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THE FRUITS IN THEIR PURITY AND EXCELLENCE.



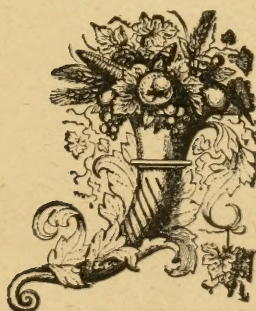
WESTERN FRUITS,

AND

HOW TO GROW THEM.

BY

J. R. HENDRICKS.



CAWKER CITY, KANSAS:
ORCHARD, VINEYARD AND BERRY GARDEN PRINT.
1888.

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P R E F A C E .

When a new country is first settled it is the usual cry that fruits and flowers will not thrive. The author of this little work has lived all his life in a comparatively new country, and can remember that such statements as "Apples will not grow in this country," "This is too far West to grow fruit," "The soil is too new here to plant fruit trees or plants," were the usual expressions when the subject of fruit growing was mentioned at the gatherings of the early settlers.

That such ideas were fallacious and detrimental to the best interests of our great west, has been most abundantly proven by those of our pioneer fruit-growers who thrust aside every discouragement, and with sleeves rolled up and with sweated brows planted orchards and vineyards. Many of these pioneer fruit-growers have passed to the "unknown beyond," leaving only their works as a monument to their memory and faithful exertions. The west owes more to these men than is generally known. It has only been after the efforts of these great men have been crowned with success that tree planting, and especially fruit planting, has received anything like careful attention by the majority of the settlers in a new country.

The writer remembers talking with very old settlers of the great state of Ohio, who stated that only one in twenty of the early settlers had confidence enough in the state to make any attempt at fruit-growing. The writer also recalls similar conversations with early settlers of Indiana, Illinois, Iowa, Missouri, Nebraska and our own great State of Kansas. These ideas gradually gave place to a reasonable degree of confidence in fruit growing induced, in the main, by the sturdy efforts of that "one in twenty" who successfully demonstrated to the remaining nineteen that fruit could not only be grown, but profitably grown. The state wherein has been exhibited the smallest degree of confidence in fruit-growing, and where the people have been the most reluctant to take it up and push it with a reasonable degree of energy is our own beautiful state of Kansas.

Early in the history of our State there were many things to contend with that other new countries knew nothing of; and our older fruit-growers who had passed through a large experience in other new states found that what they had learned by this extended experience was no great help to them in fruiting this country. Too much credit, we wish to emphasize, cannot be

given the few men who opened the way by experiment for the successful growing of fruit by the general population of the west. To these benefactors (I do not think this term too strong) we owe our everlasting gratitude, and to these men, and those, who, like the author of this little work, are ever alert for that which will be of enduring benefit to our people in the way of fruiting and beautifying the homes of the West, this little volume is respectfully dedicated. This work is not written for the scientific horticulturist, for he needs no such help: but for the energetic planters who, with sleeves rolled up, go at fruit-growing in a practical and business-like way, and who are willing to drain the fount of experience, "dear bought" and practical, provided by those who have gone before in this great industry. Trusting that this volume may be of benefit to such, and that it may be the means of fruiting and beautifying many western homes, we submit the following pages with the utmost sincerity, earnestness and respect.

J. R. HENDRICKS.

HOME ADORNMENT.

To every one of us home is the most sacred spot on earth. How important then is it that we should so beautify it that we may most thoroughly enjoy ourselves while there. Some people are content to have the necessities of life and a place to live, and care nothing for beautiful surroundings. There are those who would rather see a hill of corn or potatoes grow where a beautiful rose or other flower should be. Flowers in their places are of as much importance as field crops or fruit. It is in accordance with the taste of most persons to have some kind of ornamental trees about the house, and fruit trees farther away. Some, however, prefer to have fruit trees take the place of ornamental entirely. Tastes differ; but we believe there is no one but that likes to see growing about the house or among the trees beautiful roses and other flowers. Flowers, like fruits, are a success in Kansas. The rose seems to thrive in all its varieties especially well. The beautiful Mosses, Hybrid Perpetuals, Tea and Bourbon Roses are profuse bloomers. There are many fine weeping and flowering trees and shrubs which are beautiful for the purpose of ornamenting the home. The Althea, or Rose of Sharon is a beautiful flowering shrub which is so easily grown that it ought to be in every door-yard. The Wistaria, Clematis, Honeysuckle and Flowering Almond, and hosts of others will aid in making the home attractive. Where a family of children are reared this subject is of vast importance. If home is pleasant and attractive, children are less prone to wander away in search of pleasure. Adornment of the grounds surrounding the house often has as much, or more, to do in making the home enticing to the young than adornment of the inside of the house. To this many of us can testify. When we think of our childhood home, we recall the trees, the vines, flowers and landmarks surrounding it, with pleasurable emotions. The most insignificant tree, vine or flower is remembered as being beautiful. Outside of the pleasure to be derived from having a beautiful home, we derive a pecuniary benefit from every vine or tree, every shrub or flower we plant, which will abundantly repay every effort and expense. Many a farm or plot of ground has met with a ready sale, at a good price, that had planted upon it a few trees and flowers—the price usually being compensation, many times over, for every tree or flower, and every moment of time expended upon it. All these things being considered, it must be admitted that if we are after pleasure or profit, we cannot reasonably neglect the adornment of home.

FRUIT IN WESTERN KANSAS.

How can anyone locate in this grand and productive country without planting fruit. If we wish to have pleasant and profitable homes, we must be planting and caring for fruit. How can it be possible for us to inculcate this idea to the fullest extent. We often hear farmers say that fruit cannot be grown here, and give as a reason that drought, hot winds, etc., destroy the trees and vines. These are enemies which must be overcome, and this can be done as readily as can the equally troublesome enemies to the Eastern fruit grower. Who in the eastern states ever thinks of growing fruit by setting out trees and paying no attention to them. It is necessary to cultivate trees vastly more in eastern states than here.

FRUIT VS. MEDICINE.

A member of the family takes sick, and we wonder what is the cause. We ask what he has eaten; whether he has over exerted himself, exposed himself to the inclemencies of the weather without for a moment considering what he has been eating for weeks and months. The average farmer in the West uses salt pork mostly, in the summer, and in the winter heavy foods, with little or no fruit, except, perhaps, in the dried form. The human organism may be compared to a machine. A machine subjected to a continuous strain of hard labor, will occasionally get out of order and refuse to work, and will always wear out much sooner than it would if a change of labor, with plenty of oil to lubricate its parts, be given it. So with the human machinery. When heavy foods are constantly taken, and no fruit to act as a lubricator, figuratively speaking, and no change from the heavier to the lighter food, it will occasionally have to stop for rest and repairs, which it usually gets in the shape of nauseous medicine and partial or total abstinence from food. This, often, is not sufficient, and the machinery is stopped forever. These terrible results might often be avoided by the free use of fruit, not dried, but fresh. The human system demands the acid, laxative properties of fresh fruit, and if deprived of it will retaliate by refusing to perform its functions. This fact has been held before the public by Hygienists for a great many years, and we believe with good results. The use of fruit is on the increase, and we assert without fear of successful contradiction, that as is this increase so will there be a corresponding decrease in sickness and disease. Every one knows that when the system is out of repair sickness is most likely to set in. This is especially true of contagious diseases.

There are two kinds of pieplant which deserve attention. They are the Victoria and Linnaeus. The former is sometimes called the Mammoth pieplant. It is a very large, but a trifle coarse textured variety. Its productiveness, however, will more than balance this coarseness, while for market it has no superior. The Linnaeus is a smaller and less coarse variety. It is also very productive, and its fine flavor makes it a favorite with many. No well regulated garden can spare this vegetable from its list. It comes first in the spring, is healthful and palatable, and saves many times what it costs by furnishing a pleasant dish to the family. The children especially, relish it served as a sauce, or in pies. If canned it will be found of great value to the family in winter time, when fresh fruit is so scarce. It is easily grown and perfectly hardy. The labor connected with its successful growth is so slight as to be almost too trifling to mention.

In selecting a site for an orchard remember that a north slope is preferable to any other. The east slope is the next best, while the south and south-west are the poorest. The reason for this lies in the fact that the trees on a southern exposure are continually freezing and thawing which is often fatal to the life of the tree, and oftener to the crop of fruit. However, where no other slope than south and south-west is available, an orchard should still be planted, for, although results are not so satisfactory on such slope, it will richly repay all labor and expense. Then, too, no farm should be without an orchard.

RELATIVE VALUE OF FRUITS.

In planting fruit it is no unusual thing to give the apple the preference. This is as it should be; but the idea that actuates this preference is often a fallacious one. The idea of value or profit is usually uppermost in the minds of buyers and this is where the error lies. In this western country the apple tree, of course, has a value outside of the direct income derived from it. For instance, a farm with an orchard on it is more valuable than one without, even though the trees bring no fruit as yet. It is the prospective income that gives the value. The farm shows to better advantage—is more pleasing to the eye, hence the attractive value. The apple tree is one of the cheapest fruit trees; and this is another reason why it is selected in so much larger numbers than any other.

In this country the pear does not do so well as some other kinds of fruit, yet it, too, is a valuable fruit properly considered. We must not lose sight of the fact that variety has very much to do with success in planting all fruits; and this is especially true of the pear. The length of time it takes to bring it into bearing detracts from its value, and the cost of the tree at the nursery is another deduction. These however, should not prevent us from planting a number of the right kind.

The cherry is another pretty expensive tree. And we believe that from this reason mainly it is sparingly planted. Here is where a great error is usually made. The short time it takes to bring it into bearing, the high price the fruit brings in the market together with its ornamental appearance, makes it the most valuable fruit tree we have. In this country it will bear the third year after transplanting from the nursery, and before any other tree (unless we except the crab apple) comes into bearing will have returned to the planter three times the first cost of the tree, even though the price be high. Brother planters who have not demonstrated this idea, try it and we are sure you will find it correct.

The plum is next to the cherry in value, and should be planted on every farm in the country. Variety will have much to do with the success of this fruit. Some varieties the Curculio attacks so unsparingly as to make them comparatively unprofitable. This little insect is fast becoming less troublesome to fruit growers, since the improved methods of destroying it are being made known.

The small fruits are often neglected on the grounds that there is no time to cultivate them. This is poor philosophy. If we are making our living from the products of the soil, that which will bring us the most speedy and largest returns is what we should apply our brain and muscle to, regardless of taste or inclination. If from one acre of strawberries we can realize \$200 with a total of one month's labor expended upon it, we should grow them in preference to growing anything else that would take the same time and bring us only \$100. With almost any of the large fruits this is about the comparison, only we must calculate from six to ten times as much ground for the large fruit. The other small fruits will also show up with a balance in their favor if compared with the larger fruits. This, however, should not lead us to discard the large fruits, especially as they may be grown together, but rather to encourage us not to neglect the small in favor of the large. In selecting the large fruits, too, we should not, because the first cost is greater, neglect the cherry and plum for the apple because it is cheaper.

THOUGHTS ON THE WINTER OF '87-'88.

The winter of '87-'88 was one to be long remembered by the inhabitants of the great west. The winter set in very early, we having had a frost in central and western Kansas and Nebraska hard enough to freeze the ground from one to three inches deep during the last week of October, 1887. Previous to this frost fruit trees and plants generally were growing rapidly, there having been a great abundance of rain during the autumn. This frost, coming early and being followed by a very severe winter, was a sore trial for many varieties of fruit trees and plants, only the hardiest proving equal to the test.

To point out in our humble way the varieties best suited to a climate where such tests are likely to occur when least expected, is the principal object of this article. Our observation has extended over a large area of the west, and we feel that in naming the varieties that are the most reliable we have had a valuable criterion in the trees and plants that have failed and those that have pulled through safely. In mentioning varieties of trees we will begin with the apple because this is considered the principal fruit for the west. We have noticed that the Ben Davis has stood the test better than any other variety, it having come out most uniformly well all over the west. We have seen several instances where, owing to poor cultivation during the summer of 1887, the Ben Davis failed, but in no instance have we seen a failure where the tree was properly cultivated during the growing period of 1887. The quality of this apple is not of the best, (in fact is inferior) yet considering its hardiness and adaptability to our western climate it should take first place in the orchard.

The variety next to the Ben Davis in hardiness and general adaptability, as per our observations during the spring up to July 1st, 1888, is Jonathan. We have found very few trees of this variety that have had any care at all that failed to pass through the last winter. This apple is good enough to allow of extensive cultivation and we heartily recommend it to western orchardists. No fear of planting too many trees, as its color and general qualities make it a good apple for the market.

The variety we shall name as third on the list is the Missouri Pippin. We found a few instances wherein this variety was slightly injured but not enough to make it worthy of more than passing notice. The quality of this apple like the Ben Davis is not of the best, yet it, too, has color and appearance in its favor making it a good market apple.

Fourth on the list is our excellently flavored Winesap. This variety every where over the west seems to stand reasonably well and fruit well. To our palate this apple is second to no other winter variety, and considering the fact that it endures our climate well, it should make up a pretty good percentage of our western orchards. Occasionally we have found a tree of this variety that has failed, but not many. Of autumn varieties we have noticed that the Wealthy, Fall Wine, and Grime's Golden stood the best.

Of the early kinds the Duchess of Oldenburg, Red Astrachan and Tetofski stood best. The Tetofski is not of the best quality, but quality must not always determine what should be planted in the west, for we find that many varieties that are of good quality will not stand the test of our severely trying winters. What we most need in the west is fruit that can be grown

successfully and quality must only be one of the considerations. What would it benefit if we were to plant largely of the kinds that suit the palate best if they would bring us no fruit? We have found in many localities where almost entire orchards were killed out, or so badly damaged as to make it unprofitable to leave the orchard stand. Where such has been the case we have invariably found that the varieties planted were of those kinds that suit the palate best but endure the winters least. We think no better argument in favor of planting the hardiest varieties can be produced. We have found in the case of many varieties that while they leaved out and made a sickly growth, the wood inside the bark was almost dead. Such trees of course will never prove to be successful trees, even though they partially recover and give reasonable promise for a year or two. More than likely the next severe winter that strikes them will end their career. Cherries of the Early Richmond and English Morello varieties, where they were properly cultivated during the summer of '87 stood the test remarkably well. Especially was this the case with trees two or three years transplanted. We have seen a number of instances of failure of bearing trees, but always in case where cultivation was demanded and denied during the previous season.

We have observed that generally speaking the list as published in "Orchard, Vineyard and Berry Garden" for June has proven to be the very best for the west. One thought which has come up to us prominently in our observations is that all orchards in the west should be stirred. This is most notably true for central and western Kansas and Nebraska. If the orchard has attained bearing size and it is inconvenient to cultivate by stirring the entire orchard plat, at least stir around the trees for quite a number of feet. This we think will always be a necessity during dry growing seasons, and should never be neglected.

We have invariably found the Wild Goose and Weaver plum trees vigorous and healthy where properly cared for.

The Kieffer and Flemish Beauty pear are in good condition generally. The greater our opportunities for observing these varieties the more thoroughly we believe they are the kinds for the west, if indeed, the pear will eventually prove a positive success. We find many trees in bearing throughout the west and apparently doing good service, and we believe by adhering to these two varieties we can meet with a reasonable degree of success. Our observations have demonstrated that our list of small fruits cannot well be improved, as all varieties named have passed through our unusually severe winter unharmed. In central Kansas the mercury reached 32 degrees below zero in many places, and without injuring any of our listed varieties. We have found that where orchards were kept clean during the summer of 1887, the more tender varieties of trees passed through the winter in much the best shape. This should teach us an important lesson in the care of our orchards, and we trust our readers will not be slow to take advantage of it.

We may plan wisely or unwisely, we may concoct schemes that fail or partially succeed, we may say "lo here or lo there," and yet after all, we must be content to work and wait, for the end we desire will result from growth—steady and sure—but not from spasms, fits and starts of a few rich men; we must have the masses.

TO AVOID EFFECTS OF DROUGHT.

Thoroughly mulch orchard, vineyard and berry garden. Too much cannot be said in favor of mulching trees and vines in Kansas. Cultivate them very thoroughly and carefully from early spring until the first of June, then mulch heavily, and drought may come and your trees will be safe and fruit as certain as in older states. A little judgment is needed in the selection of varieties best suited to our soil and climate. We give below a list of fruits best adapted to our State, as demonstrated by our own experience, and the experience of others. By selecting from these varieties purchasers need not fear disappointment :

VARIETIES.---Apples.—Summer—Early Harvest, Red June, Red Astrachan, Early Pennoek, Duchess of Oldenburg and Summer Pearmain. Autumn—Maiden's Blush, Rambo, Lowell, Fameuse, Fall Wine. Winter—Missouri Pippin, Winesap, Ben Davis, Jonathan, Janet, Winter Pearmain, Willow-twig, Gilpin, and Rome Beauty. Crab Apples—Transcendent, Whitney's No. 20, Hyslop, Tetofski, Quaker Beauty. Pears—Kieffer, Leconte. Plums—Wild Goose, Weaver. Cherries—Early Richmond, English Morrello, May Duke, Governor Wood. Strawberries—Captain Jack, Charles Downing, Crescent Seedling. Blackberries—Snyder, Taylor's Prolific. Raspberries—Doolittle, Miami, Gregg, Turner, Cuthbert. Currants—Red Dutch, Cherry, White Grape. Gooseberries—Houghton's Seedling, Pale Red, Downing. Grapes—Concord, Ives, Champion, Pocklington, Catawba, Dracut Amber.

GRAPES IN KANSAS.

How many people there are who think themselves incapable of growing grapes successfully. They seem to think that to grow them with reasonable success requires some special skill—a knowledge greater than is possessed by ordinary people. There is no more serious obstacle to successful fruit growing than this idea. The fallaciousness of it is demonstrated on every hand by amateur growers who are taking hold and succeeding nicely. There was a time when most of our skillful fruit growers gave the growing of grapes more than the usual amount of attention given to growing fruit, believing that it was essential. Each year for a number of years past it has been more and more clearly shown that such extreme care was unnecessary, until at the present time scientific growing is almost superfluous. It has been shown that the grape will bear neglect better than any other fruit we have; but give it good cultivation and generous pruning and success will richly repay the efforts of anyone. It does not require a special knowledge anymore than it does to grow a crop of corn. Like corn, however, the grape will abundantly repay all labor expended upon it. Of the many varieties now grown the best for general culture in Kansas is the Concord. The Catawba is the best red and Pocklington the best golden.

RED RASPBERRIES.

There are a great many red raspberries offered to the public under various names, of which, perhaps, only a few are valuable for Kansas. The prime reason for this seems to be in the ability of many of them to endure the rigors of our peculiar climate. The severe and sudden changes in winter, and sometimes long protracted dry weather in summer, being too much for them. The Turner and Cuthbert are without doubt the most capable of enduring these difficulties, and being both good bearers and of good quality, they can with safety be largely planted. We have heard some complaints against the Turner, but upon investigation we found in every instance that the plant complained of was not the Turner, but some other and less hardy variety. In the cultivation of the red raspberry care should be taken to thoroughly cut out all the plants that may come up from the parent plant. These shoots are often the cause of failure in the realization of satisfactory results from the red raspberry. There is no fruit so agreeable to the palate of most people as the red raspberry, hence it should be found in every garden. Of the new varieties those that are most desirable are Rancocas and Crimson Beauty. We believe, however, there are none that do better than the Cuthbert and Turner in the west.

GRAPES.

The vines comes quickly into bearing, yielding fruit usually the second year after planting, requires but little space, and when properly trained, is an ornament to the yard, garden or vineyard. It is stated by some of the most eminent physiologists, that among all the fruits conducive to regularity, health and vigor in the human system, the grape ranks number one. We hope soon to see the day when every family shall have an abundant supply of the most excellent fruit for at least six months of the year. The soil for the grape should be dry; when not naturally so, should be thoroughly drained. It should be deeply worked and well manured, always bearing in mind that it is an essential point to secure a warm, sunny exposure.

The best grape vine trellis is probably the wire trellis. This is constructed by planting posts as far apart as you choose to have the length of your trellis; stretch the wires, four in number, about eighteen inches apart, letting them pass through stakes at proper distances from each other to support the wire. As the wires are contracted by the cold, and are likely to break or sway the posts from their places, they should be loosened as cold weather approaches. When, however, it is not convenient to make a wire or other trellis—very good results are had with the old vineyard system of training the stakes. The vines are planted six feet apart, in a place exposed to the sun and protected from cold winds, if convenient, and are trained to an upright stake. This method is as simple as the cultivation of Indian corn. Often a large and uncomely rock may be converted to usefulness and beauty by planting a grape vine on its sunny side, and making use of the rock as a trellis. To secure the best results, annual and careful pruning is essential. The following is regarded as the best method: Commencing with a good strong vine, permit it to grow the first season without pruning. In November or December following, cut back the growth, allowing but three or four

buds to remain. The following spring allow but two of the strongest buds to throw out shoots. These, in the fall, will be from seven to ten feet long, and should be cut back to four or five feet of the root. The next spring the vine should be fastened to the lower part of the trellis. When growth commences pinch the buds so that the shoots will be from ten to twelve inches apart. As these grow, train them perpendicularly to the second, third and fourth bars of the trellis. No fruit should be allowed to set above the second bar of the trellis. During the season when the shoots have reached the upper part of the trellis, they may be pinched to prevent further growth. After the fruit is gathered, and the vine has shed its foliage, the cane should be then cut to two buds. The following spring allow but one bud to throw out a shoot, and treat as in the previous year. This system of pruning should be followed each year. After the vine has undergone the fall pruning, it may be laid upon the ground and covered with boughs to protect it through the winter. Grape vines should be top dressed in the spring.

While some of the older varieties—Concord, Delaware, Iona, Rogers' 4, 15, 19, etc., are worthy of general cultivation, and necessary in a complete assortment, we believe some of the newer grapes are destined to supply wants which are not satisfied by the established sorts. Grapes may be kept through the winter, and even all the year, in small boxes holding three to five pounds, if placed in a cool, dry room, of even temperature; or they may be spread out to dry for two days, and then laid in market baskets, and suspended in a cool, dry cellar.

WHY FRUIT PAYS.

There are many reasons why fruit is profitable and not one of the least is that health is more readily kept up in the family by its free use. It is a luxury which all people delight to use, and life being as it is, made up of pain and pleasure, the use of fruit is as profitable as any of the pleasures we are in the habit of spending money for. This much for the profit derived from pleasure, the smallest item in the schedule of profits. The farmer plants his corn and wheat with a view to making a profit therefrom. He feeds his corn to his hogs and his cattle with a view to making a profit from them. The merchant lays in his stock of merchandise expecting to derive a profit from it. Everything is done with this same view. Underlying all this strife after money is a pleasure derived from success in securing it, and this pleasure is usually measured by the success attained. The farmer usually plants most of that crop which pays him best. The merchant lays in the heaviest stock of the most saleable and profitable goods. Experience has taught us that in some soils and locations corn does better than wheat, while in other sections wheat does better than corn. Some sections for some kinds of fruits and so on. Experience has taught us, too, that in all sections some kind of fruit always pays.

The income derived from the average farmer's orchard and fruit garden is just so much clear profit, and the amount of profit is usually depended upon the amount of fruit he has planted and the number of leisure moments he spends in taking care of it. We do not pretend to say that fruit growing is very easy work, for it is not. The average orchard could be well cared for

by applying only the leisure moments that occur to every farmer. When we speak of profits being dependent upon leisure moments and the returns being clear profits we mean of course where fruit is grown on a small scale only. It often requires the labor of many men to successfully grow the fruit of an extensive fruit grower. In this case, too, an outlay of cash for labor, etc., cuts from the profits.

HEDGES.

The Privet, Barberry and Arborvitæ are being valuable for hedges. The question has been asked us which is the cheapest as a fence, lumber, or one of the three named hedges. In reply we say the hedge will be cheaper. And when we look at the beauty of the fence the hedge will shine far above the lumber fence, no matter how tastily it may be built. Notice where there is a nicely kept hedge (ornamental) and how quickly it marks the building and grounds in our estimation. We can shear Privet, Barberry or Arborvitæ to any shape we desire, thus enabling us to have our fence any shape we may fancy. Where there are a number of fences in the same locality a pleasing variety can be had by this means.

In our cities and towns where lumber is high in price these hedges will be found to be a great boon. They grow rapidly, and are everlasting. This latter quality must be considered when we compare lumber with hedging for a fence. The lumber fence needs repairs frequently, and these cost money. Posts are rotting, boards and pickets are being broken, or are gradually giving away to the action of the elements, and to keep up appearances these must be replaced. If they are not replaced the fence instead of being an ornament to the grounds gives everything a dilapidated worn out appearance. Nature will repair all broken (if there should ever be any) places in a hedge fence, and no matter how neglected it still presents a good appearance. The hedge serves as a screen against high winds, and is a positive protection against cold. We remember that when a boy it was always considered that evergreens or any bushy shrub or tree had a modifying influence on a cold atmosphere. Be this as it may, we know they are a protection where they are on the cold sides of our berry gardens. Our lawns are made much more attractive and will call the attention of passers-by to it when it would otherwise escape notice. The question as to the ability of hedge to turn stock need not occur, because this has been very thoroughly demonstrated for centuries. They do most effectually turn stock of all kinds.

The value of the grounds surrounded by a well kept hedge of Privet, Barberry or Arborvitæ will be increased much more than by fencing in the ordinary way. If we wish to dispose of a farm or residence in a city, the well-kept hedge will hasten the sale at a satisfactory price. Such grounds never become drugs in the market, they can be readily disposed of.

Where protection to an orchard or large field is desired we would recommend the Russian mulberry. It is not quite so ornamental as the previously named plants, but can be made to grow higher, thus serving to break the wind over a greater area. This plant will not be so good for the berry garden as either of the others, nor will it be as pretty for the lawn. We would plant Privet 12, Arborvitæ 14 and Barberry 15 inches apart. Russian mulberry, 2 to 3 feet for hedges, and 12 feet each way for timber or fruit.

CANNING AND DRYING.

Not a very great many years ago the great industries of canning and drying were of comparatively little importance. Now how important they are. If we were to suddenly be deprived of these two industries it would be a world's calamity. The calamity would not be alone a financial one: it would have a tendency to fill our hospitals, to hasten to an untimely grave many of our race who are now being kept up in health by the use of fruits dried and canned, and who can only obtain the health giving properties of fruit in this way. The value of fruit as an article of food cannot be over-estimated. It is not merely a health giving luxury, but a really economical staple which we find as essential to existence as any of the foods.

These matters should receive the grave consideration of the head of every family—of everybody. Strange as it may seem, after all the advice of physicians and philanthropists that has been given the world, there are many who do not realize the importance of the free use of fruit in the family. In the winter when fresh fruit is scarce we have recourse to cans and dried fruit. If we have fruit of our own growing then we are indeed fortunate. Thus we can avoid all chance of getting poorly dried and canned fruit. It is very little trouble and expense to put up in cans, and dry our surplus fruit, enabling us to carry over from fruiting time until winter the necessary supply. How delicious canned strawberries are in the winter time. The same of the other fruits.

MULCHING GRAPES IN KANSAS.

The direct cause of mildew (outside of the natural tendency some fruits have to this disease) is a rich, moist soil. Mulching in a great measure prevents the evaporation of moisture from the earth, and the stronger reflection from the sun tends to keep the air dry around the fruit. It is the evaporation of moisture from the earth that is more the cause of mildew than anything else. Outside of this mildew preventive quality of mulching, in this country, it figures more as a preventive of the ill effects of extreme drought. True, the grape loves the sunshine and all that, but extreme drought is against the most successful fruiting of the grape as well as other fruits. This fact should not be lost sight of; and when the advisability of mulching the vineyard is considered should have full weight.

Rot is caused by heat and moisture; as an extreme amount of rainfall followed by heated spells, causing a too rapid evaporation of moisture from the earth. The rapid evaporation will be very much retarded by the mulch, and the prime cause of rot will be very materially lessened. This means will often enable us to grow some of those kinds that are so much subject to rot, yet which are really fine grapes. There are other reasons for mulching the vineyard, but these already mentioned constitute the prime one. Vines endure extreme cold better where the ground is well mulched, for the reason that the mulching often prevents the ground from thawing out in time of a winter thaw, which so often, by being followed by a severe freeze, kills so many of the not quite hardy kinds.

DECEMBER.

[This article was originally written for my horticultural journal, "Orchard, Vineyard and Berry Garden," and believing that there are hints in it useful to my average reader I insert it here.]

This is the last month of the year, and as it is usually pretty cold at intervals it behooves us to make sure that all the tender varieties of fruits shall have the proper protection. We hope the apple trees may have been secured against the depredation of rabbits.

There will be many days during this month too cold and stormy to work out of doors, thus furnishing abundant opportunities for laying plans for the successful future of our fruit gardens. Too much stress cannot be placed upon this idea, as is evidenced by the success obtained by those who use their brains a great deal in this direction. Well matured plans constitute a half victory in the battle for success, not only in fruit growing, but in all branches of industry. Arrange to have the orchard planted where it will add most to the value of the farm and comfort to the planter. The person planting a fruit tree not only plants for himself, but for those who come after him, hence an effort in this direction is deserving of the greatest possible returns. It is evident that there is more importance to be attached to planting fruit than the dollars and cents or comfort derived from it, in as much as generations after ours may reap many benefits from our exertions, our intelligence and care. No doubt there is often a question arises in the mind of the planter of the apple, pear and other fruit that take several years to come into bearing as to whether life will be long enough to make it worth while to plant and care for such fruit. Such ideas should not be allowed to interfere with the prompt performance of every item in the care of fruit trees and plants to make them a success. The adage, that if we do not live long enough to realize from the results of our labor others will, should be very generally promulgated.

No doubt the ground will freeze hard enough so that the strawberry bed may be profitably covered with two or three inches of mulching. This is an important matter and should not be neglected. No doubt the reason for covering the strawberry bed with mulch is somewhat obscure in the minds of many. The reason is a very simple one and should be understood by everyone interested in strawberry culture. In the winter time at each hard freeze the ground in a manner "heaves" or raises slightly from its ordinary level, subsiding as it thaws out. As a natural consequence plants with shallow roots will be "heaved" more or less, and as the ground subsides the roots will be nearer the surface than before, thus endangering the life of the plant from freezing. The constant freezing and thawing in the spring is the most dangerous to the strawberry plants. If you have set a new bed of strawberry plants this fall we would advise you to cover the ground at once.

CHERRIES IN KANSAS.

To Horticulturists it is a well known fact that the Duke and Morellos are the only cherries that do well anywhere in the west. This is especially true of our state. The severity of our winters, occasional spells of dry weather make it necessary for us to plant only those fruits that have the ability to stand cold and heat in extreme degrees. The ability to endure heat

and cold to a remarkable degree is shown by the English Morello. This fruit is often confounded by planters with the common Morello. There is little or no resemblance between them. The English is much larger and finer flavored than the common; does not sprout from the root as the common does, and has a much smaller pit compared with the size of the fruit. We believe this variety will give as good returns in Kansas and the west as any other known variety.

The Early Richmond stands next to the English Morello. In fact we have always considered these two varieties as going hand in hand everywhere in Kansas. Recent reports from different parts of the State really give the precedence of favor to the English Morello. The following list comprises about all the Dukes and Morellos worthy of consideration in our State: English Morello, Early Richmond, Belle Magnifique, Belle du Choisy, Dyehouse, May Duke, Large Montmorency and Lieb. The Hearts and Bigarreaus are not profitable as they are not hardy in the west. Many of the varieties represented as being new and valuable belong to this class, hence they should be discarded. The sweet cherry, though an excellent fruit, is too tender for here, frequently—we may almost say invariably—freezing to the ground. The cherry delights in a light, dry soil, hence its success in our country. We believe for profit it stands ahead of all fruit trees. Its ornamental and dense top makes it a desirable yard tree, and bearing as it frequently does, from five to six bushels of fruit to the tree, its value becomes apparent. In this country it would be no trouble to sell the fruit for five dollars per bushel. It can be set closer than the apple, in an orchard, and its ease of cultivation, requiring little or no pruning, gives it additional points in its favor as a fruit for profit. No limb, unless a broken one, should be cut from the cherry tree. This is a rule that should always be closely observed if we wish to realize the best results.

When a cherry tree is transplanted from the nursery to the grounds where it is to remain, only such limbs as have been broken should be removed. These should be cut off with a sharp knife, leaving a clean smooth surface to heal over.

NO FEAR OF OVER PRODUCTION.

No fear of over production in fruit growing. There are many persons who yearly put off planting fruit for market for fear of over production. It will be many years before the supply will equal the demand in this country, even if there should be ten times as much fruit planted each year as has been each preceding year. Last year strawberries and blackberries sold in our city for 25 cents per quart. Raspberries 20 cents. The supply was by no means equal to the demand even at these prices. In the east, when small fruits get very low in price they are canned and dried, thus enabling producers, after paying all expenses, to realize very remunerative prices for their fruit.

It will be many years, however, before we will need to can or dry our surplus fruit in order to get good prices for it. This, too, in the face of a greatly increased plant. Others will buy for their own canning and drying, at good prices, the fruit we place on the market, and the necessity of our resorting to cans and the dry house will be long deferred. It would be good.

for the welfare of the race if fruit could be produced at prices that would place it within the reach of the poor as well as the rich. At any price, however, it is economy for both classes to buy when it cannot be grown. We believe it to be the duty of every physician to recommend the free use of fruit to his patients—to everybody. We have no doubt that this idea, loudly expressed, would call down upon us the sneers of many physicians and nurses. If so, no matter. The most successful physician we ever knew so recommended fruit, and only in extreme cases where the patient was incapable of digesting or necessary medicine conflicted with it, was it ever kept from his patients.

THE TREE AGENT.

Many an undeserved censure the tree agent receives from those with whom he deals, or aims to deal. The prime reason for this kind of treatment seems to be that so many dandified, or high toned, agents have scoured the country soliciting and receiving orders for nursery stock which, from either not existing, except in the fertile imagination of the artist who drew the picture, or existed in such small quantities as to make it unprofitable for the agents to correctly fill such orders, were never delivered, thus defrauding the planter of his hard earnings. These orders are usually given with the expectation on the part of the planter that he is getting something better than the ordinary, since, of course, he pays a larger price for it. There are many agents who are making their bread and butter as honestly as does the hard toiling farmer. This class of agents can always be distinguished by the fact that they offer you everything at reasonable prices, and offer nothing but what is known to be successful in the locality they are canvassing. The class of agents first mentioned make canvassing much harder, and subjects the honest tree man to many undeserved slanders, until oftentimes he approaches a farmer with his heart in his mouth, almost ashamed of his business.

To such agents we feel like offering a word of encouragement by telling them how legitimate their calling really is. Most of our eastern states have been fruited through the constant effort of the tree agents. The west will naturally be fruited in the same way, and who does not consider the successful fruiting of a country a beneficent industry. All reasoning people do. In opposition to what we have said it will be urged that the local nurseries will attend to the matter of supplying the people with the necessary trees and plants. In reply we will say that such is the bustle, and rush, and worry on the farm that the matter of fruiting it is sure to be a secondary matter, unless energetic tree men so present the subject to the owner of the farm that he can consider it a necessity, and so considering it gives his order for what he really and absolutely needs on the spur of the moment. Thus he contracts for the necessary supply and in due season it is delivered to him and planted.

If you have an acre patch from which you wish to realize \$100 to \$200 a year, plant it to strawberries. Turner raspberries will return you at least \$100 per year.

SOILS FOR FRUIT.

It is often a matter of considerable concern on the part of planters to know whether the soil selected for fruit is suitable for the purpose. It is often wondered what soil is best for apple, peach, plum, &c. The apple thrives in a variety of soils, as does the peach and plum; but what soil will produce the finest fruit, and the most of it, is a matter that has enlisted the minds of our greatest men. Again, there is such a variety of these fruits, and being, as they are, the products of such a variety of soils, their wide distribution is well assured. But even in their individual localities there are some soils that will produce finer fruit and more of it than others. On the same farm is often found a variety of soil, and by knowing the fruits that are best suited to each variety we can readily determine which to plant. On one farm may be found a comparatively heavy clay loam, and on another a light sandy soil. The heavy clay will be found good for the pear and all fruits that are apt to grow too fast. The sandy soil is excellent for berries of all descriptions. A poor, rocky soil will be found to be good for the pear and some kinds of small fruits.

The cherry invariably does best in a dry, though not a poor soil. This fact will be of value to our Kansas people, and for this reason the cherry is an especially valuable fruit for here, when dollars and cents are considered. The plum does well in almost any soil and climate where the curculio is not too numerous, or the climate too extreme.

The small fruits all delight in a very rich soil, though they are nearly all moderately successful in almost any soil. The strawberry to be most successful should have a deep rich loam, and even though nature has abundantly done her part in this direction, heavy manuring should be resorted to. While this is best to produce best results they do well enough on poor, neglected soil to pay us to grow them. What is said of the strawberry can also be said of the other small fruits, except that some of them, such as the raspberry, blackberry, etc., will produce reasonable crops of fruit with a little less care. Yet, everything considered, we think the strawberry can be made to produce more satisfactorily in poor soil than any of the small fruits. We know that some of our readers will ask why the pear will not thrive better in rich than in poor soil. In answer we will say that it is the natural inclination of the pear to grow too fast, and in rich soils it is sure to do so, thus causing the tree to blight. This is the principal enemy to the pear, and to guard against failure with this fruit we should select our poorest spots of ground. Where the soil is very rich it will be well to mix largely of sand or gravel with the earth surrounding the roots of the tree. To insure the best results from this treatment the holes should be dug wide and deep, and the sand or gravel put in pretty liberally. It has been urged against this plan that the roots of the tree will penetrate to the soil on either side, hence the uselessness of this method. In reply to this argument we will say, that even though this be true, the growth of the tree the first two or three years will be materially retarded, making it grow more solid, and compelling the root to grow larger in proportion than the top, thus lessening danger of blight. The pear should be pretty severely pruned each year, planted in any soil. Success often, in a great measure, depends upon the freedom with which we use the knife.

THE PLAINS OF THE WEST.

In the early years when the line of fertility was drawn through a spot where Kansas City now stands few who gave the matter any thought dreamed that west of this line lay one of the most fertile regions on the globe. Few dreamed as the years rolled on that the country denominated the great American desert—that portion lying west of the line just referred to—would be teeming with thousands of industrious and happy people, who not only occupied the soil but made it bloom and blossom as the rose, and yield up millions of bushels of grain and fruit. Few there were but that, when the possibilities of this vast region were mentioned, shook their heads in contempt at the idea. And as settlement pushed westward of this line the ideas previously conceived had much to do with the tardiness with which the early settlers set themselves about beautifying their homes with trees and fruit plants. Almost treeless, this region presented many discouraging obstacles to be overcome, and many there were who gave up in despair and sought again the homes they left to build new homes in this country, only to find that succeeding years brought better results from the efforts of those who persisted in their new homes; and in many cases a new determination was made and again the new homes were sought, and perhaps with increased vigor the sod was turned and many of the obstacles that at first presented were overcome. Gradually the new homes assumed a more or less homelike appearance, and with the improvement of the new farm with necessary buildings, (often of the very cheapest and humblest imaginable) the planting of a few trees and the introduction of a few shrubs and flowers about the door, a permanent determination succeeded the first wavering ones, and the settler became permanently located.

As time rolled on the settlements advanced westward, until at the present time all the region west of the line mentioned is occupied by a class of people, mostly, who have been educated as to the possibilities and probabilities of this vast plain region by experiences gained in the first settlements.

To point out a few errors and suggest a few methods that in my humble opinion would result in the betterment of our great people is the object of this address. I speak of our GREAT people, for who deserves the title of "great" more than the sturdy toiler who is willing to suffer hardships innumerable, often going scantily clothed and fed in order to build up a home, almost from nothing, for those he loves and those who come after him. While much has been done towards building up this great plain region, there remains still much more to do before the possibilities of this wonderfully fertile land have been developed. More is needed than the mere breaking up of the sod and planting corn and wheat. If we wish to live here, we must make our surroundings agreeable and beautiful—to satisfy the mind and make us a thoroughly happy and contented people. Around us on every hand lays a beautiful breadth of fertile soil with only the few trees planted by our hands to break the monotony of a comparatively level area, reaching as far as the eye can see. Seasons come and go, leaving some sections with less than a just reward in crops for the hard labor expended upon the land, owing mostly to dry weather, supplemented by dry, warm south winds. Again the scene shifts and the section which receives a scanty supply of grain and fruit receives a liberal supply, while the first favored section receives a scant sup-

ply. In the history of the western plains this routine has been a constant one, and doubtless will continue until the treeless area becomes pretty well supplied with trees, and the soil pretty well subdued. As tree planting and cultivation extends westward we find that crops become more certain and the people more prosperous and thoroughly contented.

It has been demonstrated that the principal reason why many portions of the earth, once very densely populated, are now almost barren deserts and uninhabitable, is because of the destruction of the forests. After the timber has been removed the rains that fall upon the slopes, hillsides and mountains, instead of being absorbed rush off to find a level; great and disastrous floods are thus caused which carry the loose soil into the water channels, and then by reason of a thin soil, not well moistened, great and distressing drouths follow. As these results, flood and drouth, succeeded each other it was found that crop growing was such a failure that the people inhabiting these districts were compelled to seek other more certain localities. In these newly sought localities history seems to repeat itself and again forests begin to fall, and as the trees disappear crops become more and more uncertain.

As examples of lands made comparatively fruitless by deforestation I will refer to Palestine and the Iberian peninsula. Palestine once so fertile became almost a desert by the removal of the forests. Here the memorable cedars of Lebanon grew and flourished upon the mountains holding and guarding the water supply for the creeks and rivers of all Palestine. Imagine the result when these trees were removed. The rivers became only moderate creeks, and the creeks have in turn become merely rivulets or have disappeared altogether. The climate, once so salubrious, too, is changed by the removal of these lordly trees, and the soil no longer brings forth in abundance the necessary products for existence, and the labor of the husbandman goes unrequited. What a terrible picture, and yet how true. Travelers who read of the wonderful productiveness of this land view the now barren wastes and wonder why it is so, often, perhaps, without divining the true cause.

We have been told that in the time of the Moorish caliphs the Iberian peninsula resembled a great garden, yielding all kinds of grain and fruit in abundance. The peninsula, too, was densely populated with a comparatively enlightened people. When the Kings came into power their wantonness found vent in the destruction of the heavy growths of timber covering the sierras and mountain sides, and lo! we now find nothing but goats and sheep, wild and almost worthless, roaming over this now neglected land, until at the present time the plateau lands of all Spain (one-third of her entire area) are unfit for agriculture. Why, do you ask? Because after the sierras and mountain sides were shorn of their forests rain fell so seldom and in such sparing quantities that agriculture has ceased to be profitable, even to making it impossible for a people to exist there. The climate of this deforested region was once very fine, while now it is disagreeable and unhealthy since there are no forests to break the hot and cold winds. Streams once so deep and beautiful are now narrow and shallow, presenting a startling contrast. The great quandary with governments who have awakend to their great loss, too late, is how to restore the fertility of soil and salubrious climate. Some have made an effort by attempting to replant the land robbed of forests. This has been found to be slow work, as trees do not grow readily on land that has once grown large forests.

What important lesson do these facts teach us who inhabit a fertile yet treeless region, already possessed of a beautiful and healthful climate, and a soil capable of an immense possibility in the way of growing forests. Here we oftentimes have a scanty supply of rain-fall from lack of forests that were never growing here. Warm winds often annoy us and make our crop growing sometimes hazardous, because we have no forests to temper the atmosphere with a cool moistness that would come from the moisture retained by the porous soil occupied by the roots of the timber. My friends, right here is an important idea; trees send their roots into the soil in every direction and when rain falls, the soil, made porous by the many roots ramifying it, takes up the water carrying it to a great depth where it is either held in store for future use or goes bubbling out at some lower level at the foot of hills, often forming beautiful streams which tend so much to promote crop production.

As a further example of the evil effects that arise from the deforestation of a country I would refer you to what has been said by Rothe and others about the island of Sicily. This the writers say was once the great reservoir of grain for all Rome, as well as for other localities. The quantity of grain produced upon this isle was almost fabulous. What is this island to-day? There remains only a few fertile spots to tell of her departed glory, and to remind us of what she once was. It is said that the once proud city of Syracuse now lies in a spot made desert by the sand blown by the siroccos from Africa.

Again, we can come closer home—to our own beautiful United States. Look at Ohio. Once a well timbered and watered state on whose soil fruits were almost certain. Peaches were almost a certain crop, while now one crop in ten years is all that can be hoped for, and even so good results will not long continue. The trees are dying off, and new ones planted do not give promise of much good. It has been said that in fifteen or twenty years, if the hills in southern Ohio be stripped of their growth of timber, that portion of the state will be a desert. "The rain will wash the soil from the hill-tops first and then from the slopes, the limestone which is now covered with productive humus, loam and clay, will be laid bare; the naked rocks will reflect the rays of the sun and increase the summer's heat; the north storms will blow unhindered over the country, and every change of the wind will cause an abrupt change of temperature." What is true of Ohio is true of other sections.

Now, we are taught by these examples that deforestation means drouth, poor crops, famine and pestilence. And from these lessons can we not gather the inference that planting forests means good crops, good health and plenty of everything? My friends, this is an influence that can be traced to a realistic conclusion. In this great plain region forests could be planted with great profit to the individual planter, as well as to the country. In the older states timber is being used in the manufactories until it will not be long before wood for manufacturing purposes will be very scarce and high priced. Walnut and other valuable woods thrive reasonably well, and would return a handsome profit to the planter.

FALL DELIVERY OF TREES.

If the subject of handling trees was properly understood there would be more trees procured in the fall, especially by persons who are compelled to send some distance for them. There are many good reasons why it is a good plan to get trees in the fall, and chief among them is that in consequence of the extreme rush of work in the spring the nurserymen are compelled to deliver distant shipments later than desirable. By ordering the trees for the fall delivery they will be carefully buried and be on hand for early spring planting, insuring a better and stronger growth and a more permanent hold the first season. This is an important item and is being better understood as the seasons roll by and profitable experience gained, as is shown by the increased demand for fall dug trees.

Contact with the earth seems to have a beneficial influence on the after growth of the tree, as is evidenced by the strong growth of the trees taken from the hole in which they were buried over winter, and planted early in the month of march. These ideas are especially applicable to central and western Kansas; they are, however, applicable to all localities. After a very severe winter some trees may be injured by severe freezing, and their injuries be unknown, either to the nurseryman or the planter. This difficulty is entirely obviated by taking up and burying trees in the fall.

CHEAP FRUIT JELLIES.

Dr. Cyrus Edson, one of the chief inspectors of the New York Health Department, tells, in *Babyhood*, about the composition of cheap fruit jellies as they are found put up in fancy packages in our grocery stores. A sample of "currant" jelly consists of the following ingredients: "Dried apples, water, low-grade tartaric acid, and arsenical fuchsine, (a red aniline color)." To this mixture was added a sufficient quantity of French glue to give it the consistency of jelly. A large package of salicylic acid was also found stowed away in a cupboard, which after some pressure had been brought to bear on him, the proprietor admitted he used in warm weather, "to keep his jellies from spoiling." The goods were seized and destroyed on account of the poisonous arsenical fuchsine used in coloring them.

A thorough inspection of the jelly factories in New York city revealed the fact that all were manufacturing goods after similar formulas. The use of fuchsine and salicylic acid was then prohibited, and the manufacturers compelled to substitute gelatine for glue. Commercial "currant" jelly is now composed of dried apples, water, glucose, tartaric acid, carmine, or aniline sugar-red and gelatine. Mix, boil and strain. Other fruit jellies are made by diminishing the tartaric acid and substituting other coloring matter. The "dried apples" used in the manufacture of these jellies, consist very largely, if not altogether, of dried skins and cores—the refuse of the large evaporating establishments, (as we have learned by a thorough inspection of the latter.)

The jellies are far from being wholesome, and the whole business is a fraud on the public at best. We appeal to every true housewife and mother to avoid the cheap stuff and rely henceforth on home-made fruit jellies. Buy good fruits and you can easily make all the wholesome jellies that your family will need. The formula is simple and the preparation easy. Here is

Dr. Edison's receipt: "Take juice of fruit, freshly expressed, white sugar a sufficiency, boil some time, strain and cool rapidly."

Again allow us to say buy none of this concentrated poison. Consider what you are eating when it is set before you on the table and we feel assured that you will "touch it not." It does not taste good, there being a sickening gluey flavor to it that is positively repulsive to a discriminating palate. This stuff is to jellies what oleomargarine is to butter; and our legislators are just as much in duty bound to brand this infamous production as they are to brand oleomargarine. We will go further and say that our legislators should prohibit the sale of it with just as much emphasis as Kansas law-makers have prohibited the sale of intoxicating drinks in Kansas.

SHADE TREES.

It will not be out of place at this time to give a few hints in regard to planting shade trees in the spring. Planters are often in a quandary as to what to plant for this purpose and how to plant it. Of the best varieties there can be a nice selection made, and in accordance with the tastes of planters. A very pretty tree is the European Linden. It is a tree that will thrive under unfavorable circumstances, and under favorable treatment will do very well indeed. We have seen this tree set in ground that had just been broken—prairie sod simply inverted—and do well. Its broad leaves in summer and red buds in winter make it a desirable tree for shade and ornament. Nursery grown American wild cherry is fast winning its way to favor in the west. Its timber qualities will always make it a valuable tree. The medicinal qualities of the fruit, too, should not be overlooked.

Nursery grown sycamore, ailanthus, persimmon and horse chestnut will prove successful. These we mention as giving our friends a variety of really good trees to select from. The ideas here presented must not be construed to place us on record as favoring these to the exclusion of others. For instance, for all purposes we consider Russian mulberry and western hardy Catalpa as heading the list. The above mentioned varieties are good and should take the place of Russian mulberry and hardy Catalpa for variety sake only. In planting shade trees it should be born in mind that nursery grown trees thrive and bear transplanting much better and make much prettier trees than the same varieties taken from the forest. To demonstrate this take up a few ash or box elder from the forest and get a few of the same varieties from the nursery and plant them side by side. In planting in our native sod, large holes should be made, and a little loose old soil thrown in about the roots and at the bottom of the hole, and the ground well covered with straw or hay mulch. The old soil is not an absolute necessity, but to insure the best results should be resorted to. In old ground, also, it is always well to cover the ground, after planting, with a heavy mulch. Thoroughly prune large sized trees at time of setting them and they will be all right. Where set in old ground weeds must be kept down. If set in sod, the sod should first be broken, or broken immediately afterward, thus preventing the grass from sapping strength from the trees.

FORESTRY IN THE WEST.

As we mentioned in a preceding article it is a great pity that settlers who availed themselves of the timber culture act have paid so little attention to planting such kinds of timber as will bring a reasonable compensation for the labor and money expended in planting it. In driving through our country we find many five and ten acre groves very largely made up of cottonwood and other trees that are short lived and of little value. The cottonwood thrives only on low ground, and when grown the wood is of but little value, being too light to make good fuel and its inclination to warp makes it unfit for lumber. The ease with which it is started, and the rapidity with which it grows in low lands, and in uplands for the first few years, has tempted settlers to plant more largely of this variety of forest trees than of any other. It grows readily from either seed or cutting, thus making it an inexpensive tree to plant. In the early history of Kansas and Nebraska many settlers located timber claims with the view to putting only timber enough upon the land to secure the patent, caring nothing for the timber after grown, hence cottonwood was almost universally used. After a few years it was found that cottonwood was a poor tree to depend upon, and other varieties were sought. White ash, box elder, walnut, ailanthus and other varieties were found to endure neglect pretty well, and a good many of these varieties were planted.

Of the above named kinds the walnut did the best, enduring dry weather and weeds admirably. Later on the Catalpa and Russian mulberry were introduced and found to do well under unfavorable conditions. The planting of varieties of timber that endured neglect tolerably well did not tend to increase the efforts to have forests in this Plain country, but was rather conducive to the opposite condition of things, until it seemed almost as though the timber culture act was a failure so far as putting forests upon our prairies is concerned. Gradually, however, the authorities became more particular and planters, fearing failure in proving up and procuring a patent, made more efforts to make a success of their plant of trees. During the last few years there has been more interest manifested in planting such trees as will be of lasting benefit both to the planter and to the country. Now we find many thrifty, promising groves of catalpa, walnut, mulberry, elm, white ash and other valuable sorts which furnish a striking contrast to the cottonwood groves planted in an early day.

One of the greatest drawbacks against the spontaneous growth of forests has been the prairie fires, often set by persons passing through, and who had no interest in the success of our great country. Wherever fires have been kept away from the creeks a nice growth of young forest trees has sprung up. In most cases this young timber has been cared for and will constitute no insignificant item in the increase of forests in this country. In the eastern portions of the states of Kansas and Nebraska, where fire has been kept out adjacent to timber land, a surprising quantity of underbrush has sprung up, including many of the kinds of trees indigenous to the country,

giving a clear illustration of the theory that if our western prairies were to be protected from fire for a series of years a forest would gradually spring up. This theory is illustrated by the history of older states, as Illinois, Iowa, &c., &c., where forests have sprung up upon land protected from fire. It has been urged, and wisely, too, that the subject of growing forests in the west should receive special patronage from the government. Experimental stations (or at least one station west of the Missouri river) should be established, which would, in our opinion, aid more largely than any other means in securing to the west both an abundance of fuel and of rainfall. This latter consideration, we think, should not be overlooked by our general government, and if properly regulated the source of revenue to our country would more than repay every expense to our government. Forests once established by governmental patronage should be under governmental supervision, and such laws should be passed as will perpetually protect them from destruction. Thus forests once established would be a permanent thing and of perpetual profit to our people.

To our people we wish to say, plant such timber as will be valuable when grown. It will pay in dollars and cents, not only to you, but to the state in which you live and to the United States to which we all owe our unalloyed allegiance. Plant walnut, catalpa, wild (bird) cherry, ash, oak and other hard woods. After the trees are planted foster and care for them as you do no other crop you grow. Do not plant only on timber claims but upon every farm, no matter how small. Line every street and every roadway with valuable trees—such as above mentioned and eventually this great Plain region will return to us many fold every cent of money so invested. Our climate, as before mentioned, will be tempered so as to be in every way more enjoyable. When the mercury is ten degrees below zero and a strong wind raging it is more intolerable than when the mercury is at sixteen degrees below and no wind.

In Nebraska the State Board of Agriculture annually award liberal premiums to those who plant the greatest number of trees, seeds and cuttings on Arbor Day. The governors of both Kansas and Nebraska annually issue proclamations to the people urging them to plant trees on days designated by them as Arbor Day. It is said that this idea originated with the Nebraska State Board of Agriculture. This is indeed a beautiful idea, and the proclamations should be heeded most earnestly. Organize forestry associations and study the tree growth in every vicinity, issue instructions as to the best kinds of trees to plant in each locality, prevent the ruthless destruction of timber and urge every farmer to plant trees, not only on Arbor Day, but whenever possible and practicable. Cultivate a love for tree planting, and soon the western plains will assume a new and beautiful appearance. If it would be possible for the writer to instill a deep interest in the breast of every resident of our great west upon this subject, and could accomplish nothing else during a long lifetime, we should feel satisfied that such a lifetime was well spent and well rewarded, and that the gratitude of coming generations, mingled with the enduring love for beautiful homes, would be ours.

HINTS.

Don't forget that the little birds will do you more good than harm, hence harbor them carefully.

Prune your trees carefully before setting them. This is an important feature in successful tree culture.

Too much stress cannot be placed upon the use of celery as a condiment. It properly belongs to every table.

Look sharp as to whether you are going to plant the proper varieties for this country. Upon this much of your future success depends.

Examine the tree roots at time of setting and destroy all insects that may have found lodgement there. Cut off all bruised or mangled roots also.

There are hundreds of villages, towns and cities that are not half supplied with small fruits. There may be an opening for you right in your neighborhood.

If you have a variety of grape that mildews badly, dust the plants with sulphur. If the mildew spreads sprinkle the vine with water and then dust with sulphur.

Do not waste much time and money in trying the new fruits such as are recommended by the originator or introducers. Hold fast to the known valuable varieties.

Fruit at every meal means health in the family. Plenty of apples at all times are a good thing. No need to be without them in this country. Sow and ye shall reap.

The gooseberry is one of the most successful of the fruits for Kansas. No garden is complete without a number of bushes. Train them as nearly tree-fashion as possible.

Cover the rhubarb with a generous coating of stable manure, leaving it on in the spring. The plants will come up through it. The asparagus bed should be similarly treated.

Once more allow us to caution our readers against planting corn in the orchard. Many writers still advocate this plan, but in Kansas it will result in disappointment every time.

Cions for grafting must be taken from the last year's growth. Do not fear that the tree will be harmed or that next year's crop will be lessened by cutting the cions from the tree.

Heavy winds that shake off a great deal of fruit do not always diminish the yield, for what is left grows large, sometimes so much superior in size and appearance as to overbalance apparent loss.

It has often been asked us if prune or apricot pits will produce fruit true to name. Our answer is no. The apricot and all fruits of like nature when grown from the pits will produce a diversity of sorts.

Sometimes trees get hide-bound from poverty of the soil, from exposure to hot sun, or from the attacks of insects. In this case a slitting of the bark by the pruning knife, up and down the stem, is beneficial.

Look sharp that there may not be some spot on the farm where nothing but weeds are growing that would produce some delicious fruit if the tree or plant were only set. Utilize every bit of space, there is money in it.

Try the following next season on the potato beetle : five pounds each of copperas and slacked lime, one ounce of carbolic acid in twenty gallons of water. Apply with a brush or a very fine sprinkling can.

Too much stress cannot be placed on the idea of planting young trees. Two year old for fruit trees is the right age, though one year olds are perfectly successful, and often fruit fully as soon as older ones.

When your grapes are about the size of a garden pea they should be slightly thinned on the bunch so that the remaining ones shall be as large as possible. They will be less liable to rot and be of better flavor.

The wrapping of paper put on the apple trees last fall if not bound too tight can be left on as protection against the hot sun. Be sure to examine the string with which the paper was bound on, and if tight loosen it.

Be sure and loosen up the ground around all the small fruits as soon after a rain as the ground is dry enough. The idea is to keep the ground from baking around the plants. Strawberries, especially, need this treatment.

Varieties of grapes that are apt to rot and mildew are most successfully grown beside trees, allowing the vines to run high among the branches and setting their fruit there. Try this with the kinds that have rotted for you.

If you are suffering from any form of malaria use plenty of lemons. Drink nothing but lemonade, and eat as many of the fruits as you feel like eating. Pleasant remedy and worth a whole drug store full of drugs. Try it.

What can be more gratifying to the sight of a hard worked, hungry farmer, as he enters the house for dinner on hot days in summer, than a plate of delicious strawberries and cream? Brother farmers, we may all have this luxury.

Where the "Aphis" or plant louse attacks a tree they are easily removed by applying moderately strong tobacco juice. Tobacco should be steeped in water until it becomes the color of beer. It should then be applied by means of a syringe.

Make up your minds to thoroughly exterminate the apple tree borer from your orchard. It is not a very great job, though it requires a little patient search and pains-taking. Keep a sharp lookout for the little pest, though your orchard may not be infested.

Look out for the Russian apple tree peddler. There are no good Russian apples offered to the retail trade that all nurserymen do not offer. Many of the plates used by such peddlers are representations of fruits not in existence except in the imagination of the artist.

If you have any old cast iron that you are contemplating selling take our advice and don't. Bury it at the base of fruit trees and plants and you will soon realize more from it than you would obtain in the market. Old bones, also, should be gathered up and buried beside grape vines or fruit trees.

It is a well-known fact among fruit growers that the Le Conte pear tree is best grown from cuttings. It is said that the tree grown from cuttings will usually yield from ten to thirty bushels of fruit while the grafted tree will hardly bear one bushel. The original home of this fruit is Thomasville, Ga.

We wish to warn our readers against buying the English gooseberry to any extent. These are very apt to mildew—almost invariably do—in our climate. The American is almost entirely free from mildew, and is the variety to plant. The English varieties are often offered and sold under spurious names, and at a high price.

We have often been asked what stock the cherry is budded or grafted on to prevent it from sprouting. There are two stocks in general use. The Mazzard and Mahaleb. The Mazzard stock is best where tall upright trees are desired. The Mahaleb where lower, more bushy trees are wanted. These are roots that do not sprout.

Don't let hard winters and dry summers discourage you from planting fruit, for the ultimate results will always prove satisfactory. You would not think of giving up raising hogs because they occasionally die. So we should not be discouraged if we occasionally find some of our choice plants dead from the effects of cold or of dry weather.

Write the word "mulch" two or three times at as many different places in your memorandum book so that when writing down an article you see it. Not only write it down but be sure and make a "watch word" of it, and when a tree or vine is planted mulch it. By heeding this hint you may save yourself much loss of time and expense, and save many hard feelings towards the nurseryman.

Do not anticipate too good results from the spring plant of trees and plants, for there are always some unlooked for enemies to baffle, to interfere with entire success. Do not expect that every tree will grow, for no nurseryman can grow trees and plants and distribute them without having some of them fail. Reason calmly upon this subject, and if reasonable success attends your efforts be satisfied.

When the winter winds begin to keep you near the fire do some good planning for a nice large orchard and a good family berry garden. It is so much easier to plant out trees and plants when we know exactly where to put them. In planning the orchard and berry garden do not neglect the adornment of the grounds about the house. A few trees of the right kinds will add wonderfully to the appearance of home.

It is a natural tendency on the part of farmers to neglect fruit, giving most of their attention to growing grain. We are glad to note that there is an increasing interest in fruit growing manifested among our farmers. In a few years there will be an abundance of all kinds of fruits, and the increased wealth of our country caused by the planting of the trees, vines and plants can now scarcely be imagined.

In reading many of the horticultural and agricultural journals of the present day we note much that is so entirely theoretical as to be of no value to the practical fruit grower. Eastern theorists often do much harm by advise based on theories conceived in the east. Theories, in the absence of practical knowledge, are good enough, but give us practical experience written down in any manner intelligible to us.

Everyone should be supplied with a small force pump for spraying trees at dry times during the summer. If this is done the trees will go through a

severe drouth much more successfully than if left to take care of themselves. This hint applies with more force to residents of cities than to the residents of the country. It is of special importance to have the trees next a dusty street well sprayed every evening during a dry time.

The bark of the apple tree has a sweetish taste which is very attractive to mice in winter. They are, however, very timid and will not eat unless protected by weeds, rubbish or snow banks around the tree, and all danger is avoided by earthing around the stem as high as the probable snow line. If snow comes before this is done pack snow around the tree, looking at it occasionally to see that the snow does not melt around the stem, leaving a depression in which the mice can work.

Here is a good way to prevent forked trees from splitting apart. Take two twigs, one from either prong, and lock them together by twisting so that the wind will not separate them. As the twigs grow they become strong, thus preventing the prongs from parting. Of course it is unwise to plant a forked tree, but it is often done unwillingly, and sooner than spoil the head of a tree several years old this method should be resorted to.

If any of our readers are contemplating putting out fruit, for market, let us advise you to plant a variety of fruits, so that in case one thing fails another may succeed. Plant grapes, strawberries, raspberries, blackberries, gooseberries, currants and juneberries as well as a variety of the larger fruits for later bearing. A little judgment exercised before embarking on such an enterprise would often make a success out of what would otherwise be a failure.

Make sure you are ordering from a responsible party when you order fruit trees. There are many agents traveling the country representing some eastern firm, and representing that they have all of the new apples and other fruits. Remember that when a new fruit is originated there is not a general stock in the country for years afterwards. Hence many of the parties offering such fruit trees and plants are frauds and never deliver the fruit they represent.

If you have a tree or plant that is apparently dying, examine it and see if you can discover the cause. More than likely the ground has been allowed to bake around it, or perhaps there are weeds enough around it to exhaust the moisture, thus causing it to die for want of something to drink. Dig the soil thoroughly around such tree and give it plenty to drink in the shape of several buckets of water, after which apply a thick mulch for a distance of several feet on all sides of the tree.

We have noticed that a great many planters have made a serious mistake by planting their trees too close together. Thirty feet each way for apple trees is about right, though twenty-eight by thirty feet is not very much out of the way. It seems to the inexperienced planter that the small trees he sees cannot possibly grow large enough to occupy so much space. He begins to realize his error when the trees begin to lock branches and the fruit to fail.

No use digging deep holes for trees; the small feeding roots keep close to the surface, always waiting for fresh nutriment and moisture. Make the

hole wide if you wish, and fill in with good mellow soil, but only sufficiently deep to allow the tree to stand not more than one inch deeper than before removal. Deep holes are an injury in many cases, as the fresh soil will sink after heavy rains, taking the tree with it, and thus bury the roots several inches lower than is required. Rich soil at an unnecessary depth inclines the roots to run deep in search of nourishment, and thus debar them from proximity to the air.

There is a great slight in hoeing which is little understood by most persons accustomed to using that useful little garden implement. It is almost an invariable custom to have the hoe, "in operating," almost the full length of the hoe in front of the person using it. This is entirely wrong, as we can testify from actual experience. The person operating should stand nearly erect, and as nearly over the blade as possible, making long strokes with the blade of the hoe just under the surface, and made in such a way that the hoe is drawn towards the operator. It leaves the ground level.

Do not think of undertaking so much next spring that the new orchard or berry patch will be neglected. It is quite a common plea with those who plant fruit that they cannot afford to lose the time from their crops to care for it. The fact is no one can afford to neglect fruit, and the strongest protest against such neglect is the pocket book itself. You can see the effect of fruit in the ruddy countenance of health, in the decreased demand on the flour barrel and an increase in the happiness of the family.

The best remedy for the Aphis or Green Fly is tobacco smoke. It can be applied by covering the plant with a box or barrel, and putting under a little burning tobacco. The plant should remain in the smoke several hours and then be washed off with blood warm water. If more convenient to apply, a strong tea of tobacco will answer very well. Wash or sprinkle the whole plant or dip it in the tea as often as may be necessary. When tobacco is not desirable, a hot water bath will answer the same purpose. The water should be as hot as the hand can bear, and the whole top of the plant dipped in quickly, two or three times in succession, but it must not remain in more than two seconds at a time.

PLANTING AND TRANSPLANTING.

Very few persons have any well defined idea of the value and importance of our orchards, vineyards and berry gardens. Not a great many years ago the fruit growing industry in the west was in its extreme infancy, and is yet quite young. However, the market value of our fruits is estimated at many thousands of dollars annually. There is no field crop that will bring in as much clear gain for labor and capital invested as fruit trees and plants, if properly cared for: and perhaps we might add that nothing could disappoint us more if trees and plants are neglected. In this article we propose to give our readers general directions for planting and transplanting fruit trees and plants. In an article of this kind it would be impossible for us to enter into minute details, hence we will draw only the outlines and refer our readers to other hints embodied in this work. If the ideas herein con-

tained are closely followed we feel assured that our readers will have no difficulty in growing their trees and plants and ultimately fruit. First we will recommend the following distances for planting :

	Distance.	No. per acre.
Standard Apples.....	30 feet.	48
Standard pears and rapid growing Cherries.....	20 "	109
Duke and Morello Cherries.....	18 "	135
Standard Plums, Peaches, Apricots and Nectarines	18 "	135
Quinces.....	10 "	436
Pyramidal Apples, Pears, Cherries and Plums.....	12 "	302
Dwarf Apples.....	8 "	681
Dwarf Cherries, Duke and Morellos.....	10 "	436
Grapes on trellises.....	8 "	681
Grapes trained to stake.....	6 "	1,210
Currants, Gooseberries and Raspberries.....	4 "	2,722
Blackberries.....	6 "	1,210
Strawberries, in beds for family use.....	15 inches apart each way.	
Strawberries, in large quantities for market, the rows	3 1-2 to 4 feet apart	
and 1 foot apart in the row.		

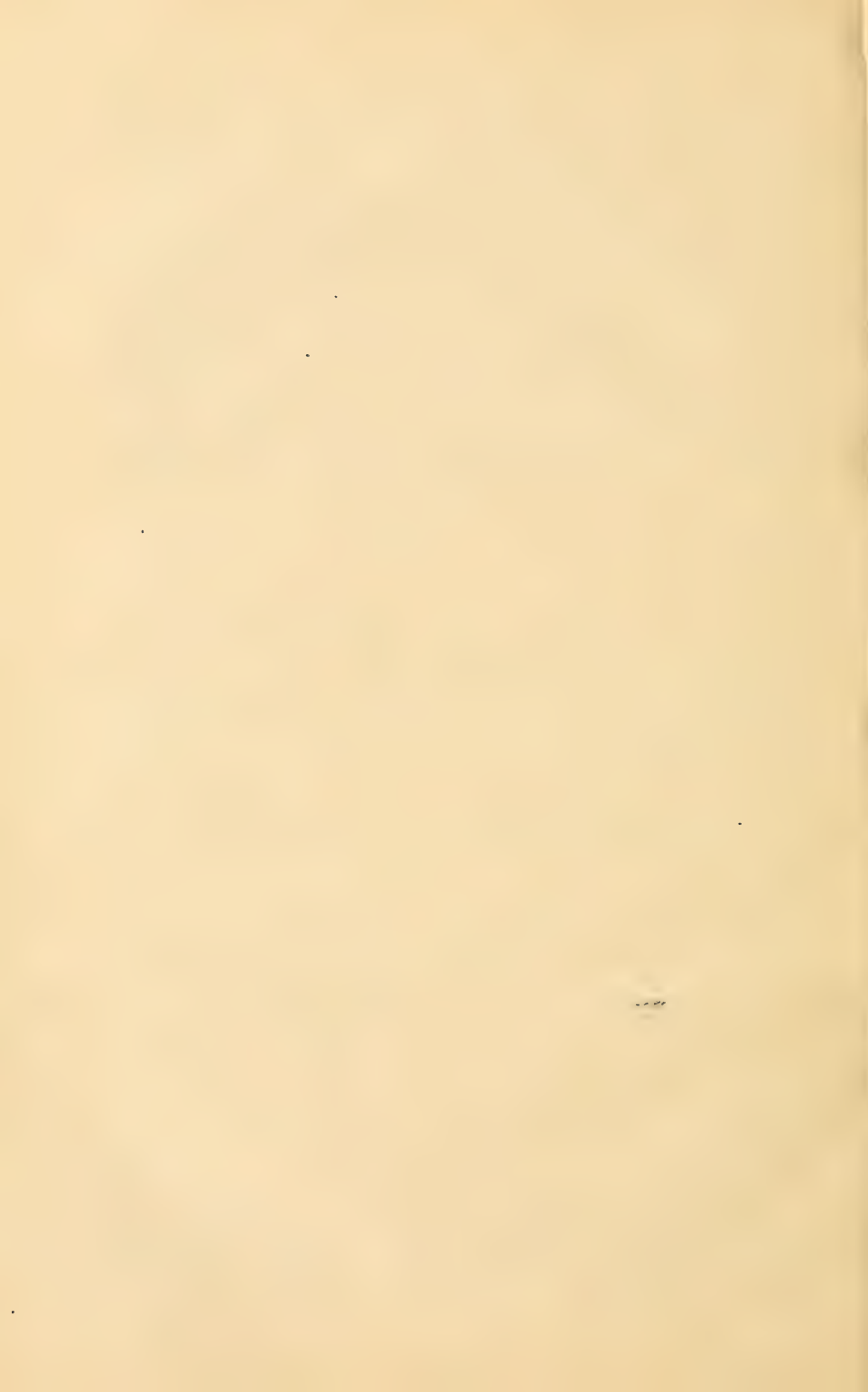
If possible have the ground well stirred by repeated plowing before planting to a depth of ten or twelve inches. Great pains should be used to see that trees are in a good condition before planting, as many trees and plants are annually lost by reason of being planted in an unhealthy condition. Much depends upon the care trees and plants receive by the planter after being delivered from the nursery. We have known of cases where trees have been allowed to stand in the stable or some out-building for several days after being delivered before being planted. Sometimes, too, trees are received from a nursery deliveryman at specified points of delivery in the early morning of the day set for delivery and thrown into a farm wagon and allowed to lie in the sun and wind until evening, and when planted the next day (or possibly the second or third day after,) and they fail to grow, the nurseryman is severely censured. This is unfair and unmanly. The trees when received should be immediately secured from the sun and drying winds by covering with wet straw or hay or a wet blanket. Too much stress cannot be placed upon the idea of caring well for trees and plants from the time they are dug until safely planted or heeled in. If by any chance trees are received in a rather poor condition, roots a little dry and tops slightly shriveled, spread some straw on the cellar floor, thoroughly wet it, place the trees evenly spread out upon it, cover them up with a good coat of straw and thoroughly drench the whole with water. Allow the trees to remain in this wet straw twenty-four to thirty-six hours when they will be found to be fresh and in a safe condition to plant. If the trees are in good order when received, or when taken from the straw, and the holes are not ready to receive the trees, or perchance the ground be too wet to plant, dig a trench and lay in the trees in a slanting position, so that you can cover up the roots and two-thirds of the body or stock. In this position let them remain until the holes are dug, or the ground is in condition to receive them.

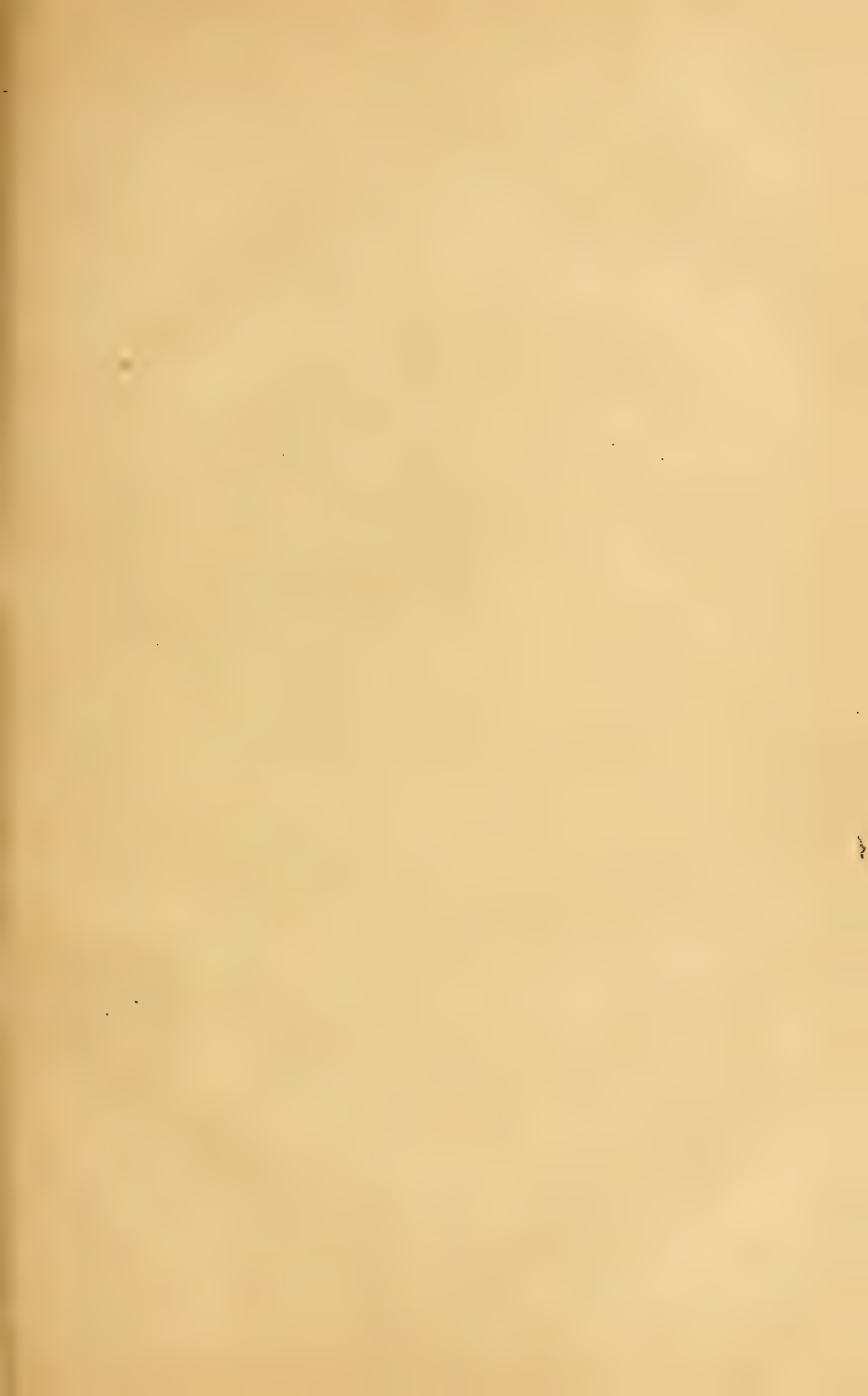
If the ground for an orchard has been well prepared by deep stirring it will be a comparatively easy task to open the holes and plant the trees. Yet how important this process really is to the after growth of the orchard. First, we should give a little attention to appearances and lay of the ground so that the trees will row nicely every way. Take a number of flag poles and set them in a line to be occupied by the first row of trees, draw a deep furrow with a heavy plow drawn by a steady team of horses. Then move the poles and repeat the operation until all the rows are laid off one way. After this is done, a lighter plow drawn by a single horse can be used in drawing cross furrows. Use the same care in drawing the cross furrows that was used in laying off the first rows, and then the intersection of the cross with the first furrows will indicate where the trees are to stand. Dig the holes wide but not too deep. Right here are a number of important points overlooked by the ordinary tree planter. The hole, if not opened in the fall, (which is the better way) requires to be only wide enough to accommodate all the roots properly spread out, and only deep enough that the tree may stand firmly on the sub-soil. (Of course this applies only where the ground has been well cultivated, not planting in the sod, in which case the hole should be deeper and wider.) The roots should be evenly spread out, and the finest of top soil put in among them. No lumps or coarse soil should be allowed in the hole. Fill in this fine soil until the roots are well covered, and then shake the tree slightly so that the soil may become more thoroughly settled among the roots. Again put in more soil until there is perhaps three inches of soil over the roots, then tramp thoroughly. Fill the hole full, tramping thoroughly again. The tree should be leaned pretty sharply to the southwest, so that as the branches grow the trunk may be the better protected from the sun.

An ordinary two-year old tree should have all the branches cut off from it so that the roots may have a chance to catch up with the top. A much nicer, thriftier tree will thus be formed, and fruit the more abundantly and earlier assured.

If trees are received in the Fall to be planted the following spring the following instructions should be closely followed: When the trees are received from the nursery cut open the bundle and examine the roots of every tree to find any insect that may have found a hiding place there. Wherever an insect is found it should be destroyed that it may not continue to propagate its species. It is so natural to simply cast away, hence the reason for the last hint. Roots that have been torn or badly bruised should have the end cut with a very sharp knife, which in cutting will leave a very smooth edge. Small fruits are best set out and well mulched immediately. Rhubarb and asparagus especially should be planted and mulched with stable manure. Trees, however, should not be set in fall, but be treated as follows: Select a spot where water is not likely to stand for any length of time, being careful that such spot shall be well pulverized ground. Dig a trench about one foot deep and nearly as long as the trees when bundled, having one end sloping quite gradually to about the middle of the trench. Carefully place your trees in this trench so that the roots are in its deepest part, being careful to place

them so that they will not be too close together. The trench should be sufficiently wide to accommodate the trees in a layer, so when the earth is placed in among the trees the trunks will be well separated. Throw in fine soil until every cavity about the trunks is well filled, then take the trees by the uppermost twigs and shake them gently, so that the soil may become the better settled among the roots and trunks. The greatest care should be taken that only well pulverized soil be used until the trunks and roots are well covered. The upper covering of dirt may be less thoroughly well pulverized without detriment to the tree. Fill the trench so full that when you leave it there will be a neat little mound over the trees to turn away the rain. The trees should be entirely covered, unless the uppermost twigs be allowed to protrude to mark the spot where they were buried, but care must be used that they are not covered too deep, as if covered very deep they are apt to smother. The roots should not be covered over eight or ten inches, while the trunks and branches should not be deeper than six inches.





OUR FAMILY ORCHARD, VINEYARD AND BERRY GARDEN.

READ THIS OFFER.

Early Harvest Apple Trees.....	FIVE.
Red Astrachan " "	"
Duchess of Oldenburg Apple Trees.....	"
Grimes Golden Pippin " "	"
Fall Winesap " "	"
Whitney's No. 20 Crab " "	"
Early Richmond Cherry " "	"
English Morello " "	"
Kieffer Pear " "	"
Flemish Beauty Pear " "	"
Weaver Plum " "	"
Wild Goose Plum " "	"
Winesap Apple " "	TEN.
Tetofski " "	"
Russian Apricot " "	"
Missouri Pippin " "	TWENTY-FIVE.
Ben Davis " "	"
Catawba Grape Vines " "	"
Elvira " "	"
Pocklington Grape Vines " "	"
Moore's Early " "	"
Houghton Gooseberry Plants " "	"
Downing " "	"
Red Dutch Currant " "	"
White Dutch Currant " "	TEN.
Concord Grape Vines " "	ONE HUNDRED.
Snyder Blackberry " "	"
Souhegan Raspberry " "	"
Gregg " "	"
Captain Jack Strawberry Plants " "	"
Crescent Seedling Strawberry Plants.....	"

The above list of trees and plants is well selected and will be found to supply the wants of most families. We have expended considerable time and money to find out what varieties are suited to our soil and climate, and we think our efforts will be appreciated by all who plant the above list.

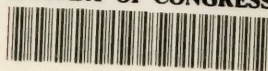
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