loamy nature, one that is easily worked.

The next thing after securing your land is to go around among fruit growers in that locality, and learn from them what varieties succeed best with them. Read different works on the subject, and last, but most important of all, visit the grounds of some successful fruit growers, and "have your eyes and ears open." A few hours on such grounds will be of more practical value than reading all the works on Small Fruit yet published.

There are certain *tried* sorts that have proved profitable and a success wherever grown. These we will endeavor to point out in our description of different sorts.

Another important thing to be remembered is, to set an *assortment* of Small Fruits,—strawberries, raspberries, blackberries, currants, gooseberries, and grapes, and of these early, medium and late sorts. By so doing, the grower can be more independent of the seller. He is more certain of making his business *pay*, for if one sort fails, another will not. The great trouble with many growers is that they will set out nearly

all their ground to *one* variety, and if this fails, their main dependence is gone; while if they had others to fall back on, they would have come out right.

Don't try experiments too largely, especially if your means are small, and instead of building air castles, go right to work with a will and build up a permanent business. Don't let a little drawback discourage you,—such as low prices some seasons, or a late spring frost or hard winter. Remember, these things *will* drive many out of the business, and that those who keep right along, year after year, will have the benefit of the seasons of high prices.

We know that there are years when the winter preceding and the season following, are *universally* favorable to the full fruiting of *all* kinds of fruits, and that in such seasons the amount marketed is so large as to cause prices to drop to a low figure; but let it be remembered that such seasons are *exceptions* and *not* the rule, and that most seasons one locality is favored and another not, and other times *vice versa.* In our long experience in growing fruits, we have found that our crops of Small Fruits *net* us just about the same every year; for when the crop is large prices are low, and when small higher. We have, however, some years had large, full crops, when the crop in other localities would be light, and in such seasons our profits would be enormous. The summer of 1865, we believe, we sold over four hundred bushels of strawberries, that *averaged*, in the Chicago market, $10 per bushel. This was owing to the crops being cut short in other localities.

We propose, in order to give a practical illustration how to make high-priced land *pay* near a city or village, to show in a few lines here,

WHAT WE WOULD DO WITH TEN ACRES.

Our first effort would be to have it thoroughly enriched, plowed well and deep, following with a subsoil plow and loosening up the ground to a depth of twenty inches We should then set the whole to apples, pears and plums, except about two acres for grapes, that should not be shaded. [For directions how to lay out and plant, see plan on another page.] The pears and plums set eighteen feet apart each way, and apples thirty feet, with peach trees half way between the apple trees each way, these being out of the way by the time the apples get into full bearing. Two acres we should set to grapes of different sorts, twelve feet each way. In the rows of grapes plant out tomatoes or early potatoes; between the grape rows garden truck of different sorts can be planted for two years, or strawberries,—the latter in rows two feet apart, and the runners kept off. Four acres set to raspberries, three feet in the row and rows six feet apart; two acres to blackberries and two acres to currants and gooseberries, all three feet apart in the row and rows six feet apart. Thus planted, it brings the trees directly in the rows of blackberries, raspberries, &c Between these raspberries, &c., in the rows, some kind of garden truck can be planted one year, while half way between one strawberry row can be set out, allowing it to run and form a matted row, giving them the attention described for such rows in this pamphlet, each year after fruiting. These directions are intended for localities where more land can be had at reasonable rates, so that when the trees get so large as to shade the ground, or the raspberries, &c., full grown so as to damage the strawberries, new plantations can be formed on adjoining land. If the land is very high priced, and near some large market where truck and Small Fruits pay well, we should not set but an acre or so of fruit trees, devoting the balance to Small Fruit and truck, *closely* planted, *closely* pruned, and *well* cared for.

PROFITS OF SMALL FRUITS.

When properly attended to, and care taken to raise *first-class* fruit and send it into market in *fine* order, (which is *required* of any horticultural or agricultural products, to make them *profitable,*) there is no branch of business that *pays* better than the growing of *Small Fruits* for market, and as to overstocking the market with such, it cannot be done. More *profits* can be realized from ten acres of Small Fruits, than from any one hundred acre farm in the country, and that too, with less hard labor.

We are aware, however, that there have been seasons when ordinary fruit has sold low in certain markets. Yet in these very markets and seasons, *first-class* fruit has *always* sold at high and most profitable rates,—thus showing the great importance of *thorough* culture. By "thorough culture," we mean *deep, subsoil* plowing, *liberal* manuring, *clean* and *oft-repeated* cultivation, and *plenty* of mulching, and last, but not least, with the strawberry, growing them in hills—that is, keeping off all runners. Add to this the great importance of growing the *best* sorts, even if the first cost is considerable higher, and the grower may rely on a *ready* market, at the *highest* rates, for *all he can raise.*

SECRETS IN MAKING SMALL FRUITS PROFITABLE.

IF SECRETS THEY MAY BE CALLED.

First—Don't go into the business thinking you can play up "gentleman," (we mean of the lazy sort), paying but little attention to or having but little love for the business. You must have a taste for it—yes, *love* it—so that you will be found *working* yourselves. Show your help that you know what work is, and how much a man can or ought to do, by the example you set him. Don't get your ideas up too high and build too many castles. "Cut the garment according to the cloth." Just as soon as you sit down and figure up what an acre would come to at the high price and the largest yields you have seen given, you are getting above your business. Not long since a young man entered our office who was going into the fruit-growing business, and he wanted every sort we had. Our inquiry was, "Why do you set such a large assortment?" "Oh, I shall make just as much reliance on selling the plants as the fruit, and shall want a full assortment to supply the demand." "But how do you know that you can sell plants so easily?" "Why I can't see why I don't stand as good a chance as you, for I see you are sending off plants by the wagon load." "Hold a moment, friend, and let us prick that bubble. Some fourteen or fifteen years ago we commenced selling plants. We advertised and paid out large sums of money, but for the first two or three years got but few orders. The people were shy of us; we were strangers, and how did they know but what we were at an old trick that was, and is to-day, quite common, to sell any kind called for, and if we did not have it, put up something else. For years, we say, we worked and advertised, until finally our large shipments of fruit and their unmixed character commenced to tell in our favor. People visited our grounds, scrutinized and inspected our plants closely and reported the result, and these reports gave our plants a character and reputation, and then, by advertising, we soon worked into a business that paid us back for our long years of hard labor and expensive advertising. No, we would advise you to set your grounds out mainly to five or six varieties of strawberries—*standard* sorts—that are raised in all parts of the country, and an equal proportion of other reliable fruits. Soon your shipments will commence, your business will first attract attention near home. Your neighbors will see the success you are having and they will buy plants of you. Gradually your reputation will widen and extend, until by patience and perseverance, and a determination to establish a character for honesty and uprightness, by selling no plant for another sort and keeping your plantations pure and unmixed, you will soon work into the plant trade, and then it will be time for you to keep an assortment that will supply all demands."

Such was our advice to him, and such it is to all who have an idea that they will go right into a flourishing business in selling plants. We admit that part of our success for the past few years has been in selling plants, as well as fruit; and we say to all, NOW, first be sure and SET PURE AND UNMIXED PLANTS, and when you trim your grapes, currants and gooseberries, save the cuttings and set them out, and as your neighbors and others see your fruits they will want some of them, and learning that you have plants for sale, will buy of you, and gradually, as you learn the secret of selling, advertising judiciously, &c., &c., your business will increase. Another point, when you find a fruit is of no value—no matter what it has cost you—discard it, and don't attempt to sell it, for such a course will surely work against you in the end.

The second point is—DON'T PLANT TOO MUCH AT FIRST, but what ground you do plant, *make it count*. If your means are small and you have but little land, sow among blackberries, raspberries, &c., plant out early potatoes, tomatoes, cabbages, &c.

Third—DON'T EXPERIMENT TOO LARGELY with new high-priced sorts; but leave that for those who have the money to lose.

Fourth—PLANT PURE UNMIXED SORTS. No person, who has not had the experience, can imagine the loss that will accrue from planting mixed varieties; hence, it is of great importance if such have to buy their plants, to get them of parties who not only have a reputation at stake, but who have had such experience with small fruits that they can tell one sort from another at a glance. We know of a prominent nurseryman, who is known to be a reliable man and who stands very high in the horticultural world, that has sold a large quantity of "Wilson's Albany" in with his other stock. These plants were obtained from two or three parties whom he believed to be and are

honest men. We have seen these plants in fruit that were from these same beds, and found fully *two-thirds* of them *spurious, worthless sorts.* Now these men had bought them from another party in good faith *for Wilsons,* and not being judges of that variety, sold the fruit and plants for such. We have seen large, fine, family beds, that had been kept in splendid order, and which were purchased for some good bearing sort, prove almost an entire failure; and again, field plantations hardly pay expense of setting and cultivation on account of such a large proportion of spurious, worthless sorts being among them. To illustrate this point more fully: We did not have, when we came here from the West two years ago last Spring, enough Wilsons to set out what we desired to, and therefore purchased 20,000 plants of that sort, which were sold to us for *the Wilson* by a party whom we knew to be an honest, upright man, (he having obtained them, as he informed us, from a party in an adjoining town, Macedon.) As soon as we saw the little fruit on them, that we allowed to remain the first season, we discovered that fully one-half to two-thirds were spurious, worthless sorts. The consequence was we averaged the next year about six cents per quart for them, and obtained about forty bushels to the acre; while from adjoining beds of the pure Wilson, we got fully at the rate of 200 bushels to the acre, and averaged twelve cents per quart —the first bringing us about $80 per acre, the last *eight hundred dollars per acre.* The spurious sorts in the first named were such prodigious runners, that they nearly choked out and destroyed the Wilsons—hence, the small crop and price, and the necessity of plowing them up, which we did do immediately after fruiting. But this would have been but a small loss and disappointment in comparison to increasing plants and setting larger plantations from it, which would have been done by those who were not able to detect the difference, or even if it had not have been done and they could see the difference, all expectation of obtaining a large increase of plants from them to sell or set, would have been blasted.

Now, our expenses of cultivation on both lots were *the same,* cost of marketing, per bushel, *the same,* and cost of picking *more.* In fact it was a tedious job to get them picked at any price. We know of plantations of pure and mixed Triomph de Gands that turned out in the same way. Can any thing be plainer than this to show the *great importance* of having each kind of fruit by itself? Do potatoes, apples, or any kind of fruit or vegetables sell as well that are mixed up? Yet hundreds of persons will, when they are setting out strawberries, look around to see where they can be got *cheap;* and no matter whether the party has any reputation at stake, there is their place, they think, to buy. Probably a difference of $10 to $20 per acre on cost of plants would prove as bitter as the experience we had two seasons ago. While in New York city, in the *early* part of the strawberry season the past two Springs, we could not help but notice the strawberries that were coming in from Norfolk, Delaware and South Jersey. A great share of those we saw, were badly mixed, and we were informed by a reliable fruit commission firm that such was the case with most they received. We noticed quart boxes of unmixed selling for fifty cents per quart, while those that were mixed sold for twenty to thirty cents. And not only is care required in setting strawberries, but also raspberries, currants, grapes, blackberries, &c. There are so many irresponsible parties peddling and advertising plants, that we do not wonder at receiving so many complaints as we do. We notice one party in Western New York who offers Orange Quince and Cherry and White Grape currants *low.* We wondered at this, for we knew how scarce genuine stock of these sorts were, and that we could not purchase them by the thousand at the rates he was offering by the hundred, and on inquiry we learned that he had purchased the largest share of his cuttings of an irresponsible person, who had cut them from bushes throughout that town. Now we simply know that there are scarcely any White Grape and Cherry currants grown there, but that all, or nearly all, are the Red Dutch, and also that door yards have a large number of the old Angers Quince stock, sprouted up from the stock on which dwarf pears had grown and from which a large share of these cuttings were probably taken, as but few persons can tell the difference between Angers or Orange Quince. We therefore advise all persons to be *certain* the plants they buy are *pure,* and to purchase them of some well known grower, who has had experience. If they do not think our advice of any importance, they will have a chance in learning from experience. Let them set a few of the two dollar per thousand "Wilson's Albany" and twelve dollar per hundred "Orange Quince," and other stock that is offered by the mushroom, irresponsible dealers at proportional low rates, and they will see the force of our advice. We have been *so* badly taken in ourselves, and lost so much in the past, that we know whereof we speak.

MARKETING FRUITS.

"A little practice is the best teacher." It is almost impossible to give minute instructions on this subject. A visit to the market and dealer you intend to ship to will give you a better insight into the details of shipping, selling, &c., than can be learned from all the books in the land. The question of supply and demand must be looked into. If the home market is small and your plantation large, you must acquaint yourself with a large market to ship to. If the large market is likely to be supplied with a large quantity of inferior "last run" fruit from a point further South, endeavor to make arrangements to ship your fruit to a market further North.

It takes but a small town to use the fruit from three to five acres, especially if an *assortment* that will keep up a perfect succession is judiciously planted.

Our immense country, dotted so thickly with towns and cities, and these linked together with such a vast net-work of railroads and water communication, with the rapidly increasing population, must keep up an increasing and unlimited demand for Small Fruits. Take, for instance, the great city of New York and its suburbs, with its fifteen hundred thousand consumers, and allow them one quart per day to ten persons, and the consumption amounts to *five thousand bushels per day;* add to this the immense amount that is re-shipped to inland towns, with the enormous quantities that are used in Baltimore, Philadelphia, Boston, &c., and some idea can be formed of the amount used, and what becomes of the crop raised throughout the country. The same is true of Cincinnati, St. Louis, Cleveland, Toledo, Detroit, Chicago, Milwaukee, &c. They all receive their supply from the extreme South first, and then from points further North, and last, from extreme Northern localities. As an illustration, we have known of fruit stands in Chicago being supplied daily with Strawberries for twelve weeks.

If these markets get over-stocked at any time, the wide-awake commission merchant (if he understands his business and has had sufficient experience,) will have acquaintances in either Northern or Southern towns, where the season is passed or not commenced, that he can ship his surplus to, or he will notify his consignors of the market, so that they can change the course of their shipments. It is most general, however, the best course to ship right along to the same market, as these "gluts" do not last but a day or so, as many who are shipping from long distances, or sending in an inferior class of fruit that hardly pay for shipping and selling expenses, but which have a tendency to run down prices, even on good fruit, stop their shipments and dispose of their fruit nearer home, the result being that the price goes up again. We remember one season we were shipping from South Bend to Chicago, from one hundred and fifty to two hundred bushels per day, and getting good paying prices. All at once the price dropped down extremely low, and telegrams came to us thick and fast to stop shipping, as the market was glutted, and berries were being thrown into the river. A letter received at the same time from our commission merchants, informed us that heavy consignments were being received from Pittsburgh, Cleveland, and other points. We at once saw what it all meant. These distant parties had heard of the high prices that were ruling in Chicago, and had changed the course of the bulk of their shipments to that point. We consulted with our neighboring growers, and notwithstanding we could have turned the course of our shipments to other points for a day or two, and realized fair prices, we concluded our best course was to ship to Chicago *all the berries we could for a day or two.* The result was, the market was over-run, and those berries from long distances hardly sold for enough to pay express charges; while ours, going in fresh, sold for just about enough to pay all expenses. The result was, berries stopped coming from these distant points, and prices advanced again to good paying rates for the rest of the season. Now, what is the lesson to be derived from this one circumstance? Simply this: Had these parties commenced light shipments for a day or two in advance, and notified the commission houses in Chicago what they might expect from them, it would have given them an opportunity to inform parties in smaller towns what they could expect from them, and thus by due notice and preparation, the bulk of the shipments could have been re-shipped to other points, and the market rates but little, if any, changed; and again, had we stopped our regular daily shipments to our regular consignors, it might have thrown them out of their regular supply, and those who depended on them for their retail supply would have looked elsewhere, and perhaps, changed their place of buying. We formerly shipped in what is called the Cincinnati case, made of three to six drawers, and fully described elsewhere in this work. These were shipped to Chicago, Toledo, Detroit and Milwaukee, from eighty to one hundred

and fifty miles, and sold out and cases returned. For near markets we used the small square quart box. made by ourselves, and also described herein. These cases and boxes, however, have "seen their day," and have been supplanted by the later improvements in quart and pint boxes. They are light and durable, and so cheap, that if lost, they can be replaced with but little expense. For near markets, strong slat cases can be made to hold thirty-five, forty-five or sixty baskets. For distant markets, where the Express Company charge for returning the empty cases, they can be shipped in a cheap slat case, to hold forty-five to sixty quarts, that will not cost over twenty to thirty cents. These need not be returned, except what is necessary to hold the baskets when "nested" together, and if the grower has a good supply of boxes, and is in no hurry to have the empty boxes returned, he can order them returned as freight, if the Express Company charge too much for returning them.

These boxes are a great improvement on the old style of cases, for two or three reasons. 1st. Fruit carries better in them, not getting so bruised and mashed. 2d. Air has free passage among them, so that they can be shipped five hundred to a thousand miles without spoiling. 3d. It appears to so much better advantage on the fruit stands in those neat, clean looking baskets and boxes, that many are induced to buy who would not if they were rusty, dirty looking drawers and boxes.

And, too, these boxes can be used a number of times by having them nested together and returned as described, all the expense being the loss of the cheap case they are shipped in. The further the fruit is to be shipped, the more baskets will be required to market the crop, as it takes longer to go and come. It is best to always be supplied with plenty of boxes, for if they are not all used they will come right the next season. An acre of Strawberries that is in good condition, will require at least one thousand quart boxes, where the fruit is to be sold near by, but if it is to be shipped one hundred to two hundred miles away, at least two thousand should be procured for each acre. Keep the fruit picked over every day, if possible, so that it will not get overripe. Still, we have made it a practice in our large plantation to pick half of the plantation each day. If the fruit is to be shipped a long distance, it is better to pick it every day as fast as it ripens or colors, for if left on the vine after coloring long, the surface is more apt to be bruised by marketing.

It is the practice with many to have two sets of boxes in every picking case, putting the largest and finest fruit in one, and the smaller and poorer in the other. The smaller fruit will sell for enough to pay the expenses of the plantation, while the larger, if sent to some of the larger cities, where they appreciate first-class fruit, and are willing to pay accordingly, will sell for as much or more than *all* the fruit, large and small, superior and inferior, picked and marketed all together.

If possible, notify your agent a day in advance, of the amount he may expect from you, and if a storm should come up that will prevent your picking, telegraph him, so that he will not engage berries on the strength of your notice the day previous.

Keep up a regular rotation of as many kinds of fruit as you can throughout the entire season, if you desire to keep up a good reputation with your commission merchant, for they will take pains to do the best by those who supply them the most regularly for the longest time. Ship clean, evenly ripened fruit, in clean, neat looking baskets or boxes, with your name on each box and case, and no trouble need be apprehended but what your fruit will sell for *paying* prices, even if the market is largely supplied.

Send each day by mail invoice of shipment, and require prompt returns and reports from the consignor.

Do not pick the fruit when wet by dew or rain, unless it is positively necessary, from frequent showers, to prevent too many ripening up. Take from the field to market or cars in a spring wagon, and have them handled carefully and kept "right side up."

GATHERING THE FRUIT.

We usually employ women, and large boys and girls—the former, however, preferred. Each takes a row, and picks it clean before being allowed to take another. One good, quick person takes charge of them, keeping each on their row, and passing occasionally behind them to see if they are picking them clean and properly. One person takes charge of the boxes as they are brought in, watching to see if stems, green fruit and leaves are among the berries, and if so, the picker is paid less for picking that case. Another person has an alphabetical tally book, with the names of all pickers alphabetically arranged, and as each picker comes in, their name is called out by the receiver, and repeated by the book-keeper, so that there will be no mistake made

Another method is to have tickets to hand out to the pickers each time they bring in a case of berries, these tickets being presented on pay day. We usually pay from one to two cents per quart for gathering, owing of course to the picking. About one and a half cents for strawberries, and two cents for raspberries and blackberries, is a fair average price.

WAGONS FOR DRAWING FRUIT.

Spring wagons should always be used, for the jolting of a springless wagon will do more harm to fruit going one mile than riding on the cars two hundred miles. The best arrangement and the easiest about loading fruit on is to have a three-spring wagon, two behind and one before, and instead of a regular wagon box or "bed," simply have bottom boards, strongly cleated together and the same width as the box. On the outer edge nail firmly two narrow strips, that go above the top of plank but one inch. These prevent the crates from sliding off, and being so low, make it easy to load on from the side as well as the hind end. Those who cannot afford a spring wagon, can easily arrange their one or two horse "lumber" wagon, by simply having two *strong* "half springs" made that will fit in between the stakes on the "bolsters." On these springs have the bottom boards arranged. We used such a wagon as that at the West and carried our fruit nicely on it. Care should be exercised as to

SHIPPING FRUIT THAT PERISHES QUICKLY.

If trains that pass your station certain times in the day reach the city after the early morning market hours are over, it is better to keep the fruit standing in your cool sheds until they can be shipped on a train that will go in at the right time; as the close, hot streets of the large cities are bad places for fruit, as it spoils so quickly. It is better, too, to ship fruit in baskets than in boxes, as they are not so liable to heat and spoil. A quart basket with slat bottom, for strawberries, and a pint basket of same kind for raspberries and blackberries. The latter should always be shipped to distant markets in pint baskets, for having no stems or hulls, like strawberries, they press closer together, and are more likely to be heated or mouldy if in a quart basket. Another object in shipping in baskets is, that they have slanting sides and fit closely together only at top, (we refer to *square* baskets, as our experience the past season has demonstrated to us that we would not ship in round boxes or baskets if given to us,) the air thus passing all through the crate between and under the baskets, and preventing any heating. The objection to the square, tight, gift box is, that they fit so closely together that the air does not have a free ventilation, and the fruit spoils very quickly. We have had blackberries and raspberries mould and spoil in a single night in these tight square boxes, and believe it our duty here to condemn them, although we had before thought favorably of them. They *will not* answer in hot, damp weather, while baskets packed in slatted crates, will carry fruit nicely and not heat it. As to the

SIZE OF SHIPPING CRATES,

there is a difference of opinion. It has always been our experience, however, that a crate holding forty-five to sixty quarts was best, as such requires two persons to load and unload, and are therefore not so liable to be thrown about as a smaller one that one person can handle. Another important point with cases is, to have them made shallow—not so high as they are broad—for if not made so they are more likely to get placed on the side by careless express messengers, and the fruit nearly ruined thereby. Our cases for square quart baskets are made to hold five one way and three the other, making fifteen in each layer, and we make them to hold three layers, having the slat division between each layer.

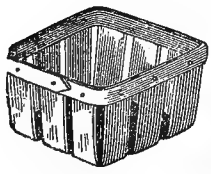


Fig 1

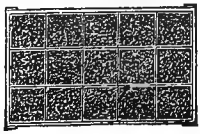


Fig. 2.

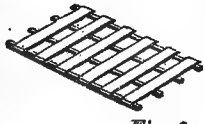


Fig. 3.

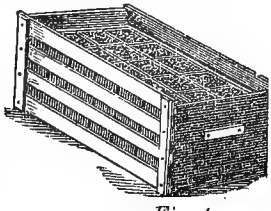


Fig. 4

Fig. 1 shows our favorite basket. We prefer square baskets to all others. *Fig. 2* represents the bottom of the crate with the baskets setting upon it. *Fig. 3* represents the divisions for setting upper tiers of fruit on. These are made as follows: Take four half inch square pieces just long enough to fit inside lengthwise of the crate. Have these just far enough apart so that they fit over the outer edges of the baskets, and nail on them, as represented in *Fig. 2*, two-inch slats one-eighth inch thick and long enough so that they just go to the out edge of the outer half inch square pieces. (These are slitted out of two inch plank, and the half inch from half inch boards.) *Fig. 4* will show how the crate is made. The side slats (four on each side) and bottom slats (four) are sawed out of two and one-half inch plank.

The first tier is placed on four horizontal strips that form the bottom; and before putting in the second, the frame of slats, *Fig. 3*, is placed on the baskets already in position, so that each bar rests on the two edges of the contiguous ones, holding them firmly in place. The whole box is filled in the same way. When the top is nailed or screwed on, the berries will carry safely long distances, if kept right side up. The elasticity of the slats assists materially toward this result.

J. J. Thomas says of this crate: "We had an opportunity of testing this secure mode of packing by examining a case of Mammoth Clusters that had been carried several miles, after a fast horse, over a rough road, after its railroad transit, when all were found in good condition, and kept well two or three days afterwards, in hot weather."

These crates are made very cheaply and can be put together by any person, and if the distance to ship is far away and the Express Company charges for returning the crates, they need not be returned, but the baskets can be nested together and returned 200 or 300 in a crate, and, also, the divisions (*Fig. 3*) can be packed in a crate and returned by Express at a slight cost.

Care should be taken in making this crate for packing the baskets in, that the *top* slats pass *above* the end piece ½ inch—and then the cover can be fitted down in and being thus fitted in they do not get pulled off in handling. Strong handles should be made on each end and also cleats on the outside of side slats—as these upright cleats prevent the end from splitting. The cover should be made of half inch stuff, with two strong cleats over the ends, and on the under side of the cover, cleats ½ inch square nailed across, so that when the cover is closed one of these cleats will cover over the edge of each row of baskets, thus holding them in their place.

When shipped have your name marked plainly on top, and the consignor's name on each end of crate. The object in having such directions on the *end* of the crate is that the party to whom you ship may see at a glance just what he has without waiting for a whole car load to be unloaded.

Fig. 5 is a plan for laying out a square piece of land for a fruit and vegetable plot—say twenty acres. *Fig. 1*, the entrance gate; *2*, the center road or drive, twelve feet wide; *3*, *3*, *3*, *3*, roads nine feet wide. These roads run around the field, twelve to sixteen rods away from the fence, and twenty-four to thirty-two rods from the wide road *2*, owing, of course, to the size of the field. *Figs. 4*, *4*, denote a narrow path of four feet in width, to divide these wide plots into "lands" of twelve to sixteen rods wide from east to west. Fruit rows—unless it be grapes—should not exceed sixteen rods in length; *5*, *5*, *5*, *5*, *5*, *5*, are small, cheap sheds for packing the fruit in to keep out of the sun, as no fruit should stand in the sun and wind longer than possible after being packed. These sheds should be made so as to face the north, so that the sun cannot shine into them. *Figs. 6*, *6*, Grapes, set twelve feet each way, and grown on trellises, the trellis running east and west from center road to the fences on east and west side of lot, leaving an opening, however, for a path to run from the north fence to the two corner packing sheds, so that the grapes will not have to be carried the whole length of the plantation to pack in the shed near the entrance gate. *Figs. 7*, *7*, currants and gooseberries, six feet apart so as to be cultivated both ways, or they can be planted in rows running north and south, four feet apart in the row. If set so as to cultivate both ways, early potatoes or tomatoes can be set half way between both ways for at least two seasons, or until the currants and grapes get so large as to take up the ground. If set in rows, a row of strawberries can be set half way between and yield full crops for two seasons. Two rows of strawberries can be grown between the grapes also, running east and west as long as desired, so long as the grapes are kept well enriched. *Figs. 8*, *8*, blackberry and raspberry rows, running east and west, if in rows—say seven feet apart and four feet apart in rows, or if in hills the first seven feet apart each way and the last six feet. *Figs. 9*, *9*, south road running

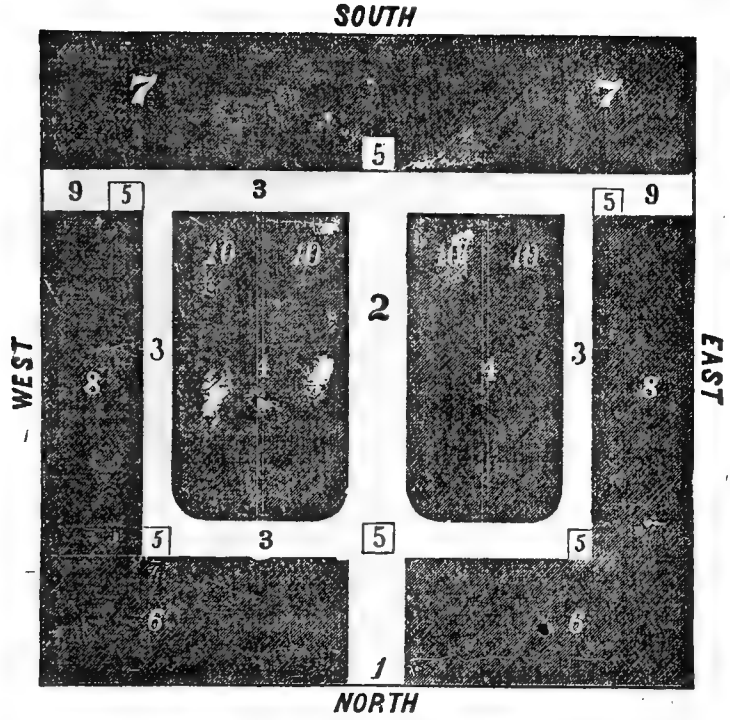


Fig. 5.

'o east and west fence, in order to turn the horse when cultivating. These can be planted with potatoes from where they pass by the two roads running north. But little harm will be done by the horse stepping on them the few times the currants require cultivation. *10*, *10*, *10*, *10*, strawberry plants, rows running east and west from the center road to the east and west road, simply leaving a vacancy in each row for the four foot paths. Of course the different kinds of fruit can be planted in different parts if desired. Fruit trees can be planted all among these small fruits if desired, and when they become large and shade the ground too much the land can be given up to such. The roads should all be cultivated and kept clean, or they can be seeded down, or if it is not desirable to plant fruit trees, but to keep the grounds expressly for small fruits and truck, and a neat, tasty appearance to the grounds is wanted, a row of dwarf trees can be set around the edges of the south side road, with two rows of standard trees, such as pears, cherries, and plums, on each side of the center road, and also around close to the outside fence.

We present below a simple plan by which a small garden can be laid out for small fruits and early vegetables, and present a neat and attractive appearance, besides being very convenient. *1* is the entrance gate; *2* a walk running through the center of the plot, six feet wide over which a cheap arbor can be made seven feet high and six feet wide, by simply setting posts that height and nailing slats twelve feet long, one inch thick and two and a half inches wide, eighteen inches to two feet apart. Nail from top of posts on one side to the other strong pieces two by three, and on them same kind of slats as on the side. Grow on the arbor, say three or four kinds of grapes to make a rotation from the earliest to the latest, say Eumelan, or Hartford Prolific, for early, Concord for medium and Diana or Isabella or Catawba for late. Set twelve feet apart and keep well trained over the arbor, keeping all superfluous branches cut off. Renew the vines every three or four years as described on another page of this work. *7* indicates narrow paths three or four feet wide, running around the outside

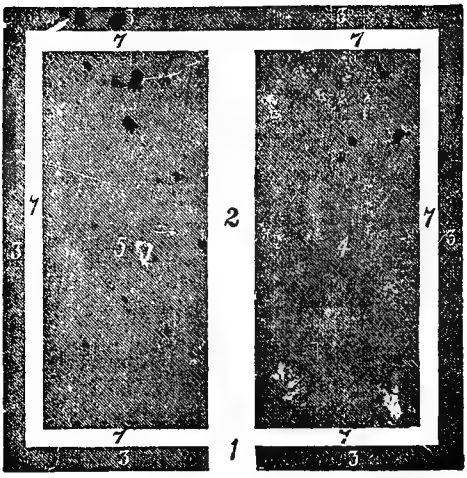


Fig. 6.

of the garden, as shown by the short dashes. These paths, and also the center one, should be first dug out a foot to eighteen inches deep and the soil thrown upon the center and outside plots. If stones are to be had fill up part way with such, over which put two or three inches of tan bark, sawdust or gravel, having the path when filled up, three or four inches lower than the planted portions. If stone are not to be had fill up with coal cinders, or fill up entirely with sawdust or tan bark. Paths made thus act as drains to carry off the excess of moisture from the gardens. Between the outside walks and fence, as indicated by figure *3*, set currants, gooseberries, raapberries and blackberries; of the first Red Dutch, La Versailles, Cherry and White Grape, in about equal quantities; of gooseberries, Houghton's Seedling, Crown Bob and White Smith; of raspberries, D. Thornless, Miami, or Seneca, and Mammoth Cluster, for black, and Kirtland, Philadelphia and Clark, for red, with a few Cata wissa and Lum's Fall Bearing; of blackberries, Dorchester or Early Wilson, Kittatinny and Lawton. These will give a succession of fruit, and have given general satisfaction wherever tried. *Fig. 6*, not bed, in which the early salads, &c., can be started; *4*, plot for tomatoes, lettuce, early peas, sweet corn, cucumbers, cabbage, &c., &c.; *5*, this side can be used for more permanent things, like strawberries, asparagus, pie plant, sage, &c.

If it is desirable to add a few flowers to give beauty and cheerfulness to the garden, such can be set around next to the narrow paths, as indicated by the little dots; or, if the whole is wanted for fruits and vegetables, this path can be bordered on both sides with one row of strawberry plants, kept in hills—that is all runners clipped off. Those that form stocky, strong hills should be used for this purpose, say Ida, Colfax, Green Prolific, or Emperor. About 300 to 500 strawberry plants of the different sorts will supply a family of five or six persons with all the fruit they can use, and to have them from the earliest to the latest, we will name over a few sorts that have proved reliable and hardy in all parts of the country—not claiming, however, but that there are others perhaps as good, and many better for certain soils and locations. For *early*, Early Washington, Ida, Philadelphia or Metcalf; *medium*, Wilson's Albany, and medium to late, Green Prolific, Agriculturist, Jucunda and Colfax, and Triomphe de Gand for rich clay soil or clay loam.

If the strawberry bed is set on plot No. *5*, they can be planted twelve inches one way and eighteen to twenty-four inches the other. If it is desirable to lay off these plots in small beds, it can be done by setting rows of strawberry plants, four or five feet apart, and between each row plant lettuce, radishes, onions, &c., &c.

Care should be exercised not to get the garden too rich. We have noticed that such small gardens are apt to be made so by over manuring. Put on just enough each season to grow a *good* crop of early potatoes or sweet corn, and you will have it rich

enough for most kinds of fruit and vegetables. If manure is not to be had conveniently, have a lot of old turf and any coarse material you can scrape up near the wash room, on which throw the wash water, night slops, &c. But few have any idea how much valuable fertilizers are lost by throwing such away. Even if nothing more is done with such than to throw it around the fruit trees and larger plants, such as raspberries, blackberries, currants, &c., it will be a great saving and a large increase of fruit will be realized by so doing.

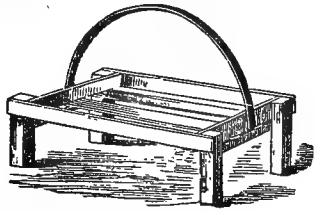


Fig. 7.

STANDS FOR GATHERING FRUIT.

These will need no description how to make, as the cut (*Fig. 7*) shows for itself. Stands for quarts are made to hold six baskets, and for pints eight baskets. We usually have a large supply of these ready, so that we are not obliged to empty them as fast as brought in, which, if done, many times keep the pickers waiting, especially if a number come in at one time. We have generally kept a tally book, but hereafter shall have small tickets, on which will be printed, "Pay the bearer for picking six quarts." At night these will be handed back to us and we then pay the cash, or give another ticket or due bill, as follows, "Pay———for picking———quarts at———cents per quart." The first blank being filled up with names of pickers, the second with number of quarts picked, and third what price per quart. By this system or one similar to it, pickers can keep their own tally.

PROTECTION FROM WINDS.

This is of great importance to secure a good and sure crop of fruit—especially strawberries. Any person may see by passing a field that is protected on the West by timber, that the snow will lay like a sheet all over such fields. It needs no argument to show that this blanket spread over the surface of the ground protects the plants and roots, and adds richness and vitality to the soil. It is a common saying that "snow is the poor man's manure." We believe this is so, by its shading the surface, and shade, to a proper extent, enriches the soil. We believe it gathers in its descent from the atmosphere, and carries to the soil, certain properties that add greatly to its richness. These things are not easily explained, and may be ridiculed by some; but *practical illustrations* abound on every side to *prove* the truth of our statement, and we believe that the more our people strip the country of its timber, the less and more uncertain will be the crops. We can *prove* that in localities that have a fair proportion of timber, the crops, and especially winter wheat, are more certain than in those sections barren of timber. We know of a farm where but one row of maple trees were set through the center of the farm, running north and south. These trees are now twenty to thirty feet high, and about twenty feet apart. They commenced branching out low, and have grown so that the limbs meet. On the east of this row of trees snow lays as it falls for twenty or thirty rods, and the crops of winter wheat are excellent, while on the west side the snow is generally swept off, and the crops poor, notwithstanding the soil is the same. This row of trees scatters and breaks the force of the wind so that the snow that falls on the east side is not swept off thereby. We would therefore advise all parties who are intending to go into Small Fruits, to choose a locality that is protected on the west. If this cannot be had or found, then set a row of trees, or double row, on the west.

The best tree we know of for this purpose, on account of its quick, rapid growth, dense foliage, and cheapness, is the Scotch Pine. We should set these ten to twelve feet apart, with some rapid growing forest trees half way between.

RAISING NEW SORTS.

We are aware there are those "voting-for-Jackson" men that believe we have brought Small Fruits to perfection, and that there is no necessity for further effort in this line. It will be time to settle down in this belief when we succeed in raising a strawberry equal to the Wilson's Albany in firmness and productiveness on all soils; to the Hooker and Burr's New Pine in deliciousness, and to the Jucunda in size and color; and we will further add, that we will give one thousand dollars for the stock of any new sort (if not under 100 plants) that combines the above qualities.

We believe the time is coming that such a berry will be produced. We want a raspberry, too, equal to the Mammoth Cluster in productiveness, firmness, and hardiness; to the Brinckle's Orange in flavor; and to the Fastolff in size and color; and also other Small Fruits—blackberries, currants, gooseberries, &c., with like desirable qualities and characteristics.

It is but little trouble to those who have the time and taste for such things, to grow new seedlings; besides, there is a great amount of interest and pleasure attached to it that makes it a very pleasant occupation. The first important point is to save the seed at the proper time—that is when the seed is fully ripe. Allow the berries to get dry, and then rub them out of the flesh. Sow them in pots of light, rich mould, or in a bed of light earth, in rows three or four inches apart, in July or August. Press them into the soil with the back of the hoe, and keep the ground regularly watered. In two to four weeks they will make their appearance. Cover through the winter with some coarse evergreen boughs or brush of trees. In the spring transplant the proper distance. The second season they will produce fruit.

MANURES.

Space will not allow us to give any extended remarks on this heading. Rich prairie soils we do not consider so strictly necessary to manure, as those of a lighter and poorer nature. Of course, the poorer the soil the more manure required, and the more thoroughly it should be incorporated *into* the ground. We would advise *deep* plowing,—using a subsoil plow, if possible, in all soils where it can be worked. We have reference to those subsoil plows that follow the ordinary plow, merely *loosening* the underground, and *not* throwing it up to the surface. In most cases where it has never been used, it will be found as beneficial as a good coating of manure; hence our urging it under this heading.

The best way of using manure on rich prairie soils, is to scatter it over the surface *after* the ground has been plowed, and working it in with the cultivator and hoe. By so doing, it prevents the surface from "baking," and keeps it in a loose, light condition, hence it does not suffer from the drouth so badly.

We consider thoroughly decomposed barn-yard manure unexcelled. If not to be had in sufficient quantities, mix with it, in alternate layers, muck, leaf mould, sods from the roadside, corners of fences, leached ashes, lime, salt, &c. Have the whole pile thrown over once or twice, and well mixed together. The value of such a compost can be easily seen by scattering a very little among the strawberry plants, or around other Small Fruits. Those parties who wish to go into the Small Fruit business, but are deterred by the poor character of their soil, and a supposed lack of manure, should read "Ten Acres Enough," and learn what can be done by any energetic man.

Coarse manures should not be used—especially on light, sandy soils. If manures are not on hand, or ready for immediate use—that is, for Spring planting—the plants can be set, and the manure scattered among them in July or August, with very satisfactory results.

Land that has been badly "run," can be put in splendid condition for fruits in one season by sowing peas or corn broadcast early in the Spring, and when it gets two feet high, plow under and immediately sow another crop, and plow this under at the proper time. By this method a foul piece of land can be subdued and brought into fine plight for planting.

All successful market gardeners and Small Fruit growers agree that it is hopeless to grow good crops, without a yearly application of manure in large quantities. Henderson's *Gardening* says:

"It is a grave blunder to attempt to grow vegetable crops without the use of manures of the various kinds. I never yet saw soils of any kind that had borne a crop of vegetables that would produce as good a crop the next season without the use of

manure, no matter how rich the soil may be thought to be. An illustration of this came under my observation last season. One of my neighbors, a market gardener of twenty years' experience, and whose grounds have always been a perfect model of productiveness, had it in prospect of running a sixty foot street through his grounds; thinking his land sufficiently rich to carry through a crop of cabbages without manure, he thought it useless to waste money by using guano on that portion on which the street was to be, but on each side sowed guano at the rate of twelve hundred pounds per acre, and planted the whole with early cabbages. The effect was the most marked I ever saw; that portion on which the guano had been used sold off readily at twelve dollars per hundred, or about one thousand four hundred dollars per acre, both price and crop being more than an average; but the portion from which the guano had been withheld hardly averaged three dollars per hundred. The street occupied fully an acre of ground, so that my friend actually lost over $1,000 in crop, by withholding $60 for manure. Another neighbor with a lease only one year to run, also unwisely concluded that it would be foolish to waste manure on his last crop, and so planted and sowed all without; the result was, as his experience should have taught him, a crop of inferior quality in every article grown, and loss on his eight acres of probably $2,000 for that season."

LIQUID MANURES,

Are very valuable and so easily obtained in those sections, where manure is high, with but a trifling cost, that we wonder that more do not see its value and take advantage of it—especially those who have their small truck and fruit gardens near the large cities. One very good plan to obtain such is to arrange under the eaves of the barn or out-houses, a three cornered trough, say two feet deep and two feet across the top, one end raised a little higher than the other, and at the lower end sink a hogshead. Fill this trough up with street scrapings, shoe and harness makers' scraps, bones pounded up, ashes, cleanings from privy vaults, offal from tanneries, &c. Mix these all together in the troughs, and over all scatter a quantity of sand. Then, as it rains, the water running off from the eaves of the building, will fall into the troughs and soaking through to the bottom, will pass off into the hogshead at the lower end, thus making the choicest of liquid manures. There are other methods for making such, but the above must prove the simplest of all, and requires no carrying water.

For more extended instructions about manure, read THE FRUIT RECORDER—a monthly, noticed in another part of this work.

STRAWBERRIES.

There is no fruit that is grown so successfully over so large an extent of country—no fruit that adapts itself to so many different soils and climates, and so universally relished, as the delicious strawberry. It does seem very strange to us that so many families unnecessarily deprive themselves of this healthy luxury—especially those who have plenty of land to plant them on.

Many are deterred from planting out a bed, with the false idea that it is too much trouble and work. Now, we claim that we can grow a bed on the same piece of ground for years, with no more trouble or work each year than so much ground planted to potatoes. There are sorts, like the Jenny Lind and Downer, that will stand neglect, and yield good crops year after year, on the same ground; but we do not wish to convey the idea that we recommend such culture, but wish to impress it on the minds of all, that *the better the culture, the better the crop.* Remember the old adage, "A stitch in time saves nine," and that there is no branch of business this applies to more than in the cultivation of this fruit. It is easier to cultivate and hoe a plantation *four times* over, when there are no weeds, than *once* if weedy; therefore hoe soon after setting the plants, and as often as possible afterwards.

There are sorts that are better adapted to extreme temperature and localities than others. We shall endeavor to show the success of each prominent sort in different localities, and where each originated.

There are many modes of cultivation, each of which have their strong advocates. We have heretofore strongly advocated the matted row system, but after careful and practical comparisons, we are satisfied that the "hill," or "hill and row" method is the best, one year after another, in most localities, although we have received many letters from extreme cold sections, claiming that they stand the winter better when grown in matted rows. The fruit average *double* the size, the crop *double*, and on most soils with *less* labor. In hills, they form such strong, bushy tops, that the fruit and blossoms are protected from severe late Spring frosts thereby. Some Springs we have had late frosts in May, that nearly ruined our plantations that grew in matted rows, while those grown in hills were but slightly damaged, and yielded a very heavy crop. Another reason is, that the heavy tops mat down around the crown in the Winter, and protect it from the action of the frost, while those grown in the matted row form but small tops, and are not thus protected. It is well, however, to scatter around the hills plenty of mulching before winter sets in. Again, if the ground should be weedy, they are attended to with much less work and care than if allowed to throw out runners. The work can nearly all be done with the hoe and cultivator, while if in matted rows it has to be done with the fingers, which is very laborious indeed.

There are sorts that *must* be grown in hills to produce well, (those having no * prefixed are of this sort,) and *none* but what do better grown thus.

HAVE STRAWBERRIES CEASED TO BE PROFITABLE?

We have read many articles, and had the question often asked us, "Have strawberries ceased to be profitable? Will they pay at eight cents per quart? To the first, we answer most emphatically, *no;* to the last, *yes.* In taking this position, we do not wish to be understood as writing from a stand-point where land is worth $500 to $1,000 per acre (and badly "run" at that), manure at two dollars per cord, and other things in proportion; but rather on land near any of our villages, that can be bought for $80 to $150 per acre, manure from swamp muck, leaf mould, leached ashes, sods from the roadsides and from the villages, to be had for almost the drawing. Still, we wish to be understood that strawberries can be grown on the first named ground at even *six cents per quart*, and *pay* better than the *best* crop of potatoes to be found about such cities. And if this is so, one can see at a glance how profitable they will prove on rich virgin soil, or, in fact, on any soil that will grow good corn or potatoes; such soil requiring but little, if any, manure, providing the plants are thoroughly worked and well mulched. Some of the most successful cultivators claim that they can raise large and fine crops and vines on poor soil, if it is only kept *well* worked and mulched, thus showing that it need not necessarily follow that strawberries cannot be made profitable because land is poor.

We admit that if strawberrries are grown on the "slip-shod" plan, they will not really prove profitable. Cannot the same be said of any crop, especially if grown on very high priced land? We claim that we can get a far better crop of fruit from strawberry *plants* than from *pig-weeds, chick-weeds, and the like*, and the more the ground is occupied by the first, and the less by the last, the better the crop, and *vice versa*. We cannot "gather grapes of thorns, or figs of thistles."

One very important fact to be taken into consideration is that it costs no more to grow good and pure varieties than inferior and mixed up sorts; and second, that it costs no more (except in the original plants) to cultivate a row that has been thickly set with plants, than one where the plants were set too far apart—the consequence being that the first form *perfect* rows, with the ground fully occupied, with no vacancies, while the last are very imperfect and the ground not half occupied—the crop on the first being double to triple of the last.

We have found how true this last is from bitter experience. We have had rows sixteen rods long that had been set thickly, plants ten to twelve inches apart in the row, and as these run they formed fine wide matted rows all through, with no vacancies, and yielded through the season three to four bushels of fruit, while other rows near them, that were set late in the Spring, or on new sod ground and that died out badly, leaving long vacancies, yielded but half a bushel to a bushel of fruit, or really only about one-fourth as much—both costing the same to prepare the ground, cultivation and labor, the same tax and interest on land, and the same, if not more, work in mulching and mulching material. It is right here that many make a failure in the business. They set any way almost, and very late in the season, and then if plants

die out badly and the rows are full of vacancies, they get a small crop, and the cry is heard, "It don't pay." Another important point is to

SET OUT THE LARGEST AND FINEST SORTS,

even if they do not yield over half to two-thirds of the smaller kinds. Such varieties as Triomphe de Gand, Barnes' Mammoth, Napoleon III. and Jucunda, always command the highest prices, and if there is a glut in the market, such will *always* sell at *paying* prices. Let us illustrate this more clearly by a few figures, taking the average prices in New York market on the Wilson's Albany and the largest sorts, and an *average* crop on a well kept acre. We get 100 bushels of Wilsons, which sell in New York at 12½ cents per quart, $4 per bushel, amounting to $400. Deduct picking, 1½ cents per quart, $48; commission 10 per cent., $40; express charges, 80 cents per bushel, $80; loss and wear and tear of crates and baskets one season to ship 100 bushels that distance, $25, and we have an aggregate of $193. Now take an average crop of the larger sorts named—60 bushels, and the average price in New York the past season, 25 cents per quart, or $8 per bushel, and we have $480. Deduct picking, 1½ cents per quart, $38.40; commission, 10 per cent., $48; express charges, 80 cents per bushel, $48; loss and wear and tear of crates and baskets, 3-5 of the above $25—$15—and we have an aggregate of $149.40. Now deduct the first figures, $193, from $400, and we have $207; and the last, $149.40, from $480, and we have $330,60—thus showing what is gained by growing the larger sorts for such a market. We would say, however, that there will not be this difference in prices in the smaller towns, and that near such the Wilsons pay much the best, as the consumer cares less for the *appearance* and more for the *reality*. Then again, there are times in the large cities when the smaller fruits have scarcely any sale, while the larger bring good paying prices, and when such is the case, the first hardly pay expense of shipping, picking and commission, while the last pay good profits. It will be seen we have not figured in the cost of plants, raising and cultivation, or interest and taxes on land, &c., as these would be the same in raising both the small and large sorts. Now, these same prices hold as good on the raspberry crop, in comparison to the large or firmer sorts, and the smaller or softer kinds, and also with all other fruit; therefore, it is advisable, if one intends to rely on such large cities for shipping most of their fruits, to plant out largely of the *largest, finest* appearing varieties, and give them the *best* culture, and their profits will be large, while those sending in the smaller sorts will hardly pay expenses.

We could fill this book with facts that have come under our notice, of persons in *all* parts of the country that have been successful, and made enormous sums of money from their strawberries—even in markets where the price was very low; the secret being that they grew the *best* varieties and *large* crops from *small* pieces of ground. We consider what one has done, hundreds of others can do.

But to return to the first question—"Have strawberries ceased to be profitable?" They have, and so has any other crop, providing the raiser does not take enough care or interest in them to *make* them profitable. Suppose a merchant fills his store full of goods, and then leaves them to Tom, Dick and Harry to sell and take care of—he being around a billiard saloon or tavern half the time. Will he find his business *profitable?* Or suppose he pays prodigious rents, expenses, &c., and then has a lot of poor unsaleable goods · will he make it pay?

All that is necessary to *make* strawberries profitable, is to have your soil in good order, well manured, deeply plowed, well harrowed, plants well and thickly set in the row, and of pure, unmixed sorts. Then keep the ground *well stirred* with the cultivator and hoe, no matter whether there are weeds or not, (and, by the way, we believe it is well for us that weeds do grow, for in working the soil to eradicate them we keep it mellow and pulverized, so that plants are not destroyed by the drouth), and last, but not least, ship them in clean, neat baskets or boxes, and our word for it, you will find them profitable at even six cents per quart, if sold near home, or eight cents if sold at a distance—far more so than the best crop of potatoes that can be grown at the highest rates. "Take an *interest* in the business, *hate* weeds, *be up* with the lark, and *free* with elbow grease," is our motto.

TIME TO SET STRAWBERRIES.

In this latitude we set plants in April and May; and September, October and November.

We cannot recommend setting too early in the Fall—as the roots should become well matured before being disturbed, especially if they are to be transported. We have had the best success with Fall setting, from plants set in October—not losing scarcely a plant. This was on light, sandy soil, that does not "heave." In fact, we have had good success with plants set up to the time the ground froze, by merely scattering some coarse litter over the surface before the ground thawed out.

We are often asked the question, "Which is the best time to set—Spring or Fall? It does seem to us that it must be apparent to every such questioner, that the sooner the plants are out, the more roots they form—consequently the greater the crop the first bearing season. If set in the Spring, they yield a full crop the next season, while if set in the Fall, they yield but a small crop the next season. If the ground is not ready in the Spring, we should of course prefer to set in the Fall than to wait until the next Spring, as they would yield a small crop the next season, while if set in the Spring, they do not yield any fruit to speak of the first season. In fact, it is better to pick all blossoms off the first season they are planted, as many young plants so exhaust themselves in fruiting that they die out immediately afterwards. This is especially the case with Wilson's Albany.

We understand in the extreme South and in California, where strawberries commence to ripen in January and February, they set in the Fall. In such localities it would be well for those who order any kind of plants from the North to have them forwarded *before* the first of December, as winter generally sets in about that time here, after which plants cannot be removed before the 15th of March to the 1st of April. They should be ordered the last of October, so that they can be sent forward the first or second week in December.

PREPARATION OF THE SOIL.

If the ground is sufficiently rich to grow good potatoes or corn, it will grow as comparatively good strawberries. If not in good order, manure thoroughly with any well rotted compost. New coarse manures are very risky, especially for light soils, for, if the Spring should prove dry, the plants dry out badly. Plow or spade *deep* when the ground is in a dry condition, for if too wet and soggy, it leaves the surface stiff and bakey If convenient, scatter a liberal supply of well rotted compost over the surface which not only enriches the soil, but acts as a mulch to keep the surface moist, and prevent it from "baking."

As for the soil necessary to grow strawberries, it has never been our lot to see *any* that would *not* grow them,—providing it was sufficiently dry, or could be made so by draining, or if vegetable manures were within reach to be had. The same can be said of all other kinds of Small Fruits that we have had any experience with. We, of course, will admit that the lighter soils are easier and more economically cultivated. The lighter soils, too, will produce earlier and better flavored fruit, while the heavier soils will produce later and larger fruit. Elevated soils are less liable to be affected by Spring frosts, hence should be selected for the *earliest* Spring fruit—the *strawberry*, especially the earliest sorts. South and southeast side-hills should be chosen to produce *early* fruit, and north side-hills, *late* fruit. Thus the season may be extended.

TO GROW LARGE FRUIT.

Grow in hills. Mulch *heavily* with straw or hay. Water liberally with liquid manure, which can be produced by filling a barrel full of manure and running rain water through it. Pick off all but one or two fruit stems, and thin out these, and specimens of fruit will be produced that will "astonish the natives"—especially if the variety be of the large sorts.

TO PRODUCE FRUIT LATE IN THE SEASON.

Pick off all fruit stems as fast as they make their appearance at the usual time. Keep the plants well watered with the liquid manure, and surface shaded with straw or hay, and you will be almost certain of a fair crop in September or October.

MULCHING MATERIAL.

The best for this purpose is clean rye straw, or hay of any kind, swale grass, corn stalks, or crushed sorghum stalks. If these are not to be had, *well rotted* tan bark, saw-dust, or planing-mill shavings will answer. If the latter could be thrown in heaps, and a little lime scattered through it, and remain thus for a few months before using, it makes one of the best mulching materials.

Many parties have tried, with good results, the practice of sowing oats among their vines, late enough in the Summer (say July) to prevent them from ripening. These fall down through the Winter, and make a fine mulch, evenly distributed over the entire surface.

There is no part of the cultivation of Small Fruits that *pays* better than mulching the vines, for by so doing they will yield fully *double* the crop, and *double* the size fruit, besides acting as a

WINTER PROTECTION.

This has become a necessary practice with those who are having the best success in growing Small Fruits. Any of the above material scattered thinly over the surface, *late* in the Fall, or early Winter, will prevent the ground from "heaving," which is the ruination of many strawberry plantations that are almost perfection in the Fall. Let it be remembered, that the *germ* of the fruit-buds are formed *in the Fall*, and consequently, if plants are disturbed by the action of the frosts, the bud must be proportionally damaged; therefore the great importance of preventing this "heaving" of the soil. To do this, *sudden* freezings and thawings of the *surface* must be guarded against and prevented. This is easily accomplished by merely scattering enough mulching over the surface to *shade* it.

After Spring opens, it is a good plan to pass over the plantation and loosen up this mulching, especially if it be coarse, heavy material, so as to allow a free circulation of air to the soil; for we have become satisfied that soil is "soured" by allowing such to lay bound close to the surface, and the plantation damaged by such causes. Herein is the trouble why many propagators denounce sorghum bagassa. If they would stir it up after Spring opens, and draw it away from over the crowns of the plants, they would find it one of the best materials for mulching.

TAKING UP PLANTS FOR SETTING.

Persons who have not had the experience in setting out strawberry plants, can have no idea how important it is to have plants taken up with the roots all kept straight, and packed thus, (if they are to be shipped.) We would prefer to pay $4 per 1,000 for plants taken up and tied in bunches, as represented by *Fig. 8*, than one-half the price, when they are taken up and thrown into barrels or boxes "hilter skilter," as is generally done by those who sell plants "cheap."

Fig. 8.

When taken up for setting, the ground should be loosened up with a fork, and the plants carefully raised with one hand and placed in the other with the roots straightened out, and the top and runners kept above the hand; as fast as a handfull is taken up, *press the bunch close* and cut off all superfluous leaves and runners; then place in layers in boxes or baskets, or lie in bunches as shown above. If taken up and kept in this way, one good active man will set from 3,000 to 5,000 plants per day, while if thrown in promiscuously as taken up, it will take at least one-half of a person's time to straighten out the roots and pick off runners so that they will be fit to set, and consequently double the time and expense is made in setting. To show this more clearly we present here a drawing of a plant, the root of which has been kept straightened (*Fig. 9*), and another (*Fig. 10*) that has not been kept straight. Any person will see at a glance that the straightened root is in fine shape for setting without any trouble, while the other has got to be all straightened out before it can be set properly.

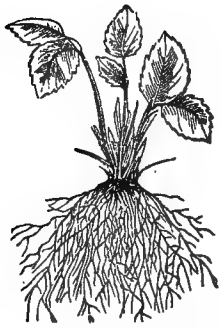


Fig. 9.

Fig. 10.

LARGE AND SMALL PLANTS.

Were we to set a large plantation of strawberries, where we should have to trust more or less to "help" to set it, we should prefer a small medium size plant, or even if we were obliged to set them all ourselves, we should prefer such, for this reason—a small plant that has but few roots like *Fig. 12*, is more easily handled. The roots

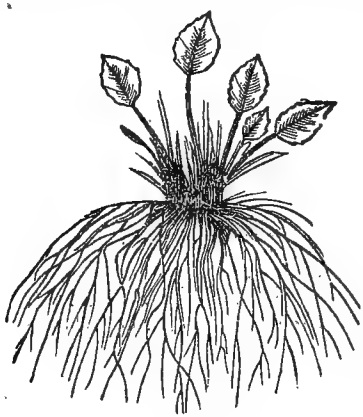


Fig. 11.

Fig. 12.

are quicker spread out, and are not likely to be jammed into the ground, tangled up or crossing over each other. The soil strikes *every* root and fibre and packs around *all* better, so that no air penetrates to them, drying them out; while the larger root *Fig. 11* cannot be set without crossing them and getting them into the ground "in a heap," and, with a large share of the plants, the air works in, drying out the roots and even ruining them with careless hands. We would much prefer to have the *smallest* strawberry plants than the *largest*, for we have always noticed in passing over a plantation a few days after setting, that those plants that failed to grow were the *largest* plants, and on pulling them out we would almost invariably find that they had been "doubled all up," and the air getting in quickly destroyed them. Therefore, our advice is to any party who orders plants, not to lay so much stress on *large* plants, but be more particular to order them "tied in bunches, with the roots kept straight."

GROWING PLANTS FOR RE-SETTING.

Set them *close* in the rows, and let them root in thickly together. By so doing, they do not grow to be such overlarge plants, and will form roots sufficiently large to transplant.

DIRECTIONS FOR SETTING STRAWBERRIES

Have the ground well plowed and harrowed, running over with the harrow the last time the *opposite* direction (or at right angles) from what the rows are to run, so that the tooth mark will not blind the mark of the marking cord. Draw the cord where the rows are intended, drive down the stake at both ends, and walk upon or press it to the ground with the back of a hoe. This leaves a plain mark to set the plants by. In field culture, where we want to make as rapid work as possible, we have two cords and one person at each end. Then draw the cords straight and tight, where the rows are intended, and set the stakes. Both persons then walk upon one cord until they meet and then go back upon the other. Thus, by having two cords, two rows are marked off by going one "bout." A number of rows are thus marked off ready for setting. Another plan for marking out when very large plantations are to be set and it is desirable to get the plants in as quick as possible, providing the ground is free from sod or other incumbrances, and in good order, is to plow out straight furrows the proper distance apart, and set the plants in these as fast as one person can straighten and drop the roots, by placing the plant against the perpendicular side of the furrow with one hand and drawing in dirt up to the top of the crown with the other, holding the plant in the left hand as represented by *Fig. 13,* with the roots spread out in shape and held so by two fingers on the back side and thumb in front against the land side of the furrow, and drawing in dirt with the right hand against the plant, pressing it closely around the roots. To set by the cord marks, use a dibble made similar to these, (*Fig. 14,*) holding it in the right hand. Thrust it into the earth the depth the roots are long, (if the roots are too long and spindling, it is better to nip them off a third or more.) Then it works back and forth both ways, so that the hole will be large enough to admit the root, spread out fan shape, and held as above described, holding it thus, with the crown a trifle below the surface, running the dibble down an inch or so away from the plant at the top, and the point of the dibble, so thrust in that it will be in close proximity to the root at the bottom, then press the top of the dibble towards the plant, packing the soil up firmly against it, filling up the last hole made by the dibble when it is withdrawn, and the setting is done. If it is a small lot of some valuable high priced sort, and it should be dry, pour a little water in the hole with the roots and fill in quickly with dirt, and shade for a day or two after setting —although if roots are *thoroughly saturated* or "puddled" just before setting, there will not be any failures to speak of, providing they are well spread out. The safest and best way to set such, however, is to make a small hole and in the center place a handfull of soil, rounded up in a pyramidal form, over which spread out the roots as represented by *Fig. 15,* covering all over firmly up to the crown.

Fig. 13.

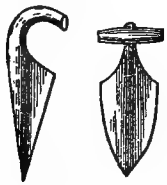


Fig. 14.

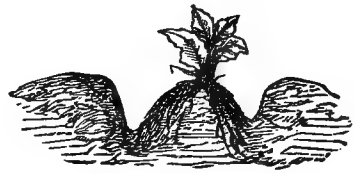


Fig. 15.

CARE OF PLANTS AFTER SETTING.

The most important is to keep well cultivated and hoed, and to commence doing so, too, before the weeds start or the surface gets baked. Herein is where most people make a failure in growing strawberries. They put off hoeing too long after

they are set, and by so doing allow the weeds to get started, and thus necessitating a long, tedious job in finger picking; besides, in picking out the weeds, the plants are liable to be disturbed and destroyed—especially by careless employes; therefore the necessity of commencing *early* and going through the plantation *often* with fork, hoe and cultivator. Remember that it is easier to run over a bed three or four times if there are no weeds, than once if weedy; and, besides, the plants are benefited so much by this oft repeated cultivation; and too, if worked over before weeds start the fork-hoe or an iron rake can be used very rapidly in the rows, killing all little weeds that are just germinating, and keeping the surface in a fine friable condition. Use a cultivator that will loosen up the soil deeply, leaving it smooth and level behind, and not ridged up. One of the best for this purpose, and especially for loosening up and pulverizing the soil after it has become hardened by pickers passing over it so much in fruiting season, is "PERRY'S SOARIFIER." It is so easily guided, running through the ground so steadily that it can be run up very closely to the rows, and leaves the soil in the best plight for plants to grow. We have also used a common harrow-tooth cultivator, which answers very well for running through a young plantation to keep the surface stirred up, although worthless after weeds have got started, or on ground that has become hardened. Just before winter sets in cover the beds slightly with the mulching. This can be left on in the spring until after the fruiting season, if the ground should not be too weedy, merely loosening up the surface with a fork-hoe, and if too foul, it is better to give the plantation one thorough cleaning the last of April, or just before they blossom. This can be done by drawing the mulching into every alternate row, and after cultivating these, draw it all into the rows cleaned, and clean out the balance, after which scatter the mulch evenly around the plants.

The mulch is not only a protection to the plants through the winter, but it keeps the fruit clean and finer in every respect. In localities where snow lays over the surface most of the winter, and the ground does not "heave," mulching is not so necessary, or if used, need not be put on so liberally.

Another very good protection to the roots is to plow earth up to the plants, leaving a trench half way between and drawing the same away early in the spring. It is also necessary to draw a little more earth around the crown each year after fruiting season, as the new roots form above the old crown. If, however, plenty of compost is added around the plants each year after fruiting, it answers for this purpose, besides stimulating them into an immediate luxuriant growth. Plantations kept in this way will average, in the row, eight quarts to the rod, or about 150 bushels per acre of the best bearing sorts, while, if even ordinary cultivation is given, good bearing sorts will average half that amount. One good thorough cleaning or forking in April or May is all that is necessary until after fruiting season. As soon as they are through bearing, scatter a liberal quantity of rotted compost over the surface, and spade or plow between the rows *as deep as possible*, loosening it up in the rows between the plants with a fork-hoe.

CROOKED AND STRAIGHT ROWS.

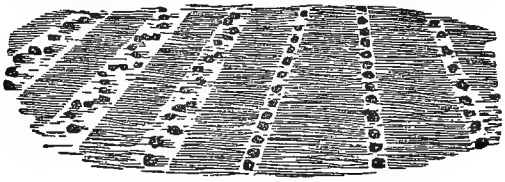


Fig. 16.

In setting all kinds of fruit, care should be taken to set the rows *straight*. *Fig. 16* shows plainly the importance of this. It will be seen at a glance that the straight rows can be run up very closely to with the cultivator, while it will be impossible to get close up to each plant in the crooked row, consequently there will be a much wider space left, as shown by the lighter shading, to clean out by hand labor. Our rule has been to do all we can with horse labor.

DIFFERENT MODES OF CUTLURE.

There are many different tastes and opinions as to the best way to grow strawberries, some preferring one and some another mode of culture. Soil, climate and varieties have very much to do with it, for some kinds, such as Downer, Ida, Wilson, &c., yield fair crops by any of the different modes of growing and in almost any soil and climate; while such sorts as Jucunda, Triomphe de Gand, Barnes' Mammoth, &c., require rich soil, close attention, the best culture, and to be grown in hills and well mulched to produce the best results. Those varieties that are hardy and have given good satisfaction in all parts of the country, and that succeed well by any of the different methods of culture, we have prefixed a * to, while those that should have more careful attention and be grown in "hills" or "hill and row system," and that require the highest state of culture, we have not prefixed any star to. The first are not as large sorts, while the last are of the finer, better kinds.

The hill system is objected to by many, in the colder portions of our country, on account of not standing the extreme cold as well as when grown in matted rows. This may be the case with many sorts that are liable to over-bear and put out new roots slowly. Any person, by examining the figure of the *large* strawberry plant in this work, will see how the roots are formed. Now, as soon as they are through fruiting, the new roots grow out *above* the old, and require soil to be drawn up to them—that is, with many varieties. The Triomphe, Jucunda, and some other sorts, not only root above, but down as far as the old root extends; hence the former are easily "heaved" by the frost and damaged, while the latter are not so easily affected in that way, and are therefore better adapted to hill culture. Any person can judge as to the different varieties in this respect, and learn which are the best adapted for hill culture by examining the roots of a plant, say three or four weeks after bearing season. Those sorts that throw out new roots and fibers *all the way down the old root*, are better adapted to hill culture, and will stand a number of seasons without renewing; while those that throw out *all* their *new* roots *above* the old are not adapted to hill culture, or at least cannot be relied upon for more than two good crops. On the whole we prefer a medium ground, adopting neither, if fruit is our main object. We much prefer what we shall describe as the "hill and row," for either garden or field culture, and while we admire the strict "hill" system, where everything is favorable to it, yet we must say that it has *some* objections, one of these being that, if grubs kill out a hill here and there, there will be an *entire* vacancy in the row, and another being that many very productive sorts, such as Wilson's Albany, are apt to die out from over bearing—especially the second season; while if allowed to throw out runners and form three or four plants to each hill late in the fall, as described hereafter, the fruitfulness is not affected and plants are there standing to take the place of the old ones. However, we will endeavor to explain the different methods of culture and comments on each. First, the

STOOL OR HILL SYSTEM.

Fig. 17.

For garden culture, set one foot by eighteen inches or two feet, and for field culture two to two and a half feet each way, or rows two and a half or three feet apart, and one foot apart in the row, thus giving a chance to do nearly all the work with a fine tooth narrow cultivator or harrow. Keep well cultivated and hoed and the runners cut off. The latter need not necessarily be done *as fast* as they make their appearance, but after a few have started out from each hill, and before they set any plants. By waiting thus a number can be taken in the hand at once and clipped off very fast with a pair of sharp shears or sharp knife, or by attaching to the side of the cultivator a sharp wheel made out of an old buz saw. It is not necessary to cut the runners off

above to the plant. Even if two or three inches of the runner is left next to the plant they will do no harm. A good, smart woman will go over an acre in a day or two, and three times cutting will generally be enough. *Fig. 17* is a fair representation of a hill in the latter part of the season, and the two rows over *Fig 19* show their appearance when well kept.

Many seem to have a strange idea as to the meaning of "Hill" culture, supposing they must make a mound the same as for sweet potatoes, and put the plant out *on top* of this mound. Strawberries should never be set thus—not on ground that is raised a particle above the level—if anything it is better to set them below the level, for, as they form new roots, as before explained, they will find their way on top of a mound fast enough without being first set thereon. The term "Hill" comes simply from their being grown with the runners kept clipped off.

There is no doubt but what, when grown in this way, the ground well enriched and the same forked and worked in with a cultivator each year after bearing, and the soil kept well pulverized with such an implement as Perry's Scarifier, the largest and finest fruit can be obtained, and that, too, that will sell for the highest market prices.

Just before winter sets in, cover the beds slightly with the mulching. This can be left on in the spring until after the fruiting season, if the ground is not too weedy, merely loosening up the surface with a fork-hoe, and if too foul it is better to give the plantation one thorough cleaning the last of April, or just before they blossom. This can be done by drawing the mulching into each alternate row, and after cultivating them, draw it into the rows cleaned, and clean out the balance, after which scatter the mulch evenly around the plants.

The mulching is not only a protection to the plants through the winter, but it keeps the fruit clean and finer in every respect. In localities where snow lays over the surface most of the winter, and the ground does not "heave," mulching is not so necessary, or, if used, need not be put on so liberally.

Another very good protection to the roots is to plow dirt up to the plants, leaving a trench half way between, and drawing the same away early in the spring. It is also necessary to draw a little more dirt around the crown each year after fruiting season, as the new roots form above the old crown. If, however, plenty of compost is added around the plants each year after fruiting, it answers for this purpose, besides stimulating them into an immediate luxuriant growth. Plantations kept in this way will average one quart to the hill, while if even ordinary cultivation is given, good bearing sorts will average half that amount. One good thorough cleaning or forking in April or May is all that is necessary until after fruiting season. As soon as they are through bearing, scatter a liberal quantity of rotted compost over the surface, spade, plow or cultivate between the rows *as deep as possible*, loosening it up in the rows between the plants with a fork-hoe, and cut off all runners that are starting, and all of the old, dead leaves. The latter is a very essential point, for if the old top is allowed to remain on, the plant will remain in a dormant state for weeks, forming no new roots, while, if cut off, they start out new roots immediately, and by fall form an immense fibrous root, and large, luxuriant top. Keep the ground well worked, runners cut off, and mulched as before described.

THE MATTED, OR ALTERNATE ROW SYSTEM.

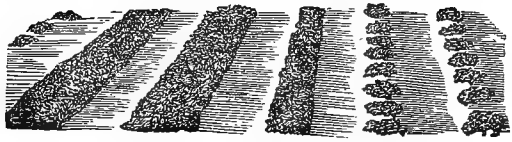


Fig. 18. *Fig. 19.*

For garden culture, set one foot in the row, and rows two feet apart, and for field culture, rows three and a half to four feet apart. Mark out and set plants as before described. Keep clean with the fork and cultivator. Train the runners along the row as they grow out, and they will soon form thick, matted rows, about one foot to eighteen inches in width, presenting a neat appearance, as indicated by the three rows

over *Fig. 18* This can be done by keeping the cultivator going through them quite often, narrowing it down as the rows widen out with plants.

Before winter sets in, scatter a liberal quantity of rotted compost among the vines, thereby protecting them from freezing, enriching the surface, and acting as a fine mulch among the vines the following season. Work among them thoroughly with the fork and cultivator just about the time they commence to blossom. As soon as they are through fruiting plow or spade between the rows, turning the edge of the rows under, leaving them about six inches in width. Level the ground down and work the rows out clean, tearing out some of the plants if they should be matted too thickly together.

A light, two-horse harrow answers this purpose well, or, what is still better, "Thomas' Smoothing Harrow and Broadcast Weeder," as it scratches the ground nicely among the plants, by passing over the plantation *across* the rows. By this operation the fresh ground gets drawn in among the plants.

Scatter manure among them, keep clean, and take same care as before described. After these rows have occupied the same place for three or four years, the runners can be allowed to run from the rows and fill up every row, allowing all to fruit, and after fruiting, plow the space occupied by the *old* rows under, leaving about a foot in width of the new plants; allow these to fruit, and take the same care as above described. If the ground is kept well manured and clean, they can occupy the same ground for years.

One great objection to this method is that it requires so much finger picking to keep clean, which is very laborious. When grown thus, the weeds should not be allowed to get started *early* in the season. If they do, it will be impossible to keep them clean afterwards. They should be kept thoroughly cleaned out, and not a weed allowed to grow before the plants commence throwing out runners.

HILL AND ROW SYSTEM.

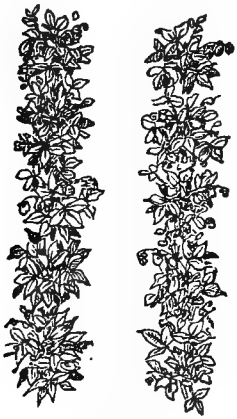


Fig. 20.

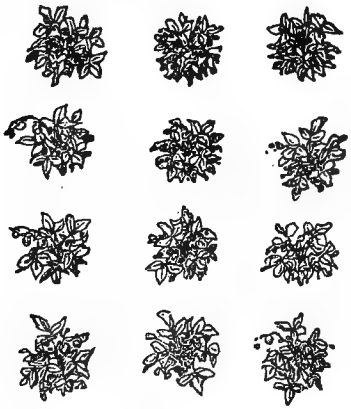


Fig. 21.

We have noticed for the past few years that when runners have been kept off from plants until quite late in the season, and then allowing a few to grow and take root, that the young plants formed from such were *very* strong, and bore large crops of fruit the following season. This can be accounted for from the fact of the plant having the full strength of its root, obtained a strong, full growth, and where a few runners were allowed to grow and root, they partook of the strength and vigor of the parent plant.

We have, therefore, satisfied ourselves from experiments that this is one of the best, if not *the best*, methods of growing strawberries, both for home use and market. By thus keeping the runners off until late in the season, it gives a chance to work the rows out clean with cultivator and hoe up to the time when weeds stop growing, or if a few do grow they cannot ripen their seed. Then, by allowing the runners to grow, and the ground stirred up, just enough plants will form between the original or parent

plant to form a matted, narrow row, similar to *Fig. 20*,. These rows will yield as fine fruit as those kept strictly in hills, while at the same time, by hoeing out the old plants every two or three years, and leaving a new plant between each old original plant, the bed is as good as new each year—in fact, we believe it to be one of the best "renewal" systems that can be practiced, and the only one that will produce large crops of large fruit every season. Of course these several plants that are allowed to set should be cleaned out after each crop and runners kept off, same as before,

MATTED HILL SYSTEM.

This is practiced by many. Set one strong plant, or, if small, two plants, three feet each way. Keep the cultivator going both ways, and the plant free from weeds. As they throw out runners keep the cultivator going through them as often as possible *both* ways, having it set so that the two hind teeth will be about two feet in width. In this way the runners will be thrown around so as to set the plants close in around the original plants, and by this means soon form a matted hill, as shown in *Fig. 21.* After they have set sufficiently thick, the cultivator can be narrowed down to about eighteen inches in width, and kept this width the rest of the season, keeping it going through both ways as often as possible, until the ground freezes. Then mulch as before described. We would advise, however, setting not to exceed 2½ feet each way, and keep runners off until quite late, as recommended in the "Hill and Row System." and then allow a few plants to set, say four to five, around each hill. Many cultivators advocate and prefer what is termed, the

ANNUAL SYSTEM.

Which is to set the plants 1 foot by 3½ or four feet. Keep well cultivated the first year, same manner as described in the "Matted Row System." Allow them to bear the second season, or first fruiting season, and then plow under. If a person has *plenty* of land this is a very good plan. In doing so, however, new beds must be set every spring. If the plantation gets foul or weedy, it is no more trouble to set a new plantation than to clean out the old one. If, however, plenty of manure is to be had, and one has but a few acres of land, we would advise keeping the same plantation in fruiting for at least three or four years. Another manner of growing them in many parts of the country and advocated by many, we must truthfully call the

SLIP SHOD SYSTEM.

This is to plant out, cultivate and hoe once or twice, and then, "let them run," covering the entire surface with plants *and weeds.* If there is danger of too many weeds going to seed they pass over and mow them down. Others let them get as weedy as they will and then burn over the plantation after they get ripe, which we think is preferable. After they are through fruiting a plow is run through the plantation every three or four feet both ways and the ground all harrowed over. They are then allowed to run, and the same care taken as before described. Of course, the more manure they can have scattered among them the better they do, and the longer they can occupy the same ground. We would not advise this plan, but still, when help is scarce and high, it is sometimes a *necessity.* When this system is practiced, we would advise a liberal quantity of mulching to be scattered among the plants every fall.

HILL AND MATTED ROW SYSTEM.

After growing them in hills, as before described, for two or three years—or until they commence to fail in bearing large crops—they can be allowed to run, and form matted rows. Some varieties, like the Wilson's Albany, will only bear two or three good crops in hills, when they must be allowed to run. Other sorts, like the Triomphe de Gand, will yield large crops for a number of years in succession, if kept in hills

GROWING STRAWBERRIES AMONG RASPBERRIES, BLACKBERRIES, &c.

When these are grown in hills both ways, strawberries can be set half way between *each* way, and kept in hills or matted rows, as before described. When the raspberries, &c., are grown in rows, strawberries can be set half way between the rows, and grown in matted rows for two seasons, or until the raspberries, blackberries, gooseberries, or whatever they may be, get so large as to make it impossible to work them out with the strawberries between them.

RENEWING STRAWBERRY PLANTATIONS.

First decide on the year you wish to remove the old plants. As soon as the runners have attained the length of a foot or more, select the strongest from each hill, place the end of it in the center of the square formed by four hills, of which the hill to which the runner in question is attached forms one of the corners.

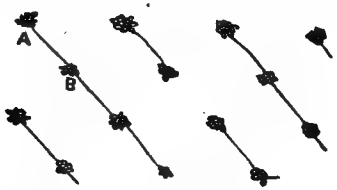


Fig. 22.

As shown in *Fig. 22*, A is the old hill, B the new. When the end of the runner is placed in position, sprinkle a little dirt on it, so that it will be more certain to take root. Four weeks from this time the runner will have formed a new plant, with from six to eight leaves, and a myriad of strong, healthy roots. It is best now to sever the runner, as the new plant has sufficient roots to keep it in a growing condition. Late in the fall pull up the old plants, and place them over the new ones, with a small handful of dirt on each one, to keep the elements from removing them during the winter.

VARIETIES.

Those marked with an (H,) are perfect blossoms, or Hermaphrodite, and those with a (P,) imperfect blossoms, or Pistillates; the former producing full crops by themselves, while the latter requires every fifth or sixth row of the former planted among them as a fertilizer. Those sorts with a star prefixed succeed well grown by any system and in all climates, or on any soil; while the others require extra care and are grown only in "hills" or "hill and row system."

* **Metcalf's Early,** (H.)—Claimed by its originator and original disseminator as being *very* early, and yielding a large crop in a few days' time, thus making it a very valuable acquisition as a profitable market fruit.

* **Downer's Prolific,** (H.)—Yields the bulk of its crop *early*, when fruit sells for very high prices, and, with us, one year after another, as great a bearer as any of our old tried sorts, and its *extreme hardiness* makes it a very remunerative sort indeed. It has received the highest number of votes in many societies, as being the *most profitable* market sort, and this, too, with the *Wilson's Albany* as one of its competitors. In rows, it yields as good crops as any sort; but in *hills* the crop is *enormous*, and fruit *double* the size. Color light scarlet; shape nearly round; flavor fair; size large, and a *certain* yielder *every* year. Originated in Southern Kentucky, and succeeds equally well in the most Northern or Southern latitude.

* **French,** (H.)—Another *very early* sort. Better to be grown in *hills*, and grown thus forms *enormous* crowns—the hills averaging a foot across the top, and consequently yielding very large crops, all of which are picked early in a few days' time.

thereby making it a very valuable market sort. Fruit beautiful scarlet, flavor *very delicious;* large size, and uniformly so. Originated in New Jersey, and proves extremely hardy wherever tried.

*Philadelphia, (H.)—Most delicious *early* sort we have, and yields its whole crop of good sized, bright scarlet fruit at three or four pickings.

*Nicanor, (H.)—Plant very hardy and vigorous. It commences to ripen in a few days before the Early Scarlet, and continues up to the very latest; thus making it profitable at both ends of the season. Fruit from one to one and a quarter inches in diameter, very regular and uniform in size, roundish conical, bright scarlet; more firm and not so acid as Wilson. Our standard *early* sort.

Duncan, (H.)—Among the newer sorts this is one of the best. Its peculiar, aromatic, delicious flavor makes it especially valuable for the garden and home use. Is large and early. Requires rich soil.

The above seven sorts are all early.

* Wilson's Albany, (H.)—Too well known to require any description. Yields enormous crops everywhere. A week later than any of the above. This sort is *badly mixed* throughout the country, there being but *very few* plantations but what have more or less spurious plants mixed in. Hence great care should be taken to get genuine plants. Succeeds well in hills or rows. Originated at Albany, N.Y.

Triomphe de Gand, (H.)—On a *heavy* soil, with *rich* cultivation, and grown only in hills, this proves a fine sort. Fruit large; color light scarlet; shape coxcomb and inclined to "sport;" flavor delicious and fruit late. Foreign.

* Kramer, (H.)—Popular in the Northwest because of its extreme hardiness and productiveness.

Feast's Fillmore, (P.)—A very popular sort in many localities. With us it yields very fair crops of *most delicious* fruit. It *must* be grown only in hills to produce well. Fruit when *ripe* nearly as black as the Black Tartarian Cherry; size large and very uniform, with a peculiar, delicious, aromatic flavor, highly perfumed. Originated in Maryland, and gives good satisfaction wherever tried. Medium to late.

Longworth's Prolific, (P.)—Large size; light crimson; flesh scarlet, firm, rich and brisk; very productive and one of the best.

* Chas. Downing, (H.)—Probably no old sort has given more general satisfaction over the country than this. Plant hardy; yields large crops; flavor delicious; bright scarlet, large size. We notice Illinois and Western horticulturists generally place it first on the list.

* Essex Beauty, (H.)—A new seedling of great beauty and promise. Is very large and regular in form, deep rich crimson color, fine flavor, carries remarkably well, retaining its beauty of color and gloss for a long time, is very prolific, seldom showing anything like irregularity in form, bearing its fruit well up from the ground, with many berries of the largest size on each stem, ripening evenly and perfectly.

Monarch of the West, (H.)—A fine large variety, good flavor. Its great fault is in having green ends to the fruit, but this does not hurt it for family use, it being one of the best for that purpose. It must have rich soil and good cultivation.

* Green Prolific, (P.)—(See cut on first page of cover.) Still another season's trial with this truly fine and valuable sort has attached us the more strongly to it. We notice that a large share of our best and most reliable fruit men speak in the most

flattering terms of its high value; and what is more significant, it has received *general* praise by *every* Fruit Association that we have seen any notice of.

Of all the *tried* sorts on our grounds we are *satisfied* this has proved one of the most valuable on account of its *extreme hardiness*, both through the coldest and most changeable Winters and dryest and hottest Summers, and its *wonderful bearing qualities every year*. We have sent out no sort that we have received more high and flattering testimonials from than this, and this, too, from nearly every State in the Union. They yield good crops in rows, but fully *triple* grown in hills. It forms one of the most astonishing hills we ever saw. Plant of a very dark green; hence its name. It was originated by Seth Boydan, of New Jersey, who has grown within the past three years *over twelve thousand* seedlings—including the famous Agriculturist—and *he* pronounces the *Green Prolific the best of all.* Dr. Trimble and Francis Brill, of N. J., speak of it as the *best tried sort.* Fruit large size and very uniform, there being scarcely any small berries among them. Shape round; color beautiful orange scarlet; fair flavor and grows well up from the ground. It is pronounced by some a pistillate, but we consider it sufficiently supplied with stamens for a self-fertilizer; still, it might be well to plant every fifth or sixth row with the Wilson, Downer, or some other fertilizing sort. We earnestly advise all persons who have not this sort to plant them, knowing from our own experience, and testimonials from others in all parts of the country, that it will give satisfaction in *every* State in the Union. Season medium to late.

Agriculturist, (H.)—Where this variety succeeds it gives the best satisfaction. Like the *Green Prolific* and *French*, it forms enormous "stools," the Wilson being a pigmy to it. Fruit large size, conical, and somewhat flattened; dark crimson, firm, and of the finest flavor. Originated in New Jersey.

*** Lenning's White, (H.)**—The finest "white" variety grown. Large size; perfectly round; white, with a rich delicate blush on one side; extremely high flavored and highly perfumed. It is one of the most delicious flavored strawberries we have ever tasted, and should be found in every assortment. It is one of our favorites for canning purposes.

Jucunda, (H.)—Misnamed by many "Knox's 700." We can only say that we have never grown a strawberry that run so uniformly large, and of such beautiful scarlet waxen color, as this variety. When it first blossomed we thought it had been overpraised; but when we saw that *every* blossom formed fruit, and *every* berry was *large—very large*—we changed our minds, and became satisfied it was one of the most valuable market sorts on our grounds. The fruit *keeps large* up to the *very last picking.* It succeeds best on heavy rich loam; if not rich, it must be made so with a liberal coating of well-rotted manure. It should be grown only in hills to produce full crops. Season medium to late.

Golden Queen, (H.)—Claimed by some as the *Trollope's Victoria.* We have picked fruit, *twenty* of which would fill a quart measure, and picked as they run, the average was not over *fifty.* Being such fine yielders, and such large beautiful fruit, and yielding so *very late* in the season, makes them one of the most valuable and desirable sorts.

*** Prouty, (H.)**—*A beauty.* So solid, bears carriage hundreds of miles. Immense yielder, strong fruit stalks holding the fruit well up from ground; large size; fruit conical and so beautiful. Originated, we believe with Louis Ellsworth, of Northern Illinois, and highly recommended by him for that trying locality. We have no new sort on our grounds that pleases us better.

*** Capt. Jack, (H.)**—Immense yielder; fruit medium to large, good flavor. Similar to the Wilson, but better flavor. Originated with Miller, of Missouri.

Black Defiance, (H.)—A very large dark-red berry, of superior quality, and exceedingly attractive and beautiful.

COL. CHENEY STRAWBERRY.

* **Col. Cheney, (P.)**—A cross between the Russell and Triomph de Gand. It has the rich gloss and distinct scarlet of the first, with the luscious meaty character and firmness of the latter. The fruit is large and very uniform in size, and *enormously* productive, being fully equal in productiveness, with us, to the famous Wilson's Albany. The plant is strong, healthy and robust, resembling the Triomph, but having more of the luxuriousness of the Russell. We consider it one of the finest varieties on our grounds. Its peculiar spicy flavor is admired by all. From all parts of the country, and especially from the South, we have the most favorable reports of it. It is *perfectly hardy*, standing the summer's sun and winter's cold, to perfection.

KENTUCKY.

* **Cumberland Triumph, (H.)**—A very fine berry in all respects; of very large size, fine form, and beautiful color, and excellent quality, and is growing into general favor.

Colfax, (P.)—In sections where other sorts do not stand cold or heat, we recommend this sort. Its productiveness is beyond belief with those who have not seen it.

We herewith give what is said of the two noted new strawberries by one of the leading nurserymen of N. J..

* **Continental, (H)**—Another year's experience with this variety places it at the head of the list, and in our judgment, ahead of all others in value as a market berry in this section, comprising New Jersey and Eastern Pennsylvania. Although originated in the light soil of New Jersey, it succeeds even better in the heavy soil of Pennsylvania, having yielded for Mr. Alfred Felton, (brother of the originator,) on his farm at Hartranft Station, Montgomery county, Pa, from a small patch of about the twelfth of an acre, at the rate of over seventeen thousand quarts per acre. Mr. Felton says he wants nothing better. It is meeting with favor wherever tried, and is certainly worthy of general trial all over the country.

Cinderella, (H.)—Certainly the most beautiful and perfect in form and color of any known berry, and we venture to say will outsell any other strawberry it may be brought in competition with. Above statement fully attested practically in Spring Garden Market the past season. These berries were eagerly bought up early in the morning at 25 and 30 cents per quart, while most other varieties went begging for buyers at 8 and 10 cents per quart. Like the Continental, it succeeds even better in Pennsylvania than in its native soil in New Jersey. Parties growing them there say they want nothing better than the Cinderella. We set it down as one of the most promising, and well worthy of general trial.

* **Duchesse. (H.)**—A valuable early variety, of large size and fine appearance, light crimson, firm and fine quality. A promising market berry,

The Fowlers' Prolific and Iowa Seedling,—Are two new sorts grown in Iowa that are highly recommended, but we have not given them sufficient trial to describe them at this time, (1878.)

* **Crescent Seedling, (H.)**—This is beyond question a wonderful strawberry; its productiveness is astonishing. Fifteen thousand quarts, (468 bushels) have been gathered in one season from one acre. In size it is medium to large; in color, brilliant, handsome, and does not get dull when in market; in quality it is unsurpasssd, rich, having the peculiar wild flavor. The fruit colors on all sides at once, so that all red berries may be gathered, a quality appreciated by market growers; all berries perfect in form and merchantable.

* **Sharpless Seedling, (H.)**—Among the new kinds, we think nothing can compare with this. The fruit is large to very large, an average specimen measuring one and one-half inches in diameter. A large berry, exhibited recently at the Nurserymen's Convention in Rochester, weighed 17-16th ounces, and measured 7 inches in circumference. In form it is generally oblong, narrowing to the apex, and irregular and flattened. Color clear bright red, with a shining surface; flesh firm, sweet, with a delicate aroma. In quality it ranks next to Triomphe de Gand. The plant is very vigorons, excelling even the Monarch of the West. After growing it side by side with the best new sorts now in cultivation, we consider it superior to them all. From Pennsylvania, where it originated, we hear the most flattering reports.

Forest Rose, (H.)—A new variety of great excellence; large, handsome, and productive; quality best; a good shipper; is destined to take a front rank as a market berry. Dr. Warder says of this berry: "*Here we have elegance of form, brilliancy in color, great size and firmness to bear transportation, all combined, with table qualities of a higher order than the Wilson, which it surpasses even in field culture.*"

Endicott's Seedling Strawberry, No. 2, (H.)—The plant is strong and vigorous; foliage large and abundant, and of palish green color. Fruit stalks long and strong, holding the fruit well up from the ground. Fruit enormously large, will *average* twice the size of the Wilson the season through, and has a most excellent flavor. Color dark red when fully ripe. The plant is very prolific and hardy, standing the hot dry summers better than almost any other grown. The No. 2 blooms ten days later than the Wilson, but matures its fruit about that many days earlier, so they both ripen the same time.

*** Nunan.**—This is the first strawberry that makes its appearance in Northern markets from the South. It is medium and uniform in size, light scarlet, fine flavor, very firm, bearing carriage well; an abundant yielder, and very hardy and reliable at the South.

Mr. Durand of N. J., the most successful grower of new seedling strawberries, is out with a new sort. We give herewith his description of the

Pioneer.—A firm, beautiful seedling, having been cultivated and thoroughly tested in my grounds for the last eight years. It is the earliest of all I have yet found, ripening with me this year (1878) by the twentieth of May. A very vigorous and luxuriant grower, with a superb run of berries of the largest size, holding its fruit well up, ripening evenly, of brilliant scarlet color, and remaining a long time upon the vines after becoming fully ripe, without danger of rotting. Its endurance is such that it will stand the coldest climate without injury, being the least affected by severe winters of any plant I have yet seen, scarcely losing a leaf, or in any way showing the effects of cold weather. Is an unusually rapid grower in moderate weather, making large, strong plants, even when set in the fall. Is a fine bearer, nearly all its berries being of the largest size, continuing to bear and ripen late in the season, never showing that fatal disposition of ripening with a green end. Is prolific and regular in bearing, fine flavored, giving a good crop of fruit (when set in the fall) the following spring, continuing its berries of the largest size from the same vines the second year. Being an easy grower and good carrier, is desirable either for market or family use. Being peculiarly fitted for cold climates, it seldom does well in extreme warm weather, yet making rapid progress when set in the spring or September, and may be set with good results even as late as November.

Peak's Emperor, (H.)—Originated by E. Peak, South Bend, Ind. Very large size; single specimens often measuring 6½ inches in circumference. Plant quite similar to the Agriculturist in appearance, but is perfectly hardy and does not sunburn. Flavor *very* excellent; berry firm and very productive.

Kentucky Strawberry, (H.)—(See cut, page 32.) "This large, late and valuable variety is destined to become very popular with both marketmen and amateurs. Ripening at a time when fruit is scarce, the main crop of strawberries being over, and raspberries not having made their appearance, it connects the berry season, which has heretofore had an important break. For several years past, late strawberries have sold better than our earliest ones, which ripen while the market is filled with strawberries from the South.

The Kentucky is a seedling from Downer's Prolific, raised by J. S. Downer, of Kentucky, who also originated the Charles Downing, from the same source. The Kentucky very much resembles the Charles Downing in foliage, growth and vigor of the plants, large, bright berries, sweet and delicious, and ripens about ten days later than other large strawberries. It has been tested for six years with great satisfaction, and is now for the first time offered to the public. Those who have seen and tasted the fruit have all spoken highly of it."

RASPBERRIES.

This delicious, indispensable and very useful fruit follows immediately after Strawberries—in fact, the earlier sorts, such as Davison's Thornless, Purple Cane and Doolittle, commence ripening before the late sorts of Strawberries—such as the Green Prolific, Jucunda and Golden Queen—are gone, thus keeping up the succession of fruits. The raspberry is not only a delicious fruit for the table, but is one of the finest for jelly, canning, preserving, &c., besides being a *very* profitable market fruit—the expense of growing, one year after another, being no more than the same amount of corn, while the *profits* will average $200 per acre yearly with *ordinary* cultivation,—while if extra care and cultivation is given, double that amount can be obtained. From two to four dozen of the different sorts will supply an ordinary family, while

that number of the "ever-bearing" sorts will supply the table from the time Blackberries are gone until the ground freezes.

This fruit is also proving very profitable to dry, and for those who live too far from large markets or access to the railroad, the growing of Raspberries for drying purposes will prove very remunerative indeed. We give on another page a plan for a drying house. Those having a hop house will find it very convenient for this purpose, and to those having hot-bed sash, we would say, make a shed about six or eight feet high, having a passage through the center, and each side filled up with drawers to be pulled out from the outside, over this put your sash, and in it put a cheap sheet iron stove. Those varieties that are the firmest will prove the most profitable for drying purposes, as it takes less quarts to make a pound of fruit,—for instance, 2 quarts of the Golden Thornless or Golden Cap will make a pound of dried fruit—2½ quarts of the Black Cap, and about 3 quarts of the Red. The more general cultivation of this fruit has been greatly deterred by so many worthless and tender sorts being disseminated over the country. We have lost thousands of dollars by these tender sorts,—having tried all varieties of any note, have discarded all but those named in our list, and we would here say that it includes all of the best sorts now known or grown in this country. We are yearly testing new varieties of not only Raspberries, but all other kinds of small fruits, and shall give our opinion of the same in THE FRUIT RECORDER from time to time. The

PROFITS OF RASPBERRIES.

Depend greatly on the culture given them and the market. We usually average from 10 to 15 cents per quart through the season. In some markets the red sell better than the black, and others *vice versa*. In many of our large cities the larger red raspberries, such as Hornet, Clark and Franconia, sell readily for 10 to 15 cents per pint, while the black and smaller red sell for 8 to 12 cents. It is better for any party to make himself acquainted with a market and its wants, before setting too largely of certain kinds. The yield varies with different sorts; for instance, the Mammoth Cluster will easily yield on an average 100 bushels to the acre with ordinary cultivation, while the other black sorts run from 60 to 80, and yet it is desirable to plant both, in order to have *early* fruit—as the Mammoth Cluster is *very* late. Some seasons an *early* sort, that yields but 50 to 60 bushels per acre will bring more profit than a later sort that will yield 100 bushels, and *vice versa*. The Kirtland, for instance, a medium sized red variety, yields its entire crop of 50 to 60 bushels per acre, *very early*—in two or three pickings, and if sent into a market where early raspberries are commanding a high price *nets* more money to the producer than the Philadelphia, that yields from 100 to 150 bushels per acre. One will see at a glance that the last costs twice to three times as much to pick and market, and selling for only about half the price in many markets, does not really bring as much profits. We simply refer to these facts here, to show the necessity of planting out an assortment of early and late sorts. For distant markets this fruit should never be shipped in a tight box or crate. We always prefer to ship them in fruit baskets, set on slat divisions, as shown in the first part of this work. Great care should be exercised in picking the fruit, not to have it wet when gathered, and not to allow it to get over ripe. If it is thus it will quickly mould and spoil. We alternate on our plantation in picking, going over half the plantation every other day. We have a great many inquiries as to the comparative profits of Strawberries and Raspberries. We desire to answer all such here, by saying, that for perhaps the two first years, on the *same* soil, Strawberries will prove the most profitable, (although if vegetables are grown between the Raspberries the first year or two, as much money can be realized from the ground, as it is not desirable to plant such between Strawberries.) When, however, we take into consideration the longevity of a Raspberry plantation—standing on the same soil 6 to 8 years—if well cared for, the little hand work required to keep them clean and their certain bearing *every* year, we should say, Raspberries, in the *long run*, on the same piece of ground, have proved the most profitable with us. Space will not allow us to go further into this subject, but we shall speak more fully on it in THE RECORDER from time to time.

CULTIVATION.

There are different methods of cultivation, some using stakes. This we consider an expensive and useless practice, unless it be for garden planting, where *very close*

planting is carried out, and it is not desirable to have the bush spreading. Many persons are deterred from setting this—one of the most profitable and easily cultivated fruits, from reading articles and books on *Small Fruit* culture, wherein the *necessity of stakes* is laid down. Now, we affirm that if the Raspberry is trimmed, and grown as we shall describe, there is no need whatever of their use. The great fault with most growers is, that they allow the main stalk to grow its full hight, or at least much longer than it should, and even if they do trim them, it is not done until the following Winter or Spring. The true way is to trim them *while growing*. By so doing and checking the tops, the roots become larger and the tops branch out more. It is sometimes advisable, in GARDEN CULTURE, where the bushes have but little room, to tie them up close to stakes, or place two stakes, one on each side of the hill, and nail a hoop between them, training the bush through the hoop. Or they can be set along in a row, or by the fence, and posts three feet high set along side of them, with a strip nailed on top of the posts, and also about two feet from the ground, or by setting the roots two or three feet apart, and never allowing them to grow over three feet in height and two feet wide, they form a perfect hedge; and on account of such close pruning, they will hang *literally loaded* with the *largest size* fruit, and growing thus they will be a support to each other, and the strongest winds cannot damage them.

How many farmers might load their tables with this delicious fruit, even if they do nothing more than set 50 or 100 plants in their fence corners, mulch them well and each winter cut out the old bearing wood, or what would be still better and cost them but little trouble, have a few rows set out near the house in a lot set apart for potatoes, cabbage, &c.—all to be worked out by a horse, as shown in our remarks to the Farmers' Club, in the first part of this work.

We give below a very good plan that may be of value to those who are favorable to GROWING THEM TO A SUPPORT, and would say, where lumber is cheap, a single slat nailed along on top of posts, two feet from the ground, would answer: "Our method has been to set the plants in rows, six feet apart one way, and from three to three and a half the other, on good land which, if previously well manured, so much the better; though in cases where manure is scarce, good crops may be realized from ground in an ordinary state of fertility; but like most other crops, proper manuring will always be found to pay well.

"After the plants are set out, the ground is kept thoroughly cultivated, until prevented by the running of the vines, when they should be no longer worked among, but allowed to strike root, (which they will readily do, if not disturbed,) in order to furnish a future supply of plants. The second year after setting, we expect the plants, if they have done well, to bear a full crop.

"Some cultivators manage to get along without staking and tying up the vines, but thus far we have not succeeded satisfactorily without supports of some kind; especially during the first crop, when the vines are low and trailing, we find that a larger amount of fruit is obtained, in better condition, and freer from dirt, when stakes are used. Mulching, however, would operate to keep the berries clean; but during the second year's bearing, when the plants become loaded with foliage and fruit, the stools are liable to be tipped over, or broken down by the violence of storms; thus destroying, perhaps, much fruit, and also obstructing the passage of the horse and cultivator.

"We sometimes use stakes, and a single wire. We drive short stakes in the ground, once in thirty feet, saw them off two feet above the ground, and fasten one end of the wire to a hub driven firmly in the earth. This wire is stretched the whole length of the row, and fastened on top of the stakes by means of wire staples, the end being secured in the same manner as the first. The ends of the vines are then gathered up and tied together in one place on the wire, half-way between the stools, where, during the gathering of the fruit, the growth of the canes is not interfered with. When the new canes have reached a few inches above the wire, their growth is stopped by pinching off the ends, which operation causes them to branch just above the wires, thus giving them room to tie the stools to the wire below the branches, and allowing them to retain their natural position. These form the stools which are to bear the future crop, and are allowed to finish their growth without further interruption. By the use of wire, the first cost will be greater than when stakes alone are used; but in the end it will be found the cheaper method, as the wire will last many years, and may be moved as occasion requires.

"In case the new canes which spring forth, and which are to bear the second year's crop, need thinning, the weaker ones should be broken out in early growth, in order to give those which remain a better chance. Allowing that the second year's crop is to

be the last, no new canes should be allowed to grow during that season, but should be broken away in order to give those in bearing the full strength of the root, which, as we often proved, tends very much to increase the size, and consequently the amount of fruit. After this manner we shall expect to get nearly, or quite as much, in two years, as in the ordinary way we gather in three, and all large and first quality berries." —HENRY THACKER, *in the Horticulturist.*

TIME TO SET.

Any time in the fall, after the first light frost, or early in the spring. If our ground was ready in the fall, and we desired to set out a large plantation, we should much prefer to set them out then than to wait until spring, as the soil would be well settled about the roots, and the plants get a much earlier and better start in the spring; and, besides, there would not be so much danger of breaking off the young germ. If, however, it was in the spring of the year, we should not wait till fall to set, but plant them right out, and even if they made but a small growth the first summer, they would get so well established, that the second season they would make a full grown bush. When set in the fall a small quantity of corn litter should be thrown directly over each plant to prevent the ground from heaving.

GREEN PLANTS.

We have had very good success lately in planting out the tip-root of the Black Cap family, such as Doolittle and Mammoth Cluster in May and June, *after* the germ had sprouted 4 to 6 inches above ground. They become quite tough, and are as easily transplanted and sure to grow as cabbage plants. We have also transplanted and shipped sucker plants of the Antwerp family—such as Clark, Philadelphia, Kirtland, &c., in May, after they had sprouted 4 to 6 inches, and have had the very best success with such, not losing to exceed 5 per cent. They always had a fine fibrous root, and are scarcely checked in their growth by being transplanted.

"SUCKER" PLANTS.

All of the Antwerp family are increased by suckers or from root cuttings, and no variety that does not sucker can be increased from root cuttings successfully. We give the modus operandi for propagating by root cuttings in another part of this work, both for the Raspberry and Blackberry. In removing sucker plants to transplant great care should be taken to cut off a piece of the root from which the plant sprouts, and it will be like *Fig. 23*, which if dug up carelessly, as is a common practice with many plant dealers, who offer plants "cheap," they will be like *Fig. 24*. Any one can see at a glance the value of the first over the last, and the importance of careful digging. The plant is very easily detached from the root from which it sprouted by pulling on it, hence it should not be raised from the ground before the horizontal root has been cut off with the spade, and the plant raised from its position with the spade, when it may be pulled up by hand.

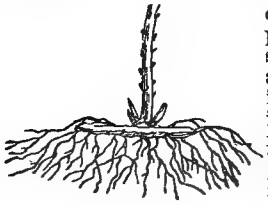
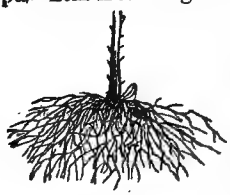


Fig. 23.

Fig. 24.

"TIP" PLANTS.

These are grown from the tip of the new growth, in August and September. As soon as the tips grow nearly bare of leaves, and present a snakish, dark purple color, put them into the ground 3 or 4 inches, at an angle of 45 degrees. In a few weeks they will form a fine matted plant like *Fig. 25*, and can be transplanted by cutting off the parent cane 4 to 6 inches above the root. If good strong plants are wanted, and quality or size more than quantity, is desired, check the new growth when it gets not to exceed two feet high. It will throw out 10 to 12 side branches, and these being layered early form very large matted roots by fall. If a large increase of plants, however, is desired, check the growth of all these side limbs, when they get about two feet in length. This will cause each limb to branch out and instead of having 12 to 15 to layer, 50 to 100 will be produced around a good sized bush. The plants from these will



be smaller, of course, as they are layered much later, and besides do not grow from such strong canes, but our experience has satisfied us, that these smaller plants are safer to set—especially in large plantations—where the work has to be trusted to help. We claim them as better for the same reason that we prefer a small to medium Strawberry plant to a large overgrown one, as explained in the article on Strawberry culture. We have noticed that they are more sure to grow and they make just as fine a bush by fall.

Many persons have written to us for "root cuttings," and plants from root cuttings of the Black Cap family. We hope this explanation will satisfy all such, that such are not produced from roots, but from the tips in August and September. We place all such as increase thus (by "tips,") by themselves, with a note under. When bushes have been bent over to be layered thus, it will be necessary to trim them off pretty close for bearing the following year, or else it will be necessary to stake them, and tie the bushes up to the stakes, for by layering when the stalk is green, they get bent over and remain thus, if the whole top is left on. If it is cut off, say half, they will work back to an upright position, before bearing season. If it is desirable to grow the tip raspberry without stakes for fruiting and plants, it is *very important* that the new growth should not be allowed to get over two feet high before pinching off. These will grow exceedingly stocky and throw out such rank side branches as will layer without bending over the main stalks, and after these side branches have produced roots at the tips, they can be cut back half-way, leaving a very fine upright bush to bear fruit. We represent this by a rough sketch, (*Fig. 26.*)

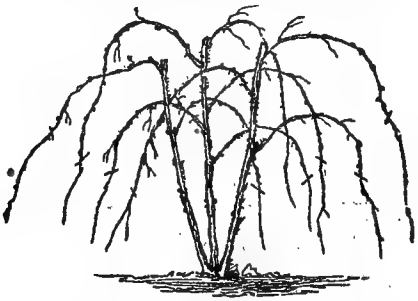


Fig. 26.

The three main stalks are upright and the branches bending over to the ground as they appear when layered, the heaviest lines showing the wood that is left on, after cutting back for fruiting purposes, as shown by the cross lines.

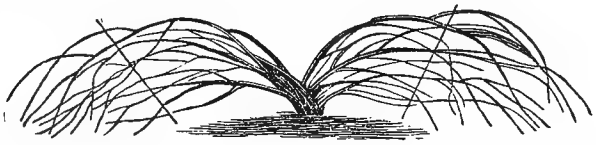


Fig. 27.

Fig. 27 represents a bush that was not nipped back when growing, or at least allowed to get too high before pinching off, and being layered to increase plants presents the appearance above—the two cross lines showing where they should be cut off for fruiting purposes. The two figures will show at a glance the importance of nipping off the new growth without further comment.

SOIL FOR RASPBERRIES AND PREPARATION OF SAME.

Any good corn land will grow good crops of raspberries, but a loamy soil is preferable, especially if increase of plants is desired. If not in good order and manure is scarce, we would prefer to set the plants, throwing a small quantity of manure or commercial fertilizer over the plant when set or in the furrow with the plant, provid-

ing it is not too coarse. The ground should be deeply plowed and well harrowed over before setting, as no plant delights more in deep, friable soil than the raspberry, and as the plant remains for years in the same place it is well to have it get well and deeply rooted and established at first.

PLANTING OUT.

A shallow furrow is plowed or small hole made with a hoe, (*Fig. 28*) and the root spread out as here shown, being careful not to break off the germ at the base of the stalk, for, if broken off, it will take from two to four weeks to force out another, and thus the growth of the new stalk is put back so much. Put one plant in a hill, holding the plant with the left hand, and with the right scatter a little fine soil over the germ and then fill up with the hoe, so that it will stand about as deep as it originally grew, or say not to exceed two inches. If planted in the Fall, scatter a little mulching over the root and as soon as the ground is settled in the Spring, soften up the surface down to the root with a fork hoe, for if it should become too hard or bakey, the tender germ may be destroyed. Potatoes or beans can be planted between the first year.

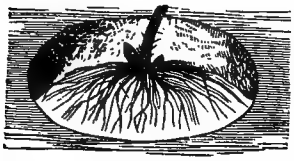


Fig. 28.

DISTANCE TO PLANT.

If desirable to plant both ways, six feet apart, or if one way only, three by six. The first distance for large plantations where help is scarce and high and it is necessary to do as much work as possible with the cultivator, is the best, as they can be worked out both ways with the cultivator. When grown thus, however, the "pinching in" of the new growth must be *thoroughly and timely* attended to, so that they will grow very stocky and not be twisted or broken by the wind. The last distance is preferred by many who have but a small piece of ground, and who wish to get as much fruit the first season or two as possible; although perhaps, in the long run, the most fruit could be obtained from the "hill" culture, as they could be better attended, more thoroughly cultivated and kept pruned much better and more easily, and, too, not requiring the great amount of hoeing that the row or hedge system would require. Strawberries can be set among them, as described in a former part of this work, or potatoes can be planted the first season, and when dug the tops thrown around them, forming an admirable mulch. One important thing in favor of planting in rows is that when they grow up they grow together and sustain each other against hard winds. This, of course, is an important item in those sections of the country where hard winds prevail.

AS SOON AS THEY SPROUT

In the Spring, work them out clean with the cultivator and hoe, and keep them well worked through the season. Cut them back the *first* season, in July or August, to within *one foot* of the crown, and side branches pruned proportionately. This severe pruning *must* be resorted to the *first* season to ensure a strong, healthy bush afterwards. If not cut back, they are apt to exhaust themselves in bearing the first season, before they get sufficiently rooted, so that they get stunted and many die out, while the large share of the balance never make healthy or good-bearing bushes. Here is where the great mistake is made by many planters—to leave too much wood the *first* year. Be *sure* and have a *strong, full grown root or bush* before allowing them to bear heavily, and your plantation will last from eight to ten years, while if they are allowed too much top, and to over-bear when young, the plantation will ever afterwards be worthless, or at least, will not pay. We have heard parties boast what a growth their raspberries made the first year, and what a crop they got from *that growth;* but they "paid dear for the whistle," for their plantation was ruined thereby.

After the first season pinch off the top of the new growth when it gets two to two and a half feet in height, and if the side branches should grow out too spindling, cut these back to within two feet of the main stalk. If this cutting back process is *thoroughly* attended to each season, they will grow sufficiently stocky to hold up their fruit without the trouble of staking, besides yielding double the amount of fruit.

In growing by the row system spoken of above, or what might more properly be termed the

HEDGE SYSTEM,

mark out the rows six feet apart, and set the plants three feet apart in the row. Keep well cultivated, and when *one foot* in height pinch off the tops, and as side branches grow out, pinch those off also within *a foot* of the main stalk. The second year, allow the main stalk to get two feet in height before pinching back, and the side branches two feet in length. A row thus grown will form a *perfect hedge*, and will yield double the bulk of larger, finer fruit than if they had been allowed to take their own course. The third year, and each year afterwards, the new growth can be allowed to get two feet in height before nipping back.

If desirable, Strawberries can be grown half way between as before described. If, however, this double cropping is practiced, the plants *must* be kept *highly* fed with the *best* composts. If the ground was not sufficiently enriched before the plantation was set, they can be enriched by throwing composts around each hill. The best for this purpose is leaf and rotted wood mould, from the woods. Ashes are also good, as it keeps the grubs away from the plants.

As soon as they are through bearing, cut out the old wood and carry it out of the plantation. This *must* be done right after the last picking, so that the new growth that is coming on rapidly will have plenty of room, and can be properly pruned. Remember in cultivating the sucker sorts, if fruit is the main requisite wanted, to hoe and cultivate off the suckers as fast as they appear as you would weeds, for if allowed to grow they detract the strength from the main hill.

TO INCREASE THE PLANTS

of Sucker sorts, we much prefer to keep a plantation for that purpose, or by root cutting, as it will destroy a bearing plantation in a short time to cut and mangle the roots by digging up plants that grow therein.

If, however, it is desired to take plants from a standing plantation, they can be greatly increased by running a cultivator through with three or four strong blades fastened in the place of the teeth. Pass through the rows each way and the knives will cut up the roots, causing them to send up an innumerable number of plants, which will form very fine fibrous roots. Another way in a small plantation, is to take a sharp spade and cut around the bushes, commencing near the bush and cutting circles around it, each time further off. Many object to the Sucker variety, on account of suckering.

We certainly would not discard such desirable sorts as the Philadelphia, Clark, Naomi, Franconia, and Kirtland, because of this. We believe in an assortment of fruits, so that if one sort fails another may hit. The red raspberry is in too great demand in every market, and pays too well to think of not cultivating it because it "suckers," and besides there is no fruit that gives better satisfaction for table use.

PRUNING.

On the next page we give drawings to show how the plant appears when properly pruned. *Fig. 29* shows a plant as it appears the first Spring after planting out, or what we call a one year old plant, if formed as we have before described. *Fig. 30* shows the same bush as it appears the middle of June, with the leaf and fruit, and also the new growth growing above all.

At this time the new growth should be pinched off as indicated by the light line across the top, if not it will grow spindling, and present some such an appearance as is shown by *Fig. 31*, while if pruned in June, as shown by *Fig. 30*, and the side branches nipped back in July or August, it will present the second year some such an appearance as *Fig. 32*, requiring no stakes, and yielding enormous crops of the largest, finest fruit.

MULCHING.

Nothing contributes more to a large crop of fruit than a liberal supply of some coarse material being put close around the bush, that is on the space that cannot be reached with the cultivator. Some advocate mulching the entire surface, but we object to this, first, because it is too laborious, and takes too much mulching material, and is too expensive; and, secondly, we believe a constant and thorough cultivation

and stirring up of the soil with the cultivator is one of *the best* mulchings land can have. Leaf and woods mould, sorghum bagassa, corn stalks, straw, hay, chip dirt, ashes, rotted saw-dust, tan bark, or planing mill shavings, are all good mulching material for Raspberries. The last three, however, should be well rotted, and a little ashes thrown around them.

Fig. 29.

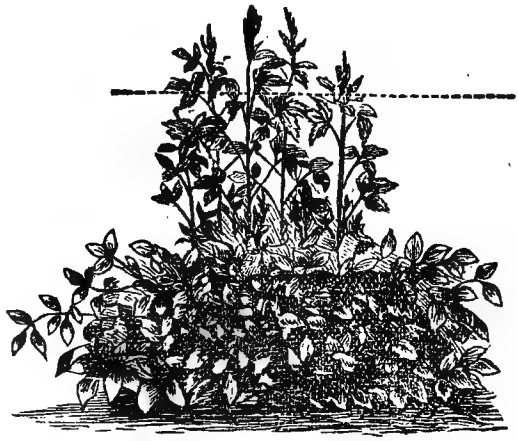


Fig. 30.

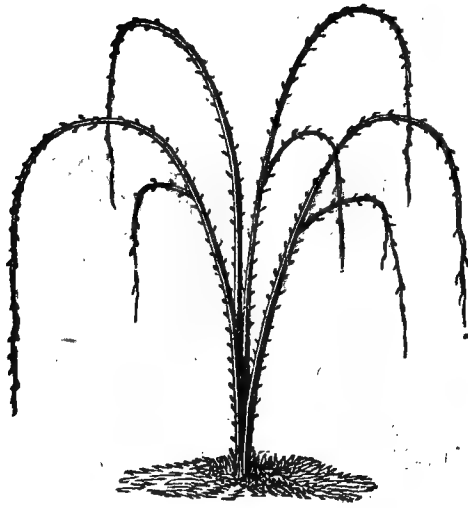


Fig. 31.

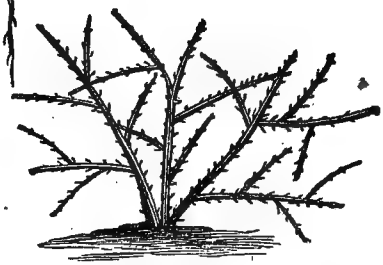


Fig. 32.

TO MAKE AN OLD PLANTATION BEAR WELL.

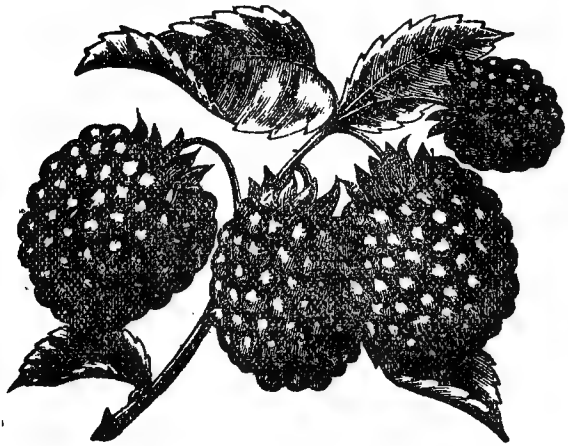
If it is desirable to plow the ground where an old plantation stands, and as much fruit as is possible taken from it before doing so, keep the new growth broken off as it starts, so that the whole strength of the root will go to the fruit.

Brandywine Raspberry.

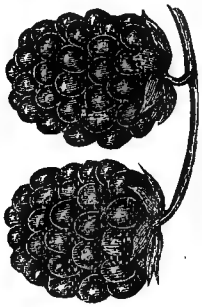
VARIETIES.

We have grown and fruited over fifty varieties of raspberries, and have to say that the following sorts have given us the best satisfaction, and that if a person cannot be suited with some of them, there is no use of looking further.

We here give a fine representation of the Brandywine Raspberry. From our own observation, and experience, and all we can learn about this variety, we are confident it will give universal satisfaction as a hardy plant, and an abundant yielder, and so very firm that it will keep to ship 800 to 1,000 miles. The fruit is as large as the Herstine; not so conical, but more globular in shape. A friend in Delaware, and a large fruit grower, writes us that 1,500 one year old plants yielded 600 qts., while 2,000 Blackcaps, one year old yielded but 500 qts., and that they were shipped to New York and even Boston, where they sold readily for 50 to 75 cts. per quart. Their bright color, fresh appearance and fine flavor making a ready sale for them. We are extending our own plantation of this sort largely.



Turner.



Highland Hardy.
(See page 44.)

Earliest red sort grown.

Stands very high at the West because of its extreme hardiness, great productiveness, large size and beautiful color. Has withstood the most severe winters Fruit very firm, and bears carriage splendidly. One of the most valuable market sorts. Has stood 28 below zero without damage.

Catawissa.—A most *delicious* everbearing sort. Yields a large crop of purplish red fruit in the fall, *until the ground freezes.*

Doolittle's Black Cap.—Valuable for its earliness and hardiness. Double the size and yields double the crop of the common Black Cap. The first year after planting it will yield one or two quarts to the bush—after which it yields from four to eight quarts. When the common wild black is selling for five to ten cents per quart, this sells readily for ten to fifteen cents, which shows plainly the comparison of the two sorts. (See cut on 3d page cover.)

Miami Block Cap.—Another year's experience with this sort has proved to us that it is superior to the Doolittle. It keeps in bearing longer—thus keeping up the succession. Size of fruit about the same, and not so full of seed. Bush less thorny, large, *more stocky;* consequently yielding larger crops. Fruit brownish black. *Entirely distinct* from the Mammoth cluster.

Seneca Black Cap.—Very similar to the Miami, in color, size and productiveness, but fully a week to ten days later, and one of the highest and most sprightly flavored berries we ever tasted. Canned fruit of this kind tastes almost similar to well ripened blackberries. It is one of our favorite sorts for table use.

Davidson's Thornless.—*Not a thorn on it.* This alone is sufficient to make it very desirable indeed. When we add to this, however, that it has *proven* to be a week *earlier* than the *Dolittle*, fully equal in size of berry, as hardy, and on account of being a *much stronger bush*, a great yielder, makes it one of the most valuable raspberries grown. Black, very sweet and fine flavored. (See cut on 3d *cover* page.)

Golden Cap.—The same in size and bearing as the last, except being of a beautiful deep golden color, making it very attractive and fine for table use and jam. It is a rampant grower, and must be well cut back.

Gregg or Great Western.—This is claimed by the originator to be the *largest* black cap grown—even larger than the Mammoth Cluster, and being *black* when ripe and very firm makes it an exceedingly valuable sort. Not fully tested by us as yet, (1878.)

Golden Thornless, or Thornless Golden Cap.—It is the most productive and the largest yellow raspberry of the cap kind that we have grown—being nearly or quite as large as the Mammoth Cluster.

Mammoth Cluster.—Of all the Black Cap family this has proven the most wonderful in productiveness, size and uniformity of fruit, stockiness and hardiness of plant, of any sort we have ever grown. Bush a very rank, upright grower, with but few thorns; foliage rich dark green; fruit *extremely large and holds out large to the very last picking.* Black, with a rich purple tinge or bloom; very juicy, high flavored, and delicious. *Perfectly hardy*, having stood the most severe winters (with mercury down to 28 degrees below zero,) without the least particle of damage. Surface sufficiently firm to carry to the most distant market. Latest of all black caps. (See cut on 4th *cover* page.)

Dr. A, Swasey, of Miss., says of this sort: "This new and justly celebrated variety of the Black Cap Raspberry bids fair to supersede all other sorts in cultivation in Southern Gardens. As far as it has been tried it has proved a perfect success, and as *all* the Black Cap family of raspberries succeed better in our climate than any where north of us, we have no doubt that the Mammoth Cluster will prove itself one of the greatest acquisitsons to our list of small fruits. The canes are vigorous, upright and

stocky; the fruit nearly double the size of the ordinary varieties, and borne in magnificent clusters; its quality is unsurpassed, and its season for ripening ten days after all other varieties are gone. No Southern Garden should be without it."

Canargua.—This is claimed as a hybred of the red and black. It is one of the most prolific sorts on our place. Grows like the black cap in plant and fruit, except that fruit is purplish red, of large size and very uniform, and keeps in bearing long after all of the black caps are gone. It withstands the most severe winters and hottest and dryest summers of any known sort.

Lum's Everbearing Raspberry.—Plant resembles the common black or Doolittle, but is more stocky and not so tall. It never sprouts from the roots, and is increased naturally, only from the tips. Fruit large, black and sweet, resembling the Doolittle in size and quality at the summer fruiting, but the berries are much larger in September and October, if the weather is favorable, frequently measuring three-fourths of an inch in diameter. Berries commence ripening on the old wood about the first of July, and the crop, according to the size of the plant, will be fully equal to the Doolittle. Before the berries are all gone, new shoots will have pushed out from the base of the plant, which will also be loaded with fruit, and thus a succession will be kept up until late in the autumn. Not a few scattered clusters of berrles, but whole stools will present long clusters of fruit that will terminate nearly every branch. Plants will bear fruit the same season they are set out, but not so profusely as after. If the plants are all cut down close to the ground in the Spring, they will produce a larger Fall crop, commencing to ripen the last of August. [The same treatment should be given the Ohio Everbearing and Catawissa.]

☞The foregoing sorts are all increased from the tips of the new growth and *never* "sucker," and none of them require winter protection. The *following* are increased and propagated from "*suckers*," and *must* be grown in stools or hills cutting off all suckers like weeds that sprout outside the hill. This is easily done by having a sharp blade tooth attached to beam of cultivator, and running through them often *both* ways.

Bristol.—A *delicious*, medium sized fruit, extremely firm, bright scarlet. It suckers badly, but when kept hoed off and but four or five canes allowed to grow, proves very productive. (See page 42.)

Philadelphia.—This has proved *perfectly hardy* with us, and on account of its *wonderful bearing* qualities *every* year, should be found in every family and market garden. Our bushes were *loaded to the ground* the past two seasons, and that, too, after one of the most severe winters, and in the midst of one of the longest drouths we have had for years. Fruit medium in size, and of fair quality.

Clark.—Another highly valuable sort, which has proved *perfectly hardy* with us. *Bush*, a strong, rank grower. *Fruit, large* size, beautiful light scarlet, and of the *most delicious* flavor. Commences to ripen with the earliest, and keeps in bearing until late in Summer. It will prove one of the most valuable market sorts we know of, not only on account of the above valuable qualities, but for its *great bearing* qualities.

Franconia.—One of the old *reliable* and *profitable* sorts. *Fruit* large, glossy scarlet, delicious flavor, and great yielder. Requires protection where the peach does not stand the winter.

Highland Hardy or Kirtland.—A very fine, medium sized, red sort. Has proved hardy and very productive. *Earliest* of all, and picked in a few days' time, thereby making it one of the most profitable of the old *tried* sorts, especially for Southern localities to ship North. (See page 42.)

Thwack.—Stands very high at the Southwest as a firm, abundant yielding market berry.

Brinckle's Orange.—Very large size, and beautiful deep, rich orange color. One of the most delicious and attractive berries grown. Very tender, requiring winter protection.

Naomi.—This is a new sort that produced a great sensation with all who have seen it fruiting on our grounds. Fruit very firm; flavor sprightly and most delicious; shape between conical and oblong; color bright scarlet; hardy and yields large crops; canes strong and hardy, being similar to Franconia, but more hardy.

Amazon.—We are more than ever attached to this really valuable red raspberry, because of its immense size, delicious flavor and firmness, and more than all its long continued bearing. After the old stalks are through bearing, the new canes of this season's growth begin to yield, and keep it up for weeks in succession, long after all other red sorts are gone. Our plantation of the new growth, in July, ripened up its crop; and clusters of fruit, as large as one's hand, hung on the tip of each cane, from ripe berries to those yet in blossom. It needs good soil and good cultivation, and if the old canes are winter killed, the new growth produces all the better, so that the crop is certain every year. It must be grown in hills.

Herstine.—A magnificent variety originating in Philadelphia; large and beautiful, and a great acquisition. One of the most valuable market sorts we have.

Delaware.—The *largest* red raspberry on our grounds; bright color, fine flavor, but not sufficiently firm for long carriage, splendid however for family use and home market.

Brandywine and Turner.—The two *standard* market sorts. (See page 42.)

We are testing a number of new sorts, some of which have cost us extravagant prices. We will report our opinion of such, from time to time, in the FRUIT RECORDER AND COTTAGE GARDENER. We do not find the Pride of Hudson, Henrietta and many other new sorts, any improvement on similar kinds above described. The New Rochelle is so near like the Ganargua that there is no necessity for growing both.

Remember to have the best success with the red raspberry, the suckers outside of the hill must be cut off as they come up, by cultivating often *both* ways.

BLACKBERRIES.

This is another indispensable and very desirable fruit both for the table and marketing. They are as easily grown as corn, and with but little more expense. It is very strange they are not more extensively grown for market purposes; as the yield will *average* every year after they come into full bearing, one hundred bushels per acre, with quick sales and high prices, the reader can see what *enormous* profits there is to be made by growing them. For home use there is no fruit that is more desirable, and if the farmer would plant but a row or two, as described in our "Address to Farmers," in the first part of this work, he would have his table supplied for weeks with plenty to spare for canning and preserving.

Plant, if ground is plenty and help scarce, six or seven feet apart each way, or if but limited space to spare three or four feet apart in the row, and rows seven feet apart.

When help is plenty, we prefer the last distance, for they sustain each other, and are not broken down by high winds. Yet to prevent their being thus broken down, when grown in hills, a *thorough* course of pruning and cutting back *must* be followed. *As soon* as the new growth gets *three feet high*, nip off the extremity. This will cause it to thicken up, and throw out side branches and other leaders; and as these get two feet or more in length, nip off the extremities. If this is followed up, the strongest winds will not damage them, while the crop will be equal to the highest expectations—at least double the amount and size of berry that will grow on bushes that have been allowed to take their own course. We have picked from rows of the Lawton, thus trimmed and well cultivated, containing forty plants, eight bushels of fruit, while other rows, that were not as well cultivated and trimmed, yielded from three to four bushels. The Blackberry—as well as other kinds of small fruits—delights in oft-repeated cultivation, and a thorough stirring up of the surface. Care must be taken, however, not to cultivate deep enough to break the roots, for, by so doing, they send up an innumerable amount of suckers. The best instrument to cultivate Blackberries is Perry's Scarifier; simply put on the broad knife behind and this prevents the teeth from going in deep, and cuts off every sucker and weed clean between the rows. The same directions for pinching in and cutting back Raspberries answers for this fruit.

Fig. 33.

Fig. 34.

If not pruned they will present some such straggling appearance as *Fig. 33*, while if trimmed properly they will appear like *Fig. 34*.

Allow but three or four stalks to grow in each hill, *hoeing off all the rest as they sprout*, for if too many are allowed to sprout over the ground, they are not only in the way about picking and working among, but detract from the growth of the main stalks. If cut off, the whole strength of the roots go to the main stalks, and they yield *enormous* crops and are easily attended to. *Never plow* among the roots after the second year, and *never dig plants* from a bearing plantation; for, in either case, the roots get torn and mangled, and will send up an innumerable amount of suckers—thereby detracting from the fruit stalks, and soon destroying the plantation for fruiting purposes. Mulch very heavy with any coarse litter, each Fall, and trim out the old stalks. The mulching will not only keep down weeds, but will keep the surface moist, so that the crops will not suffer from drouths. Potatoes, or any planted crop, can be put half-way between those planted the first distance, for a year or two. Those grown the second distance can have one row of Strawberries grown between each row of Blackberries, for two or three years. If they are kept thoroughly clean the first year, and well mulched, they will require but very little work afterwards. To protect them where they winter-kill, dig out earth from one side of the root and bend over the bush, and cover a foot or more of the top with soil.

Brunton's Early.—The *earliest* sort we have grown. Medium size, good bearer; valuable as an *early hardy* market sort.

Dorchester High Bush.—Yields fine crops of fruit. Large size; long, glossy black; very sweet and delicious *as soon* as it turns black. Valuable for marketing, on account of being so early and all picked in a few days' time. (See page 48.)

New Rochelle, or Lawton.—A well-known popular sort; yields *enormous* crops of the largest sized fruit. We have picked from rows containing forty plants five to eight bushels of fruit, or on an average of *two hundred bushels per acre.* It commences to ripen a week later than the above, and keeps in bearing four to six weeks, and always sells readily at the highest quotations, on account of its very large and fine appearance. For table use it is indispensable on account of its long continued bearing.

Crystal White.—This variety originated in Kentucky. Beautiful transparent white; *very* juicy, and has a peculiar and delicious flavor. The bush is very distinct from any of the black sorts—the stalk being a pale, yellowish white, and leaf pointed, yellow and small." Winter-kills with us badly.

Kittatinny.—Large to very large; deep, glossy black; sweet, rich and excellent; plant strong, vigorous and very productive; the fruit begins to ripen before the Lawton, and continues four or five weeks; of recent introduction. Exceedingly valuable. In many localities where the Lawton has Winter-killed, this variety has not been damaged. (See cut on page 48.)

Wilson's Early.—Very large, oblong, black; quite firm, sweet, rich and good; fruit ripens very early, and crop matures within two weeks, rendering it of the highest value as an early market variety.

Knox.—Splendid fruit, no core, delicious and melting; *very hardy* and enormously productive. It suckers the least of any, thereby making it one of the most desirable for gardens and marketing purposes.

Missouri Mammoth.—Very sweet as soon as black, with no core, and *perfectly hardy*—never having been Winter-killed. *Very large.*

The Snyder.—A *marvel* for *productiveness*; fruit medium size, sweet and melting to the core. Because of its smaller size it does not sell as well as the Dorchester, Kittatinny or Lawton, but its value of course, is its extreme hardiness, standing the winters in those sections where the Kittatinny, Lawton and Dorchester kill down.

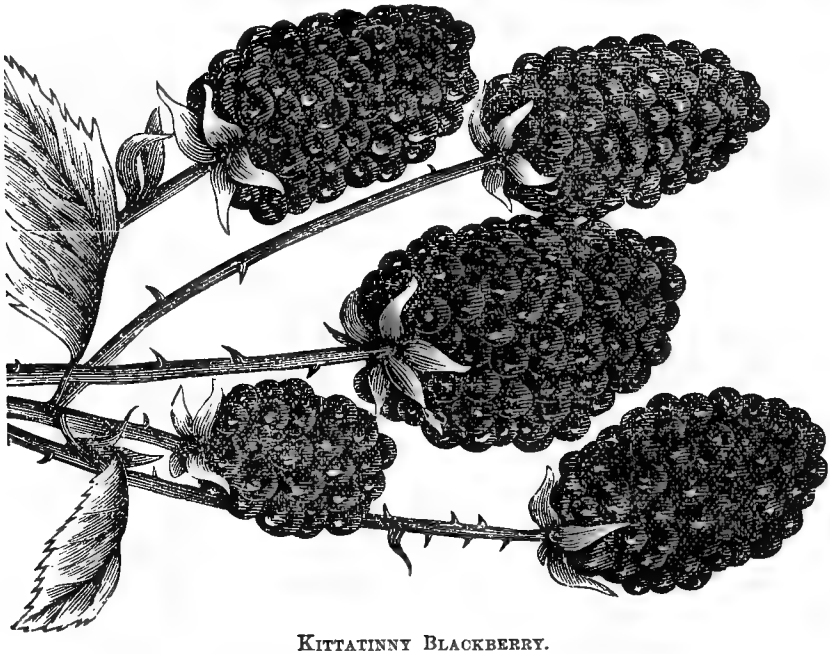
The following statement is from Mr. Gaston, of McClean County, Illinois: "July 12th, we picked our first 12 quarts of berries of this season, from our field of seven acres of Snyders. Each day following this the number of quarts picked increased, until the 23d we picked 6,200 quarts, employing over 100 pickers to gather them. To day (August 16,) we picked 96 quarts and are not through picking yet. The whole number of quarts picked up to date is 43,425, equal to 1,357 bushels and 1 quart, and makes an average of over 193 bushels per acre. Our field was planted in the fall of 1873, the plants being set in rows nine and one-half feet apart."

[This distance is unnecessarily too far. Seven feet is plenty.]

Taylor's Prolific.—A large fruit, melting, without core, and very productive, and equally as hardy and productive as Snyder

Western Triumph.—A new seedling, originating in Illinois. The best testimony goes to show that it is perfectly hardy, withstanding the most severe winter without any protection, alongside of the Kittatinny and other sorts that have killed down. Medium size, glossy black, productive and very excellent.

DORCHESTER HIGH BUSH.



KITTATINNY BLACKBERRY.

THE TWO STANDARD MARKET SORTS.

and sweet, entirely free from the acidity which characterizes the Lawton and even the Kittatinny. We cannot say how far it will be valuable for market, as it ripens one week later than any variety now grown; still in all other qualities it seems to be very suitable for general culture."—*Horticulturist.*

We are growing several new sorts that will fruit the coming season—such as the *Snyder*, *Kansas*, *Superior*, *Strachen* and *Knox*. We propose the coming spring to send a specimen of each sort on our grounds to a friend in the extreme north part of Wisconsin, and south part of Georgia, and hope to be able to have a report from each, as to the comparative merits, hardiness, productiveness, &c., in THE RECORDER another season.

CURRANTS.

"Among the cool and healthful fruits of Summer, the currant has, from time immemorial, held a prominent position. The ease with which it has been raised has thrown it into every garden, and when once put out, it is often allowed to *run wild*, take care of itself and produce its owner as little or as much as attending circumstances induced. Hence, in passing along, the stranger meets with the currant not only at every domicile, but frequently in old fields, where also the sunken hollow reveals an old cellar, and the ancient hearth-stone, covered with moss, tell of other and far bygone days.

"These old hedge-rows that live to mark the boundaries of the ancient garden, serve to show the hardiness of the plant, and the neglect of cultivation to which it submits. Too often the same fact is verified in the gardens attached to the pleasant homes of many of our citizens. It seems to be a fact fully established in the minds of most people, that the currant is a hardy plant, requiring no care after being once transplanted, and will do very well if left to take care of itself. They are seldom pruned, and if ever done, it is by the browsing of sheep or other domestic animals, instead of the careful operations of the knife at a proper season.

"Now, whoever has planted out the currant, must have noticed the improvement in size and flavor of the new over the old plantation. There are at least three good and sufficient reasons why this should be the case. First, the plant has a new soil to work in, and this, if it has to receive merited attention, has been well and thoroughly worked. In the second place, the quantity of root is proportionally small, and has space to expand itself. This gives vigor to the top, which induces better bearing qualities; the amount of top is small, which enables it to furnish more and better means for the filling out of the fruit. The atmosphere, too, brings in its salutary effects more readily than when brought to bear on a dense mass of tangled brush.

"If any one wishes for improved currants, and doubts the facts of our position, we have only to ask them to take up one clump of these old bushes, and see the matted and tangled condition of the roots. Then, let him count the stalks that grow from this almost solid mass, and we are sure that they will not wonder that their currants have been losing in size and quantity yearly. Now, if any feel really satisfied with such small, insipid fruit, it is well; their bushes are just the thing for them. If they wish for something better, an effectual remedy must be provided. Some benefit may probably result from a severe root and top thinning, and removing the soil long ago exhausted, and replacing it with a new and more active one. We doubt, however, whether such a course would be the best. The labor of preparing and putting out a new plantation cannot be much more than continuing, by a patching up process, and when it is once made with proper care it will continue flourishing much longer than the old. So, then, we conclude, that a rotation system for currants is as beneficial to the grower as it is in strawberry or any other culture. As we say of strawberries, keep them in hills by cutting off the runners, so we say of currants. Where new plantations are formed, set them a good distance apart and never allow more than two or three stalks to grow from a root. Hoe among and cultivate them as any plant is hoed or cultivated: an increase of size, quality and quantity will be the result."

For garden culture, set plants four feet apart along the fence, and for field culture

three by six. Manure ground well, and plow or spade deep before setting. Keep the branches trimmed and trained out so as to admit the sun, and have plenty of fine mulch scattered over the surface.

NOTE.—Many are deterred from setting this fruit on account of the depredations of the "Currant Worm." These, we have found, are very easily destroyed by sprinkling over the bushes while they are wet, and as soon as the worms are first noticed, and once or twice after, a little powdered white hellebore.

VARIETIES.

Red Dutch.—A well known, reliable and productive sort, yielding immense crops of fruit yearly.

Cherry.—A *very large*, glossy red currant. Fruit of extraordinary size, and bears fine crops.

La Versailles.—A new and very extraordinary large bunched currant—the bunches measuring three to four inches in length, and fruit of large size.

White Grape.—The finest white currant grown. Size large, and of a beautiful transparent white. Yields large crops.

There are a number of varieties of currants, but we think the above four sorts combine in some way the characteristics of all others that are worthy of cultivation.

GOOSEBERRIES.

This fruit is gaining in popularity and importance every year. It is being largely used in all of our large cities for pies, catsup, jell, canning, &c. They can be shipped in bulk in any shaped boxes that is convenient, and being so wonderfully productive prove very profitable. We hope this fruit may be improved, so that we can have as hardy and productive sorts, and as free from mildew, as the Houghton Seedling, with the size and flavor of the Smith's White. *Cultivation* same as the Currant.

VARIETIES.

Houghton Seedling.—A vigorous grower; branches rather slender; very productive; not subject to mildew; fruit of medium size; skin smooth, pale red; flesh tender and very good.

Mountain Seedling.—Fruit larger than the above and fully as productive; otherwise similar.

There are a number of very large English sorts, but as they mildew so badly, and it is such a hard matter to raise them, we do not fill up space with the description of such.

TO RAISE PLANTS OF CURRANTS AND GOOSEBERRIES.

The best time to do this is as soon as the leaf drops in autumn. Trim out the new growth, cutting it up into cuttings, about four to six inches long. Then draw a line as heretofore described, and with a spade open a trench, with one side perpendicular. Set the cuttings along this trench against the perpendicular side, having the top bud come about even with the surface. Pack the soil against them firmly, and by winter they will root nicely. Cover over these just as winter sets in with a deep mulch of some coarse material to prevent them from "heaving." Draw this off in the spring, keep well hoed and cultivated, and by fall they will make splendid roots. If it is not convenient to set them in the fall, get the cuttings ready before winter sets in and bury about a foot deep, and set out in the spring. By burying they will get nicely calloused and nearly every plant grow.

GRAPES.

Many are deterred from setting this luscious and healthy fruit by reading long, intricate and utterly useless instructions by many amateurs. We affirm that *any* soil that is of a dryish nature, and that will grow good corn or potatoes, is *good enough for Grapes.*

STAKE PLAN.

Set the roots six feet apart each way, setting a stake six feet high by each root. Cut back to two eyes, and as they grow, trim them up to the stakes. If in localities where they are apt to be damaged by winter, take them down and cover them with earth or any coarse litter. Late in spring take them up and cut back to about three feet in height, and tie them up to the stakes. Allow two new vines to grow out near the surface, and in the fall cut out the old vines and the next spring train up the new vines to the stake, cutting them back so that they will be just as high as the stake; or the old vine can be trained up for two or three years and new shoots cut off, until they get too large to handle well, when they can be cut off and new vines trained up that have been allowed to grow the previous season. When the yearly renewal system is practiced, it is a good plan to have two stakes, set a foot apart, training the old fruiting vines to one, and the new vines as they grow to the other.

ARBOR PLAN.

So numerous have been the descriptions of modes and plans for training the grape, that I fear upon reading the caption of this article, you will be more likely to consign it to the waste basket than to give it a place in your journal. Yet, like a child that is pleased with a new toy, and would fain be thrusting it into everybody's face for admiration, I must needs risk a rebuff by essaying a description of what I conceive to be the least expensive, yet equally efficient mode of managing the matter, which can be adopted. Having concluded to set out a square of vines this fall, I was casting about in my mind as to the cheapest and best plan of arrangement. I had considered all the plans which had come under my observation, when the following occurred to me as the best plan I could adopt. After a thorough preparation of the ground, as my own experience and the various directions found in THE COUNTRY GENTLEMAN had indicated, I began thus: in the first place I stretched a line north and south on one side of the square at a distance of two feet from the outer edge; at each end I drove a stake; from these I measured off a distance of twelve feet and there put another stake. I then measured three feet from the last stake and placed a stake there. Then twelve feet to the next, and so until all the rows were marked off with three feet alleys between each. You will perceive by this that my square was laid off in rows of twelve feet, with alleys of three feet between them. I now proceed to lay off the spots for each vine, a distance of four feet in the row. Perhaps three would answer for such as are not rank growers; mine is Concord. The vines thus planted will be allowed to grow until ready for training. And now for the *trellis.* In the centre of each row I shall plant a stout locust fork about ten feet high, and the same at intervals of about twelve feet from the front (south) to the back end of the row (north). Upon these forks I shall lay poles of convenient size to form a ridge-pole. I now place ordinary poles, such as are used for Lima beans, against the ridge-pole at each vine, fixing the lower end in the ground and tying the upper end to the ridge-pole with willow, to prevent its being blown down. To these poles the vines will be tied up as they grow until they reach the top, when those intended for the next year's fruiting can range at will. In pruning I shall cut down every other one to one bud, so that but one-half of the vines will be in bearing each year, thus preventing that entanglement and crowding which occurs where two canes are allowed to grow from one root or stalk. When in the full bearing state, the appearance will somewhat resemble a row of tents, with the sides of vines instead of canvas. The alleys between each row will afford space for working the vines and gathering the fruit. In short, it will be nothing more than the plan of managing grapes under glass, except that the poles which represent the rafters will be on the outside of the house.

I. G. MASK.

MOOREFIELD, W. VA.

[*Country Gentleman.*

TRELLIS PLAN.

All farmers understand perfectly the reason that fifty plants of corn in a hill will not all taken together bear a single ear. It is precisely for the same reason that grape vines allowed to run at random, as shown in *Fig. 34*, bear but very few grapes. and as poor and sour as they are few, and as green and unripe as they are sour * Such grapes will not keep well into winter, as the plump, rich and ripened bunches of well-managed vines. *Fig. 35* is about a fair representation of the bunches which grow among the dense mass of brush shown in *Fig. 34*. *Fig. 36* is a good, well-grown and well-ripened bunch, such as any man ought to grow who plants a vine.

Fig. 35.

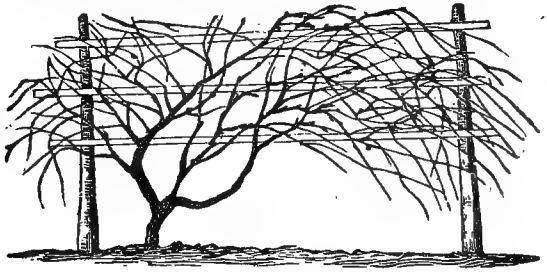


Fig. 34.

Fig. 36.

There are many modes for pruning. Books on the grape describe so many that beginners are bewildered and confused. It makes very little difference how they are pruned, provided three main requisites are observed. 1. To cut back the vine early in Spring, or late in Autumn, so as to allow strong shoots to spring up and make a stout and healthy growth. 2. To thin out, as soon as they start, all unnecessary shoots, so as to leave the strong bearing shoots about ten inches or a foot apart—then they won't crowd and dwarf each other. 3. Never let the shoots overbear. Many persons injure or destroy fine vines by allowing too heavy a crop, because they like to tell a big story how much their vines bore.

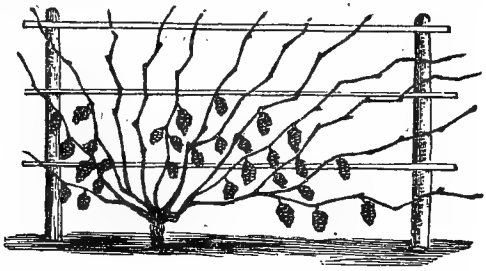


Fig. 37.

The fruit shown in *Fig. 37* is the *fan training*, and although hardly ever recommended in publications, is a very good way, because if a shoot does not happen to start straight, or grow well exactly where wanted, the others may be moved a little, so that all the shoots may be distributed about a foot apart. Remember, however, to cut back every year, so that these shoots, or at least the principal portion of them, may be fresh and new. Let the ends of these shoots grow as far as the trellis will allow, because plenty of good, broad, well-developed leaves will make good grapes on the shoots near the base. Towards the end of Summer the parts above the trellis may be nipped off with the thumb and finger, so as not to grow too long. *Fig. 38* represents the horizontal method, which is different in appearance, but under the same general rules of management. Allow new shoots to grow out half-way between the bearing perpendicular branches, and in the fall cut out these bearing branches—say just above the lowest eye

* All these figures are represented bare of leaves to show the shape better.

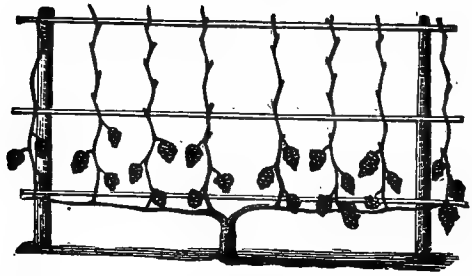


Fig. 38.

or bud; train up the new growth the following spring, the same as is represented by the above bearing branches, and that year allow new shoots to grow out from the eye that was left on the previous season's bearing wood, and so alternate one year after another.

We do not claim that these are the best or the only plans for growing grapes, but that they are simple and easily carried out, and that by them large crops of fruit can be obtained yearly. Any party wishing for more extensive information as to grape growing, by sending us $1.50 we will have them forwarded a grape book, with no charge for our trouble, except to enclose two red stamps with the money.

KEEPING GRAPES.

There are many sorts, such as the Diana, Isabella, Clinton, &c., that are easily kept through the winter. Our practice has generally been to take a tea chest, place a layer of grapes in the bottom, over this spread a newspaper, then another layer of grapes, and another paper, and so alternate until the box is filled. Then set it away in a cool, airy place, where the mercury will not run below 30° above. We have kept them until February, in this way, by keeping the box in an upper room where a stove pipe passed through, being careful when there was an extreme cold spell to set the boxes near the pipe and cover them with blankets.

Another method we have seen highly recommended is to put the grapes in a light jar, and sealing them tight and putting them away in a dry cellar.

Still another, is to have a large box and put in the bottom about six inches of saw-dust or tan-bark. Pack the grapes as described above, in a box one foot less in size. Place this box in the larger one on to the saw-dust or tan-bark, and around the sides and over the top pack with the same material. Set this box away in the loft of the barn and when extreme cold weather sets in cover it over well with hay. Grapes have been kept in this way and taken out in April as fresh and plump as when packed away.

OVERCROPPING.

A very common fault with many is to allow their vines to overbear—especially when young. We always regard statements of large yields from single vines in the same light that we do large crops of raspberries on young one year old plantations, as poor management and culture, to bring weakness to the vine, and ultimately resulting in half ripened fruit, mildew, or rot in fruit or leaf. All experienced grape growers admit that plantations receive more damage from this too common practice than from all others combined. We believe that the same laws that govern life and health in the human family, as to over-exhaustion in the system, especially when young, bringing about disease and weakness, are equally applicable to the vegetable family. We therefore claim that all persons who are desirous of receiving the most and *longest* benefit from their grape vines, must give this matter the proper attention. He must go over his vineyard and examine the strength of each vine, allowing them to bear in proportion as their strength will permit. When in blossom, thin out all overloaded vines. Do not allow them to bear the first year after setting over eight or ten bunches; owing to variety and strength of vine, and after they get fully grown not over ten to fifteen

pounds, when the stake system is practiced, or twenty to thirty pounds to the vine on trellises.

VARIETIES.

Adirondac.—Black; bunches uniform and large; berries large size, very sweet and tender; ripens about the same time as the Hartford Prolific.

Clinton.—Bunches small and very compact; berries small, sprightly; keeps well; one of the most free, rapid growers and profuse bearers; ripens earlier than the Isabella.

Concord.—Taking all things into consideration, this is our favorite grape. It yields *enormous* crops on any soil—even with neglect—of large, glossy, dark purplish or blue fruit. Flavor, when *fully ripe*, we pronounce *delicious*—as good as the famous Delaware in *this* latitude. Bunches extremely large, and mostly shouldered and very compact; thin skin, and flesh very tender and buttery; vine very hardy and vigorous. Ripens in this section from the 1st to the 10th of September.

Catawba.—One of the best native grapes, where the season is long enough for it to ripen perfectly. Bunches medium size and quite regularly formed, with a few shoulders; fruit round, with a reddish or coppery color when ripe; flesh pulpy, with a very sweet, musky flavor.

Creveling.—Another season's trial has satisfied us that this is one of the best and most delicious *early* sorts grown. Bunches about the same size of Hartford Prolific, but growing with us more compact; black, with a bluish bloom; pulp light red, tender, sprightly and rich. It is claimed by some that it should be grown near the Concord, Hartford or Isabella, as the flowers are not perfect.

Delaware.—This fruit has fully maintained its high reputation as one of the finest of our native grapes. The vine is comparatively slender, but grows freely. It proves quite hardy in this climate, and ripens two or three weeks before the Isabella. Bunch small and compact; berries small, light red, with a violet bloom—beautiful; sweet, sugary and vinous, with a musky aroma; equal to the finest foreign varieties. It justly claims the best place in every garden.

Diana.—A very delicious and fine light-colored late grape. Its great value is its long keeping qualities. We have seen it in April as fresh and fine as when picked from the vine. Bunches medium and very compact; flavor of a honey sweetness, and color about the same as the Catawba.

Hartford Prolific.—A very valuable grape on account of its extreme earliness. Fruit similar to the Isabella, but ripens two or three weeks earlier. Vine hardy and productive.

Iona.—A seedling of the Catawba. It is a red grape; skin thin; pulp tender and exceedingly rich, with a peculiar delicious aroma; berry good size and very uniform; bunch large and beautiful, with one, and very often two shoulders. Early and very desirable.

Israella.—Described by Charles Downing as follows: "Ripens as early as the Hartford Prolific, (one of the earliest of American grapes,) or before it; beginning to color about one week earlier; but also superior in flavor, with handsomer and more compact bunch, adhering well, and keeping a long time after ripening; it will be more valuable, and, from present experience, I think it will prove the *best* early variety for this purpose I have yet seen." Again: "Both Iona and Israella have so far proved hardy, vigorous, and the foliage has been less injured by mildew than Delaware and most other sorts."

Ives' Seedling.—Regarded as the best wine grape; hardy and productive; about same season as Isabella.

Isabella.—Bunches long, large, loose; berries large, oval, juicy, sweet and musky. A vigorous grower, hardy and immense bearer; one of the most popular of all our native varieties.

Norton's Virginia.—Bunches long, rather loose; berries small, no pulp, vinous; esteemed one of the best grapes in Missouri; ripens well in this latitude; vigorous and productive.

Northern Muscadine.—An early, sweet, fox grape; very productive; must be gathered before too ripe, or it drops.

Martha.—A newly disseminated "white" grape, claimed to be as healthy, vigorous and hardy as the Concord, and to grow in any locality where that popular sort succeeds. In quality it is claimed to be very sweet, with enough vinous acid to make it sprightly and delightful. It has a little of the 'native aroma,' scarcely perceptible to the taste; very little pulp, which is tender and melting, and no unpleasant acidity next the seed. The skin is thin, but tenacious; in this respect like the Delaware. In color from a pale, yellowish green, with thin, white bloom, when grown in the shade, to a delicate sulphur yellow, with amber tint, when exposed to the sun. Neither vine or fruit have ever shown any indication of mildew or rot. It ripens a week or ten days *earlier* than the Concord.

Salem, (Rogers' No. 53.)—One of the most valuable of all the Rogers' Hybrids. Described as "bunch large and compact; of a light chestnut color · as early as Delaware or Hartford."

Rogers' No. 4.—A magnificent black and large bunched grape, claimed to be equal to the Concord in every respect, and better in some. Among the best of these Hybrids we name Nos. 1, 3, 4, 9, 15, 19, 22, 30, 33, 34 and 43, and were we to select six of them should take Nos. 1, 4, 9, 15. 19 and 43.

Union Village, (Ontario.)—A very large, coarse, foxy flavored grape. Succeeds in but few favorable localities. Generally condemned.

Eumelan.—Bunches of large size, elegant form and proper degree of compactness; berries large, black, with fine bloom, adhering firmly to the bunch long after ripening; flesh tender, melting; ripening very early (even before the Hartford Prolific) and evenly to the center. Flavor pure and refined, very sugary, rich and vinous, with a large degree of that refreshing quality that belongs distinctively to the best foreign grapes. Vine a strong grower, producing remarkably short jointed wood; leaves large, thick, dark colored, firm in texture, (it strikingly resembles Elsinburg), and gives promise of being a very hardy, healthy, early grape. This variety has been tested in several localities. It has proved with us remarkably healthy in foliage.

Croton.—Claimed by its originator and others to surpass in quality and beauty any white grape yet introduced, that will succeed in the open air. Its flesh is uniformly melting and sweet throughout; of a semi-liquid consistency, and fully equal to the FINEST FOREIGN VARIETIES. It has held its foliage well in all parts of the country, and in many places better than any other variety.

Senasqua.—A black grape. Vine a healthy, vigorous grower, with every appearance of a pure nature, but its fruit more closely resembles the fleshy foreign grape than any sort that has yet been introduced. It is considered by some the best hardy grape that has yet been introduced.

FIG CULTURE.

BY JAMES T. WORTHINGTON, CHILLICOTHE, OHIO.

In both Sacred and profane History, the Fig is noted as one of the most ancient and famous of fruits, especially among the Orientals of the Old World.

At least as far West as Kansas, we are the Orientals of this continent, having the same bright skies and the same great extremes of heat and cold, and it is my purpose

to show, that in most of the territory of the Northern States, we may grow profitably this first of garden fruits.

For more than thirty years past, I have experimented with several varieties, in various soils and localities, and latterly have cultivated two of the best kinds—the large yellow and small purple figs—with entire success. And I am convinced that trees of these two kinds may be made, at small expense, to bear regular and abundant crops of ripe and perfect figs, in any soil and climate on the eastern side of this continent, where tomatoes will thrive and ripen.

Below is a brief history of these experiments, which may aid those who engage in cultivating this luscious fruit. Failures, as well as successes, are noted; for a record even of the failures of an earnest worker is not without value, and may lead others to success.

In the spring of 1815, my father procured, from Louisiana, two small purple fig trees, which were planted on the South side of the house. They grew vigorously from the start, and for many years after, sending up every spring many sprouts, which, in the summer produced unripe figs, and were killed to the root, or nearly to the root; every winter. This continued for about twenty years. Seeing the extraordinary vitality and endurance of these fig trees, I detached, about October, 1835, a dozen or more sprouts, with roots, and placed them in a barrel, in the cellar, covering the roots with earth. Both sprouts and roots came out unharmed in the spring, were set out in a good soil and sunny site, and some figs on them *nearly* ripened that season.

The next October, I covered two of these trees where they grew with stalks of fodder and straw, placed two others in large tubs, and arranged like flower-pots, with holes and gravel in the bottom, and left them in the cellar for the winter. The rest of the young trees, (eight or ten,) I treated as the winter before. The next spring, I found that the trees which had been left standing, and protected where they grew, were both winter killed to the root, the rest doing well.

I placed the tubs on a sunny spot, one partly buried, the other on the top of the ground, but the fig trees treated in that way did not do well with me, even with large tubs and extra care, the tree being too vigorous a grower for such confinement. The smaller trees, taken from the cellar and planted in a bed, in a row with the others, throve well, and bore a few ripe figs; very gratifying as the first fruits of my experiments, but too few and too costly to be satisfactory.

Finding that the fig tree, to be profitable, must be treated as a standard, and sheltered in the winter where it grows, I gave up the tubs, and took up in October, and placed in the cellar about half only of my trees, the smaller ones, and sheltered the rest where they grew, more carefully than before, with fodder and boards. But they did not thrive with me, when so sheltered, either then or since, except after very mild winters, though I have been at a good deal of pains and expense, and have varied the mode; sometimes planting trees on the south or east side of a wall and sheltering the other sides. Perhaps others may succeed better in this way, which I gave up with great reluctance. The trees from the cellar, set out that spring bore quite a quantity of fine ripe figs. But after a year or two more, they grew so large that it was costly to remove them to the cellar, and as only part of the roots could be taken up, they did not do so well as younger trees.

After this, I experimented on several varieties, of which I have retained only the large yellow and small purple kinds, which succeeded best, and gave a succession of crops of ripe figs, from mid-summer to mid-autumn.

The young fig roots multiplied so fast, that one fall, not having convenient room for them in the cellar, I laid down and covered a dozen or more, rather carelessly, covering them about six inches with earth. Finding these, the next spring, much more vigorous than those left in the cellar, and that they far outgrew them during the summer, I bent down and buried some of the bearing trees the next fall, putting boards at the top and sides of two of them, and carefully covering the tops of others, before putting the earth on them, with rags, &c., so long as the material lasted, leaving a few of the less thrifty trees covered about six inches with the naked earth. Though that winter was a very severe one, these last came up sound in the spring, and bore fine crops that season; while those covered with plank, were much later and more feeble, and those protected by rags and litter, had spots of decayed bark, wherever the covering touched them, and bore only a few imperfect figs.

The solid earth was literally reached at last, about eighteen years ago, and every year since, I have had paying crops of at least one variety, and usually of both, more

abundant of late, owing to improved methods, which, no doubt, can be still further improved.

SOIL AND SITE.

Fig trees will thrive in our climate, in an open, sunny place, on any good soil. They require less care, and bear fair crops, on a rich sandy loam, with a gravel subsoil, but I have had the best and most abundant, and regular crops, from clay land, prepared as hereinafter described.*

VARIETIES.

I can only speak positively of two—the small purple and large yellow kinds—which, however, are among the best. The yellow is the common fig of commerce, and has been in my garden about eighteen years. At first, I thought it required more protection in the winter than the purple, but, of late years, I do not find any difference. It is a very vigorous grower and profuse bearer; puts on its fruit soon after being set up in the spring, as below described; bears one main crop, which here (Lat. 39° 20') begins to ripen about the middle of July, and lasts three or four weeks, a part swelling and ripening every day; for it is a peculiarity of the fig, that it doubles its size during the four or five last days of its ripening.

If the season be favorable, the trees continue to bear a few scattering figs, until October. The main crop is sometimes injured by frost, though very rarely, for owing to the extreme simplicity of its organization, (it has no exterior blossoms,) the fig will bear without injury in a degree of cold destructive to the blossoms of many Northern fruits. In order to avoid frosts, I have sometimes deferred taking up yellow fig trees until late in May, but they did not do so well. I have also dried some of the yellow figs successfully, but have not experience enough to advise as to the best mode of drying.

The first crop of the small purple fig usually drops off unripe. That this was also its habit in Palestine, is shown by one of the striking images of the Apocalypse, vi. 13:

"And the stars of Heaven fell unto the earth, even as the fig-tree casteth her untimely figs, when she is shaken of a mighty wind."

What few remain of the early crop, ripen at the same time with the yellow fig. The main crop of the small purple fig, is entirely safe from frost, for it does not begin to set till June and ripens about the middle of August, when it usually bears abundantly, with a succession of crops until about the middle of October.

Both these varieties are delicious fruits, either taken fresh from the tree, as I like them best, or eaten with sugar and cream, as some prefer them. Both are more to be depended upon for certain and abundant crops, than any other garden fruit I know. They begin to bear ripe fruit in two years from the root and three years from the slip.

My success of late, has been attributed, by some, to the fact that, during my many years of experiments, the fig trees have become acclimated. I do not think so, but attribute my success chiefly to improved modes of culture and protection. And, believing that roots and slips, wherever procured, will thrive with proper treatment, I hope that many new kinds may be introduced, and that any fig-growers who may read this article, will inform me of their measure of success and mode of treatment.

PREPARING ROOTS AND SLIPS FOR PLANTING.

The best time to procure the roots and slips, is in October and early in November. If packed even slightly in moss, rags, or paper, they will, at that season, remain out of the ground many days without injury. But, so soon as received, they should be laid down in a shallow trench, and covered about six inches with a mound of earth, rounded over to turn the wet, with a layer of two or three inches of rotten chips, or other litter, above all. Roots and slips treated in this way and set out about the first of May, as soon as taken up, seldom fail to grow vigorously from the start. When

* That fig trees will do well North of Lat. 45°, I have the testimony of an eminent agriculturist, the Hon. Marshal P. Wilder, former President of the Agricultural Society of the United States, and known everywhere for his skill and success as a fruit-grower. In a letter just received, dated Dorchester, Mass., Dec. 28, 1868, he says: "Thanks for the papers on the culture of the fig. I had not forgotten your method, and with it a neighbor gets good crops without difficulty." The results of my experiments with figs were given to Col. Wilder several years ago, and since then some important improvements in my methods have been made.

out of the ground for some days in the spring, as they necessarily must be when brought from a distance, they require more careful packing, and, even then, they do not usually bud for several weeks after being set out. The fig-tree, however, has great vitality, and, although they start later, nearly all the roots, and nearly two-thirds of the slips, will grow, after being ten days or more out of the ground, even in the spring, if carefully planted.

PREPARATION OF THE GROUND.

In the fall or early winter, and in any good corn land, with a gentle slope—south or east is about right—make with the plow, by throwing furrows to the center, ridges in the direction of the slope, about ten feet wide, and a foot high in the middle. Dig holes in the center of the ridge, with alternate spaces of eight and sixteen feet, thus:

O 16 O 8 O 16 O 8 O 16 O

Leaving the holes exposed to the frosts and snows of winter. This is a good preparation for trees of every kind. If this preparation is omitted in the fall, it may be done in the spring, though to less advantage. Fig trees are planted on ridges for the same reason that sweet potatoes are so planted—to give the roots more warmth and sunshine.

SETTING OUT THE TREES AND SLIPS.

This should be done about early corn-planting. The slips are to be planted like grape slips. If the roots have just been taken out of the ground, leave the sprout its full length; if they have been some days out of the ground, leave only six to ten inches of top. Trim the roots on two opposite sides, leaving the roots on the other two sides their full length. Plant the trees with the long roots *crosswise* of the bed, so that they may hold when the tree is turned down in the fall, *lengthwise* of the bed. If the ground is dry, water the roots when planted, not afterwards. In all cases, mulch the trees freely when set out, and afterwards keep the ground loose and free from weeds. Lettuces, radishes, &c., may be reared in the bed the first and second seasons.

SUMMER TREATMENT.

After the first year, pinch back the leading shoots, so as to make the trees stocky, never allowing them to grow over eight feet high, (and less for several years,) so that the tops of the full-grown trees, when laid down, may just meet, near the center of the sixteen feet spaces.

The fig tree, like most profuse bearers, is a rapid grower and greedy of nourishment. Soap-suds, occasionally applied to the roots of the bearing trees, while the fruit is forming, increases its size and flavor. Animal manures, unless very well rotted, are to be avoided.

PROTECTION IN WINTER.

About corn-cutting time, or when the fig-leaves come off easily, strip off the remaining leaves and unripe figs, remove all rubbish, leave the trees in their places, but dig for each, lengthwise of the bed and in the sixteen feet spaces, a trench from six to ten inches deep, and large enough to contain the body and top of the tree, of which the limbs may be pressed close without injury. There will usually be growing from the main root several young sprouts and roots. Detach these, and prune the tree, when needed, burying both roots and slips, for setting out next year. Dig under the tap root, and in front, a hole deep enough to contain the front roots without springing up the base of the tree. Trim the roots, before and behind, to six inches long or less, leaving the side roots untouched. Bend down the tree, slowly, press the limbs together, and cover carefully with *earth;* no litter or anything that will ferment being allowed to touch the bark; pile up the earth in a small mound, so as to cover the most exposed roots and branches, at least three or four inches. Set a stake at the root, and a smaller one at the top, to serve as guides in raising the tree, and clear out the ditches between the beds, to let off the wet.

Before the hard weather sets in, cover the mounds two or three inches deep with rotten chips, spent tan-bark, saw-dust, or other litter, both to protect the trees during winter and serve as a manure next year.

This is tedious in description, but two men buried and protected my thirty-seven bearing fig trees, last October, in one day.

TAKING UP FIG TREES IN THE SPRING.

About early corn-planting, remove the top earth, and take up the trees carefully. This is much easier than laying them down, as less earth is to be removed, but must be done with care or some of the branches may be broken. After our hardest winters, (and the mercury here sometimes falls 20° below zero of Fahrenheit,) I have taken up trees twelve years old, treated as above described, with every bud sound.

And having seen the growth of fig trees in warm climates, on both continents, I say, without hesitation, that when they have been several months buried, they grow with far greater vigor here, than in climates where the winters are so mild that they need no protection. The expense of winter-protection is counterbalanced by several

OTHER ADVANTAGES OF GROWING SEMI-TROPICAL PLANTS AND FRUITS IN COLDER CLIMATES.

1. There are many more hours of sunshine North of 40° than below 30°, during the months of May, June, July and August, when these fruits grow and ripen.

2. It is the extreme, and not the continuous heat of summer, which gives the highest flavor to fruits, and this extreme heat is greatest in the more northern latitudes, as may be seen by the record kept in the United States Land Offices.

3. The pulverization of the soil, by the severe frosts of the higher latitudes, especially on the Oriental sides of both continents, leaves the ground in better condition for the roots of plants; and after their rest of winter, their growth is more rapid and vigorous than in lower latitudes.

4. Most of the insects which prey especially upon Southern plants and fruits, cannot bear Northern winters; and thus both trees and fruit escape, in a great degree, the greatest difficulty found in growing fruits which belong exclusively to our Northern climates.*

For these and other reasons, it may be laid down as a rule, to which there are few exceptions, that plants, which are carefully and skillfully cultivated, grow best and produce the most regular and satisfactory crops, near the frost limit of the zone of their habitat. This is true, both of annuals and perennials. The tradition of the wine countries of Europe is, that all their grape vines came originally from Italy, south of the Alps; yet far the best and most abundant crops of grapes are now grown, and the finest wines made, in the European countries north of the Alps. The most precious of all, the Tokay, is grown in Hungary, near the fortress of Tokay, lat. 48°, where the mercury sometimes freezes, and where it is necessary to cover the grape vines with earth, as fig trees here are covered, during the winter.

Many will remember the ridicule and discouragement which were thrown on the first attempts to grow the better qualities of grapes in the Northern States, and especially after it was found that the European grape vines would not succeed here. But by following, unconsciously, the example of the Northern Europeans, we have brought the Catawba and other vines from the South, near the Gulf of Mexico, which produce better fruit, and more regular crops, on the shore of Lake Erie, than in their native climate. The plants which bear the chief annual crops grown in the United States, came from warmer climates than those where they are now grown to the most advantage. The cotton plant originates, and is a perennial, between the tropics. But the best qualities of cotton, and the largest and most regular crops, are grown where the plant is killed every winter; and frequently injured in the spring and fall by frost. Corn and wheat are both natives of warm climates; but, on the east side of our continent, the best and most regular crops of both, are grown between 36° and 44° North, and so with most of our fruits.

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* Our hardiest fruit trees are often injured here, and their crops destroyed in winter, by sleet and hard spells of freezing. During the severe winter of 1828-29, many orange and fig trees were killed to the ground by sleet and frost, even so far South as Tallahassee, Fla. And I am informed that this is not a very rare occurrence. From these dangers, trees protected by a covering of earth are entirely exempt. Such treatment may not be proper for some varieties of fruit trees, especially evergreens. But it is worth trying, whether not only the more tender varieties of grape vines, which are often so protected, but some of our half-hardy fruit trees—peach trees, for example—will not be benefited by such protection; and, also, if they may not be made, in this simple and easy way to bear satisfactory crops several degrees North of where it is now considered profitable to cultivate them.

I will only further instance, among the semi-tropical plants grown with us, the potato, the growth and habits of which, gave me valuable hints, while experimenting with fig trees. The yield of the potato is too uncertain with us, south of 40°, for its cultivation as a field crop, and it is only grown in small patches; but between 41° and 45° it is successfully and extensively grown in the field.

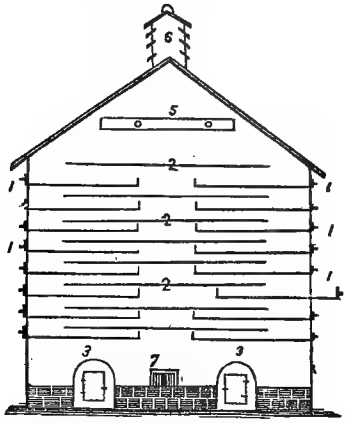
The tuber of the potato, when unprotected, is very easily injured by frost; but if left where it grows, covered with three or four inches of earth, the potato will be found sound and uninjured, and after the hardest winters, although it may have been frozen and thawed many times. If so tender and watery a tuber is so protected by a slight covering of earth, that it may be thus frozen and thawed without bursting its cells and destroying its organization, it is fair to infer that many semi-tropical plants may be protected in winter the same way. We may thus have not only the fig (which is no longer an experiment, but a success,) but many other valuable fruits of Southern climates, grown among us, in great abundance and perfection, and at a small cost; for our summers are warm enough and long enough to ripen nearly all of them.

RULES FOR NUMBER OF PLANTS REQUIRED ON AN ACRE.

Multiply the distance in feet between the rows by the distance the plants are apart in the rows, and their product will be the number of square feet for each plant or hill; which, divided into the number of feet in an acre, (43,500) will give the number of Plants or Trees to the acre. For instance:

Strawberries,..... 1 foot by 3= 3)43,590(14530.
Raspberries,..... 6 feet by 6= 36)43,590(1210.
Dwarf Pears,..... 12 " by 12=144(43,590(302.

PLAN OF A FRUIT DRYING HOUSE.



The house is 7 by 10; posts 7 feet high; drawers No. 1—3 feet wide, 8 feet 4 inches long—eight drawers on a side. They are made of inch and a half pine for the end and back—the front is 1 by 4 inches. The bottom of the drawers are covered with

common sheeting tacked on well with nails—2, 2, 2, are shelves, made tight, and 7 inches apart, and to come within 10 inches of the sides of the house.

3, 3 are the furnaces; they are made of sheet iron, half round, and laid on brick arches, and are the whole length of the house; the chimney is on the outside. The sheet iron should be made of No. 4—with a flange, so that one course of brick can be laid on the flange, to make it smoke tight.

The drawers should be made all alike, so that if you wish to change them from top to bottom, they will fit anywhere, and they should be made to fit tight, so that when they are all in they will make the sides of the house tight. The shelves, 2, 2, 2, &c., are to distribute the heat to all the drawers; the heat will strike the first shelf, and pass to the side of the house, and thence under the first drawer to the center, and then over the drawer, and then the other, &c., &c., till it gets to the top.

The drawers, as you will see by the drawing, is put in from the outside of the house and in the center of the space between the shelves; 5 is a drawer 6 inches deep, 5 feet wide, and 6 feet long, to be used as required—good to use to finish fruit when in a hurry.

O is a ventilator, the space in the roof 8 inches wide.

No. 7 is a box, open at each end, to let in cold air—placed between the furnaces, so that the air will be heated in passing over them.

The temperature of the house should be kept a little below the scalding point; if it should get too hot the lower drawers can be pulled out about six inches, and that will let in a draft of cold air, and soon bring down the heat to the desired point. Small pulpy fruit should not be more than three-fourths of an inch thick, for if thicker, the air will not pass through the fruit, and it will not dry so quick.

After the fruit has become partly dried put three or four drawers together and finish it. The advantages of the house are,

1st. You dry quickly and save time.

2d. You keep off flies and millers, and you don't get any moths' eggs.

3d. Your fruit is of a better color and flavor, for you dry so quick that the fruit does not become sour.

The cleats that the drawers slide on should extend outside of the house two or three feet, so that they can be filled if necessary without taking down. Put a piece of sheet iron over each furnace, say 6 inches high, to protect the first shelf, for if a careless attendant should build a very hot fire it might burn the shelf. The house can be built larger or smaller, so as to meet the requirements of any fruit grower.

FRUIT BOXES.

For making a cheap and strong dry measure quart box, and those which can be packed in the smallest and most convenient compass, have plank got out precisely $3\frac{1}{4}$ inches thick. Have these worked up with a fine buzz saw into end pieces $4\frac{3}{4}$ inches long, $3\frac{1}{4}$ inches wide, and one-quarter inch thick, and sides 5 inches long, $3\frac{1}{4}$ inches wide, and one-eighth inch thick, and bottoms $4\frac{3}{4}$ inches long, and same width and thickness. Use two of these slats for bottom, having them nailed *inside* one-fourth from the bottom of sides and ends, so that one box can set above another in the packing case without bruising the fruit on top of the box under. When nailed together they make a strong, dry measure quart box, just five inches square outside, and three inches deep inside. Another plan, by which the fruit gets more air, is to nail on the sides three slats, the same length and thickness, and five-eighths inches wide, which, by nailing the lower one three-eighths inches from the bottom, leaves three cracks, three-eighths inches wider for nailing together. Use brads five-eighths or three-quarter inches long.

PACKING CASES.

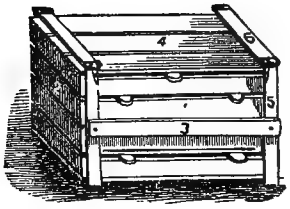
For packing the above quart boxes in to ship, get out end pieces three-quarters inch thick, with a cleat one-half inch thick and two inches wide, nailed on the outside even with the ends to prevent the end pieces from splitting. Have these end pieces $20\frac{1}{8}$ inches long and 7 inches wide (which makes the height and width of box inside sufficient to hold two tiers of boxes and four boxes wide.) Get out slats for nailing on the bottom

and sides, 32½ inches long, 3 inches wide and ½ inch thick. Nail two of these on four sides, having the bottom one come *even* with the bottom end piece, and the top one come within ¼ inch of the top of end piece, the ¼ inch space being left for air to pass under the cover. Nailed on thus it leaves a crack between them of ¾ inch in width. Nail two of the bottom slats on so that they will come *even* with the *outside* of the lower side slat, fastening them with two or three small nails to those lower side slats—thus adding great strength to the case. Between those on the bottom nail three slats, such a distance apart that the outer edge of the quart box will come to center of the slats—thus leaving cracks directly under the boxes. Nail a cleat, two inches wide, half inch thick and 21 inches long, over the ends of bottom slats; make a cover of half inch stuff, nailed together at the ends with the same cleats. The quart boxes described above can be heaped a little to allow for settling, and as the bottoms are raised they can be set on top of each other without jamming the fruit, and therefore require no partition between. This same style of case answers for the American Basket, Beecher Basket, &c., only that it will have to be made a different form to correspond with the size of those baskets, and so a partition will be required for each tier of baskets to set on. These partitions are made as follows: Take 5 strips, ½ inch square, and length of crate inside; place them the width of a basket apart, or so that they will come over the sides of the baskets; across these nail slats, 2 inches wide, ¼ inch thick and as long as the crate is wide inside. Have these slats placed so that the edges of the tier of boxes above will set on them. When the first tier of baskets or boxes are placed in the crate, put in this partition; and it will be seen that these half inch square straps will come down on the edges of every basket, thus holding them firm and in their place. If it is desired to have more than two tier of boxes, more partitions can be made and set in the same way. The crate should be made such a depth that when the top is on it will be half an inch above tops of last baskets. Under the cover nail three of the half inch square slats so as to come over the sides of baskets. This holds all inside firm, and by the partitions and cover being raised ½ inch allows for heaping the baskets some without mashing fruit. The *ends* of the crates should be got out of thoroughly seasoned lumber, so that no shrinkage will occur in *height* of box. No harm is done if the slats do shrink—consequently they can be got out of green stuff if it is more convenient.

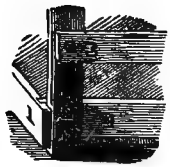
PICKING STANDS.

For gathering fruit to empty into the Cincinnati Cases, we have used a box three inches and nine by ten inches square *inside*, which holds four quarts, dry measure. A leg eight inches long is nailed to each corner, and a hoop bent over the top and nailed to two sides for a handle. Four of these stands are emptied into each drawer as they are brought in, or, if the quart boxes or baskets are used to ship in, make the picking stand a little larger, so that four of the boxes will fit in, and as fast as filled take them out and put others in to fill.

CINCINNATI CRATES.



In some of the Western markets the quart boxes are not used for marketing, but cases or stands made up of four drawers—each drawer holding sixteen quarts. The drawers are three inches deep, sixteen inches wide, and twenty-four inches long, INSIDE, which, after allowing some for shrinkage, holds one-half bushel, dry measure. The sides and ends are one-half inch, and bottoms one-quarter inch thick, except lower drawer, which is one-half inch. The end pieces pass by the sides one-half inch. The posts one inch by two and one-half inches, are nailed



strongly on to each corner of the lower drawer, so that the other three drawers slip inside of the posts. The posts are then cut off just even with the top of the cover. The cover is made of half inch stuff, fastened together by two pieces, one inch by two and one-half inches. These pieces fit over the top of the posts, coming just to the outside, and are fastened on one side with light hinges, and on the other by light pieces of hoop-iron six inches long, which are nailed on top of the top pieces and bent over and fastened to the posts with screws. The engraving herewith will show at a glance how they are made.

GREEN MANURES.

Poor land, or that that is covered with fine weeds, briars, &c., can easily be brought up to the best condition for fruits by sowing early in the spring, broadcast, corn, peas, or buckwheat, and as soon as it gets 1½ to 2 feet high, plow under and sow again. Thus two crops can be grown and plowed under one season, leaving the land in splendid friable condition for planting the following spring.

It exhibits a chemical action upon stiff, harsh soils, disintegrating and rendering them finer and more easily worked. We have often plowed under old bearing plantations, that had nearly run out, and immediately after doing so, sow buckwheat broadcast, and when in blow plow under, and the next spring set this place out to fruit again, and obtained very heavy and profitable crops.

PROPAGATION BY ROOT CUTTINGS.

The Roots may be taken from the ground as soon as the leaves have fallen and the plant has ceased growing for the season. Cut them in pieces from two to three inches in length; those varieties which naturally produce suckers from the roots more abundantly will allow of the shortest division of the roots. If the cuttings are obtained or received before the ground is clear of frost, and suitable for planting in the Spring—pack them in layers of moist sand in a cellar or the ground, secure from intense freezing; this enables the callousing or bark healing process—(a cellular growth or cambium or healing of the inner bark) to be effected, which precedes the formation of the younger roots, for if the cutting does not callous or heal, it decays and dies. If received after freezing weather is past, pack as before in a warm situation in open air in a heap layered with plenty of sand, shaded by boards or litter, to prevent drying, (by no means let them get dry)—in about two weeks they will callous and buds begin to be visible, more or less on the surface; from this they (the Blackberry particularly) may be planted direct in garden or field, in well prepared ground in shallow drills, or furrows, eight or ten inches apart in the drill, and in field culture the drills three feet or more apart; cover about three inches deep with fine earth, if the ground is not already rich use mild fertilizers in the rows; avoid using long or unfermented manure in contact with the cutting, but apply on the surface as a mulch; it is important after planting that the ground does not get hard and dry; give good culture through the season, and fine plants may be confidently expected.

Some kinds of raspberry develop root buds very slowly with ordinary care, and are not adapted to out-door planting at once, but require a little forcing; where a propagating house is not available, an ordinary hot-bed may be used, and a slight under heat by forest leaves and stable manure well mixed, packed smooth about four inches deep in the bottom, cover this with fine earth one inch deep, place on the cuttings, sift on clean white sand till covered evenly one and a half inches deep. White sand radiates and transmits the sun-heat more evenly, and preserves a more constant temperature and moisture. Keep moderately moist all the time, and the sashes over them, and a moderate ventilation, particularly while the sun is shining. When the young plants are sufficiently grown transplant them in moist weather into the field or nursery row.

This course, with care, produces excellent plants for sale, or future propagation.

FRUIT ON SIDE HILLS.

If very steep, we should use such for blackberries, raspberries, currants, and gooseberries or grapes, choosing the most level places for strawberries, for being

small, they are more apt to be washed out by rains, and covered over too much by the soil when cultivated. Care should be taken to have a furrow kept open along the top of the hill to carry the water off in excessive showers, so that it will not all run down the side of the hill, washing plants out badly. Have every 4th or 5th row of plants that run up the hillside, further apart than the rest, and between each keep a furrow plowed up to the furrow that runs along the brow of the hill. These will carry the surplus water away safely, and prevent washing off plants.

NOTE.—We find that we have a large amount of "copy" and matter left on hand that was intended for this work, and that attention is called to it in different places, but space and the necessity of putting the work immediately to press to satisfy those who have sent forward the price, and are now sending us the second and third letter complaining of its non-receipt, compels us to print it without further delay.

The matter we have in hand will appear from time to time in THE FRUIT RECORDER,

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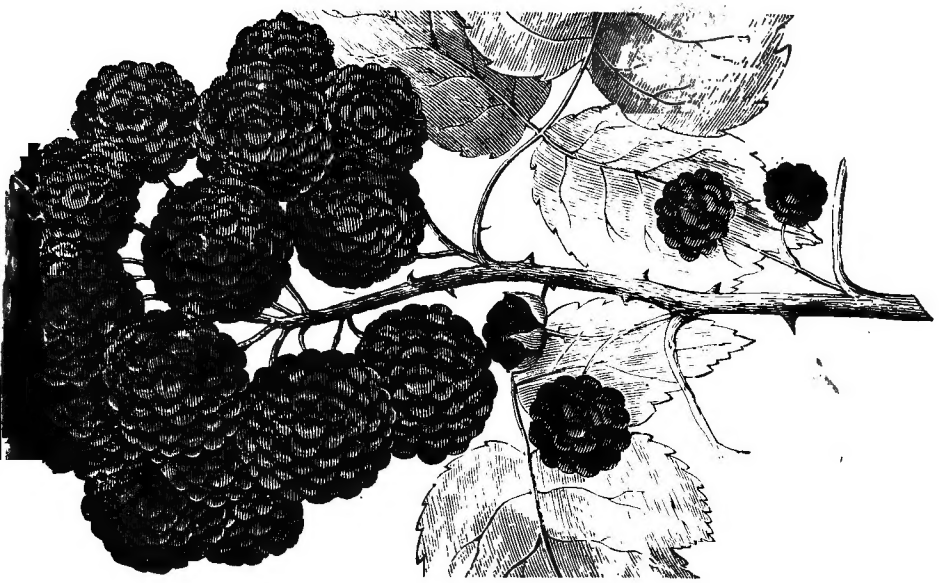
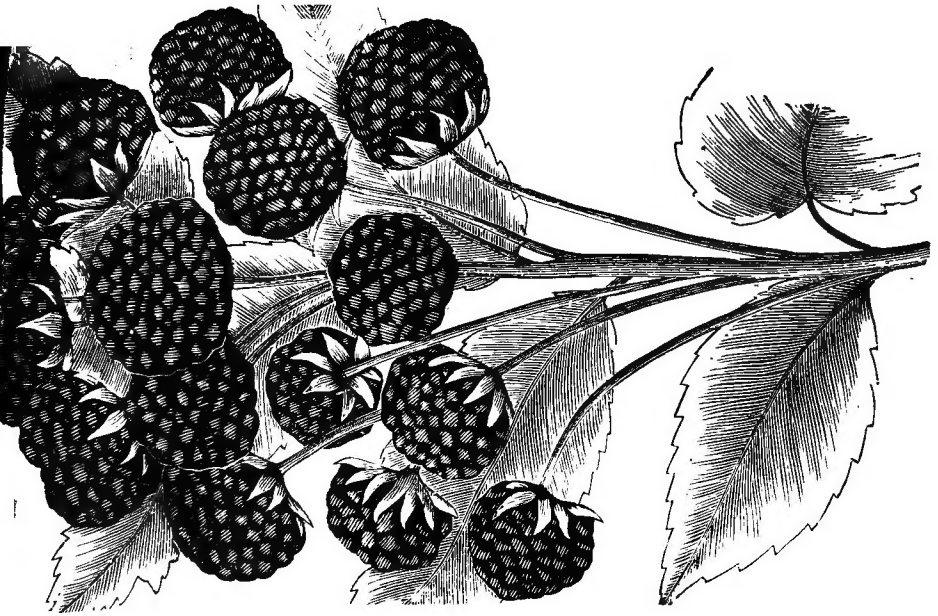


Doolittle. (See page 43.



Davidson's Thornless. (See page 43.)

Mammoth Cluster. (See page 43.)

The King of Black Caps, in every respect.