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Peach Culture Guide

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PUBLISHED BY

WILLIAM S. REINERT,

REINERTS, PA.

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A COMPLETE TREATISE

ON THE

Germination of the Peach Stone, Cultivation of the Ground
previous to Planting, Root Pruning before Planting,
Pruning after Planting, the Borer or Peach
Grub, the Yellows and their indications,
and other valuable information
concerning the

CULTIVATION OF THE PEACH.

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WILLIAM S. REINERT'S
INSTANTANEOUS
Peach Culture Guide.

Being disabled by a paralytic stroke of the left side of my body, I was compelled to abandon work. I, therefore, made an effort to fulfill the wishes of those who have interrogated me time and again how I was doing this and the other, and what I was applying to the trees, &c.

As I do not feel like throwing my experience and experimenting for the past thirty to thirty-five years entirely to the winds, I will give it for the small sum of one dollar and twenty-five cents, which is the impulse that prompted me to write the following pages and present them to the public.

I am aware that it is the desire of every man, whatever may be his pursuit or condition in life, whether he lives in town or country, to enjoy fine fruit, to provide it for his family and, if possible, to cultivate the trees in his own garden and with his own hands.

The agriculturalist, whatever be the extent or condition of his grounds, considers an orchard one of the first things, or at least indispensable. The merchant or the professional man, who has by half a lifetime of drudgery in town secured a fortune or a competency that enables him to retire to a country or suburban

villa, looks forward to his fruit garden as one of the chief sources of those rural comforts and pleasures he longed and so earnestly labored and wished for. Also the mechanic or the artisan, who has laid by enough from his hard earnings to purchase a homestead, considers the planting of his fruit trees as one of the first and most important steps towards improvement. He anticipates the pleasure of attending them in his spare hours, watching their growth and progress to maturity, and of gathering their ripe and delicious fruits and placing them before his family and friends as the valued product of his own garden and of his own skill and labor. Fruit culture, therefore, whether considered as a branch of profitable industry or as exercising a most beneficial influence upon the health, habits and tastes of the people, becomes a great national interest, and whatever may assist in making it better understood and more interesting and better adapted to the various wants, tastes and circumstances of the community, cannot fail to subserve the public good.

To those unacquainted with the previous condition of fruit culture in the interior of our good and well-known old Berks County, this new planting spirit has appeared as a sort of a speculative manna, and the idea has suggested itself to them that the country would soon be overstocked with fruits. This is, in my opinion, a greatly mistaken apprehension. After all that has been done let us look at the actual condition of fruit culture at the present time. I have noticed in recent papers in the best fruit grow-

ing counties in our state of Pennsylvania, the entire fruit plantations of more than three-fourths of the agricultural population consist of very ordinary orchards of apples. Not a dish of fine pears, plums, cherries, apricots, grapes nor raspberries has ever appeared on their table and not a step has been taken to produce them. And, further, how can such mistaken apprehensions be formed when such a place as our City of Reading has added 15,648 to her number in our last census. The same with other cities, some still more. Within a few years the foreign market has taken from this country in one season between one and two million barrels of apples and three thousand tons of evaporated fruit. The horticultural production of the Mississippi, consisting mainly of fruit, has been estimated at an annual value of one hundred million dollars, while more limited regions give corresponding returns.

I further noticed in a paper that a single county in western New York (Orleans) furnished for market two hundred and sixty-nine thousand dollars' worth of fruit, besides the amount consumed at home, in one year, and other counties have occasionally exceeded this sum. Two hundred thousand bushels of peaches were canned at San Francisco in 1881, and the dried fruits of that state sold for over two million dollars, of which the raisin crop amounted to half a million more.

The lesson which these facts suggest to those who own lands in the more favorable localities in the state of Pennsylvania, and especially those in its rich and fertile districts east of the mountains, is

engage in the cultivation of the peach and supply the markets of our cities with its luscious fruit instead of spending thousands of dollars annually for the benefit of the peach growers of Delaware and Maryland.

The peach was introduced by the early settlers of the country, at different places and at different periods, from 1650 to 1680, taking rank with the apple and the small fruit around these rustic habitations, adding its rich tributes to the scanty luxuries of those heroic pioneers in our American forests.

The peach, now so shamefully neglected, is not a new fruit to Pennsylvania, and the tree is no stranger to our domestic culture, for during the past two hundred years, wherever cared for, cultivated and protected, it has been prolific. However, under disgraceful neglect, its energies and fruitfulness have only yielded to the visitation of a fatal disease, the yellows, which, I think, is our duty, as well as our interest, to endeavor to counteract, the same as we would disease in our faithful animals, dependent upon us for support and protection in return for a short life of labor in our fields.

Let us in this strain turn to our Bible and learn again the price of good fruit at the Creation, as fixed by the Deity Himself, and despair not. The injunction we there find is, "Dress the garden and keep it." Further, we might here also awaken our languid interest by reading the parable of the vineyard, wherein idleness is called to industry in the question, "Why stand ye here all the day idle?" Further, it says, "In the sweat of thy face shalt thou eat bread," &c.

Can anyone expect to obtain such a luxury as the peach at a less price? I well recollect when at home with father it was aptly said that "no fruit this side of Paradise has ever rivaled it," and as a wholesome fruit of the season it has the highest character from the medical profession. Half a century ago the expression was often made "that a basket of healthy, ripe peaches in the market was worth more than a pound of calomel in the shop, and that it robbed the doctor of a patient and the druggist of a prescription."

In my opinion the people of Pennsylvania should authorize the Legislature to give us an act similar to that which the Legislature of Michigan has given the peach growers there, viz: An act to prevent the spread of the disease (the yellows), compelling the eradication of all such trees from the orchard as soon as they present the first appearance of disease.

This plan of ridding the orchard of diseased trees cuts off the spread by contagion, which, as a rule, passes so rapidly over an orchard to the destruction of the healthy trees, and is one of the means for retarding their progress. This species of legislation is similar to that we have here in Pennsylvania, to prevent the spread of noxious weeds by enforcing the destruction of the plant before it matures its seeds; the one plan removing the source of complaint through the destruction of the seed, and the other attaining the same object, if fungi is the cause of the spread of the disease. And I may here repeat that the accumulated evidence of all this period is fully and

most overwhelmingly confirmatory of the declaration with which I set out.

I was raised on a tanyard in Exeter Township, Berks County, Pa., and as this will be part of my life, I will give it in the English language, which we were accustomed to make use of in those days in the surrounding neighborhood. I well recollect father having had a tanyard, and along with it 25 acres of land. On the latter there were 15 good sized, fresh-growing apple trees, but they produced a worthless kind of fruit. One day my father called on an old man by the name of Zellers, asking him kindly if he would graft 15 apple trees for him. With great willingness he responded "yes." Mr. Zellers was then a man some 60 years of age (5 years younger than my age at this writing). When Mr. Zellers was at work I and my three younger brothers were standing and watching him every spare time we had to learn grafting. But none of us had courage enough to ask the old gentleman about its merits. Finally we broached the matter to mother, when she spoke a good word for us to father, that he should ask the old gentleman for us, as we were so anxious to learn it. So one day we noticed father standing under the tree where Mr. Zellers was grafting, when we made it our business to work ourselves alongside of father and gave him a nudge now and then without the notice of Mr. Zellers, in order that father might ask for us. When they had finished their conversation father remarked to Mr. Zellers that here were his four sons, and that they were very anxious to learn grafting. Then Mr. Zellers turned his head from the tree down towards us

boys, with a friendly smile on his face, and with his eyes over the top of his spectacles, and asked: "Well, which one of you would like to learn it?" I commenced with a heavy heart and with quivering lips to get it out, and made the reply that, being the eldest, thought I was entitled to it. Then my father and Mr. Zellers had a hearty laugh over it, and that finished it for that time, and we were ordered to our work. We went but much dissatisfied. While at work we were complaining that we would never get a chance to learn anything. But we did not understand it then. When Mr. Zellers had his job finished, father and he (Zellers) went into the shop and settled the bill for the grafting. After they were through settling, all at once Mr. Zellers made his appearance at the shop door, and, calling to us boys in the yard, said: "Now, boys, come in, as I am ready to teach you how to graft, and one branch more than you have asked for. I will also teach you how to inoculate." We left in a great hurry. The old gentleman instructed us very plainly, both how to graft and how to inoculate, with the remark that he hoped it would be of great benefit to us in the future. We thanked him kindly for it. Off we went, I for one walking more on my toes than on my heels, with an idea that I knew all that was necessary to know in this world. No doubt father and Mr. Zellers had another hearty laugh after we had gone. Sometime afterwards my father sent me on an errand to a neighbor, Mr. George Boone. I finished my errand for father. At the same time I found Mr. Boone just dressing his grape vines.

This was in the month of February, 1840. The grape was another favorite of mine. I commenced to ask questions of Mr. Boone. All at once Mr. Boone picked up some of the vines and dressed them for me, and gave me full instructions how to plant them, which I did strictly to his orders, and they produced a fine growth the following summer. But they were of little benefit to me.

In the year 1844 I left home to learn the millwright trade, after which I traveled from east to west and from north to south. During my travels I picked up all the information on Peach and Grape Culture that I could get hold of. Part of the fourteen years that I lived in Philadelphia I worked for Mr. E. Heston, corner of Broad and Buttonwood streets. At leisure hours Mr. Heston and myself were frequently in conversation on the art of Peach Culture, when he informed me of some old papers he had at home of his grandfather's, who had a peach orchard in what he called West Philadelphia, which was little known to me at that time. Afterwards I asked the privilege of Mr. Heston to borrow the papers. Willingly he consented to the loan, requesting that I take good care of them, which I promised to do in good faith. All I wanted was the information they contained. I had been informed at different times that the yellows had made their first appearance in the neighborhood of Philadelphia, but it seemed to me different from the following papers of Mr. Heston. I will give them as they read. The first public notice on the subject I find in a communication from Judge Richard Peters, president of the

Philadelphia Agricultural Society, which was instituted in 1785. From this carefully-prepared article it is very evident the Judge took a deep interest in the growth and cultivation of the peach. Here is what he states: "I know not in the catalogue of our trees one more desirable nor one more subject to mortification, decay and disease than the peach. I have cultivated it from my early youth, about fifty years ago, on the farm on which I now reside. My father had *large* peach orchards, which yielded abundantly, and they so continued for years, producing bountiful crops, with but little attention, then the trees began nearly all at once to sicken and finally perish. I have often found sick trees to infect those in vigor near them, by some morbid effluvia." I further have noticed in the papers the old Judge refers to a plantation of 800 trees of natural fruit, which he calls an extensive orchard, planted by Mr. Edward Heston, near Hestonville, West Philadelphia, near what is known as the Centennial grounds, on rather flat clay land. He further stated that Mr. Heston began to suffer from the disease called the yellows. Following up his observations in the progress of this disease in Mr. Heston's orchard, in September, 1807, he writes: "As I predicted, the yellows are seen making destructive ravages in Mr. Heston's peach plantation. I have lost a great proportion of my trees from the same malady. This year some of them were young and vigorous, but we have had two successive rainy seasons, and I do not recollect ever having seen more general destruction among peach trees throughout the

whole country. It seems evident that excessive moisture is one, if not the primary, cause of this irresistible disease."

I may here say that my observations fully confirm this statement: that wet seasons do favor the production of disease. I have frequently noticed it in rainy seasons. I should like to detail more of my experience to the reader, but it would make my writing too long. I will turn my attention more to the salient parts. These parts I will give in the English language, for the uneducated to understand, as well as the educated, and hope it will embrace all those who wish to avail themselves of it a hundred fold. Hoping the reader will overlook defects, my views being to give what little knowledge I possess on the art of Peach Culture for the good of all those who may wish it. As named on the first page:

- I. Germination of the Peach Stone.
- II. Root Pruning Before Planting.
- III. Put Ground in Order and Planting.
- IV. Pruning After Planting.
- V. The Borer, or Peach Grub.
- VI. The Yellows and Their Indications.

I. The Germination of the Peach Stone.

In raising peach stock, select no seed from any other except from the very healthiest and latest varieties. The stones are not injured if kept dry in a cellar till winter. If they become water-soaked for a length of time, they are spoiled. But soaking in water for a day or two, and subsequent exposure to freezing, facilitate the cracking of the stone. They may be kept through winter mixed with moist sand, and exposed to freezing and thawing, or placed in a

moist cellar till near spring, then soaked in tubs or other vessels till the shells are well swollen by moisture. They are then placed in thin layers on the surface of the ground, and exposed for two or three weeks to the action of the frost, being protected from drying by a covering of soil, leaf, mould or muck. About the time the frost disappears from the ground they are taken up and cracked by hand, placing the stone on the end of a wooden block, and striking a gentle blow on the side edge with a hammer. The kernels are thus taken out uninjured. They are then planted one or two inches deep (a light thin soil needing more depth than a heavy or moist one) and, if they were not injured before, nearly every one will grow. Care is necessary that the seeds do not become dried nor mouldy before planting. By planting the stones without cracking, a very small portion will grow, unless the following mode is adopted. If the stones can be had fresh from the fruit before drying many days, and in large quantities, is, perhaps, the cheapest, or attended with least labor. Mix the fresh stones with moist sand, spreading them in a stratum about six inches thick over the ground, and cover them with a few inches of old straw or coarse manure, to prevent drying. Remove this covering in winter to expose them freely to freezing and thawing. In spring a large portion will be found sprouting. Carefully select these and plant them immediately in drills made with the hoe, covering them by drawing earth carefully on with the hands. In a few days a second portion will be found sprouted. Plant them as before. Those

which do not open (often not more than one-third of the whole) will grow another year if kept moist and exposed. If the soil is good and the cultivator is passed between the rows as often as a fortnight (oftener is better), when the trees will be large enough to bud by the close of the summer.

II. Stem and Root Pruning Before Planting.

Trees obtained from the nursery, with the best of care in lifting them out of the ground, and through transportation, are generally more or less mutilated at their roots. Such broken roots should be cut back to the solid wood in a slanting shape. All the fine fibrous roots should be dressed in like manner. Should any of the side roots extend themselves too hard upwards, then cut from the top downwards, in a slanting shape. Should any of the side roots extend too hard downwards, cut them from the underside upwards in a slanting shape. Should there be two or more top roots and twisted around each other, as I have noticed it to be the case, only one should remain, the rest should be cut square off close at the bottom or base of the tree, when they will not extend themselves down again; for that reason or in connection I use the word slanting. Experience has taught me that it is just as injurious for the roots to rub and pinch each other, as the limbs on top of the tree to rub and pinch.

Next is pruning the stem before planting. The top should be divested of every limb with a sharp knife, and a portion of the top or main stem, some four to six

inches, leaving the tree in appearance a mere stick above the ground. The latent buds at the base of the limbs cut off, will break at the opening of the season and soon show a new, vigorous growth by the the fall of the year, will be double the size of the old ones, had they been left as is generally practiced by amateurs. If the ground is not in a proper condition to plant, the trees should be put in the ground again to keep the cut parts of the roots fresh.

III. Put Ground in Order and Planting.

First, the ground cannot be broken up too deep. The depth of 18 inches would not be too deep for good results. Afterwards an application of lime should be made, say from 50 to 75 bushels to the acre, then followed by a thorough harrowing in order to have the ground well pulverized in combination with the lime. Next cross checking, the intersection of the furrows, as laid out, will form the holes for planting, only wanting a little filling or leveling with the shovel to prepare them for the trees, and in planting the peach trees at 16x18 feet in the rows we will have one hundred and fifty to the acre. Using that many hills of corn, the corn being planted 3x4 feet, &c.

By observing the preceding directions at least one year's growth may be saved to the expectant fruit grower, a highly important item in the anticipation of an early return for the labor and capital invested in the new enterprise. The trees to be pruned, and the ground put in order as given in the foregoing. Next is planting, which, I think, is one of the most important parts. As a rule,

it is advisable, in setting out an orchard, or in planting a favorite tree, the owner should superintend the planting, or plant them himself, unless he has some one to do it on whom he can fully rely, knowing more or as much as he knows himself.

In setting the trees under no circumstances should a tree of any kind be set deeper than when it stood in the place from which it was lifted. If anything not so deep. In setting a tree no indolent indulgence should be allowed. In order to have the work well executed, a pail of water should be taken along and the roots given an immersion in it, then set the tree in its proper place, following this get down on your knees and comb the large and fine or fibrous roots out straight with your fingers, and then put the good, fine or pulverized ground on first, settling it down firm on the roots with your foot, and so on until it is filled up to the depth aforesaid.

If the preceding directions are strictly followed, I am satisfied every tree in each hundred will grow, if the weather and soil are favorable, commencing growth at once, unless too scant in roots, or the roots were too much dried out before planting or through transportation. If the latter should be the case, then the roots should have an immersion in water from ten to twelve hours before planting. I have planted a small peach orchard of 1025 trees of nine different sorts in the foregoing way. All made a nice growth but two, and they were so poorly rooted that I ordered them to be replanted at the extreme ends of the rows, with the expectation that they would not

grow. I do not approve of the old, absurd idea of planting, as I so often have noticed, the roots are mostly crowded down into a small, deep hole twice the depth it should be, and into a cold, poor subsoil, filling up and settling the earth down by a few shakes of the tree, and thus leaving it to the chance of a dry spring, or a cold, wet one, with a dry summer to follow, which is no better for such planting, and then it soon withers and dies. I cannot help but make the assertion that I do think planting of this nature is just as bad as a bull in a china shop or a pig in a church, neither of which is more out of place than such planting of that delicious fruit, the peach. Practical experience never originated or sanctioned such planting for any kind of fruit. As before, the tree must be established, in the first place, firmly in the ground, with the earth impact about its roots, leaving no room for mould or other fungi to conceal themselves for future depredation. No staking is required to keep the tree upright.

But I must return again to the planting of my 1025 trees, and see what good can be derived for those who desire information on Peach Culture. The 1025 trees were divided into nine different sorts. First, will name all those that were good bearers on our ground. 1. Stump the World; 2. Waterloo; 3. Beatrice; 4. Foster; 5. Susquehanna; 6. Alexander. The three remaining sorts comprised 200 trees, which have not yielded me five bushels of good peaches in ten years on our ground. Of the three remaining sorts there were, 1. Conkling; 2. Late Crawford; 3. Honest John.

At the expiration of ten years I chopped the limbs down, then hitched the horses to the stem and took out stem and roots, afterwards following the advice laid down in Matthew, 3d chapter, 10th verse, in the New Testament. After the two first named sorts were planted, my son-in-law desired to have one tree of each of the seven remaining sorts, which were given him as a present. Those that were good bearers on his ground were Late Crawford, Conkling, Alexander and Beatrice. Those that would not bear on his ground were Susquehanna, Foster and Honest John.

This is sufficient evidence, I should think, to teach us to be cautious and plant say one or two trees of each kind that we prefer in a regular orchard. This would enable us to know at once what sort of peaches would be best for the soil in which they are to be planted.

This requires time, still one of the old 'squires in my neighborhood said : "All good things require time." Which, undoubtedly, is true. It would have been to my profit had I made use of the foregoing saying. Then I would not have been the loser of the use of the ground where the 200 trees stood for ten years, as well as the loser of the trees. This was no small item. If I had those 200 non-bearing trees of the Susquehanna and Foster varieties, instead of one thousand dollars, they would have yielded me fifteen hundred dollars, and five hundred dollars are not found behind the door at any time.

IV. Pruning After Planting.

There is no tree of which I know that requires so much caution in pruning as

the peach tree. There is a tendency in the germinal buds to push upward and outward, at the cost of the side shoots, which soon die. Where the tree is formed on long bare poles, with only bunches or clusters of leaves at the extreme ends of those poles, we all know that young trees bear large, handsome and excellent fruit, while the old, crippled trees yield nothing but small, worthless or inferior qualities.

Continued pruning every year will prevent these bad results, and preserve the heads of the old trees in a thrifty growth, and they will continue to yield large, fine fruit as in the first years of bearing. As the peach always bears its fruit on the previous year's growth, and buds never start from old wood, therefore it is particularly necessary to keep a continued supply of young wood evenly distributed throughout the whole head of the tree. This can only be done by a continued cutting back. For the best results to perform this operation is to commence at the close of winter, and cut off the upper half or two-thirds of every one year's shoot. If this process is continued from year to year, in connection with cutting entirely out all the feeble shoots where they grow too thickly, the desired object will be fully attained, and instead of having such a long pole, half dying, yellow skeleton, you will have a tree with a nice, round, evenly-distributed head, in the shape of a balloon. An important advantage of thus pruning the peach will be the thinning out of the fruit buds, and while the tree will bear perhaps only one-third or one-fourth the number of specimens, they will be so much larger

and give as many bushels, while the quality will be incomparably superior.

While living in Montgomery County, Pennsylvania, I formed the acquaintance of a man with whom I had been frequently in conversation in regard to eight nice, fresh-growing peach trees on his premises, all of one kind. One year they were loaded, when they were about the size of hickory nuts. Some of the limbs were bent in rainbow form, when I advised him to thin out all the small ones for the good of his trees in the future, only leaving on about one-half of the fruit. He pronounced it to be a pity. When I remarked, I certainly should do it if they were mine, the rest, no doubt, would be of a double size. At that I left him. Shortly afterwards, it appears, he followed my advice. Soon he began the operation of removing all the smallest and thinning out unsparingly wherever they were crowded. After going over four trees in this way, in deference to gentle remonstrances from his better-half, he suspended his "ravages," leaving four untouched.

After they were ripe, in summing up he informed me the peaches on the four denuded trees were more than double the size of the others. These were taken to the Pottstown market and brought thirty-four dollars clear of expenses, while the fruit from the other four trees, sent to the same market, netted only nineteen dollars and fifty cents, making a difference of fourteen dollars and fifty cents in favor of thinning. The eight trees produced fifty-three dollars and fifty cents. But if all had been thinned the product

would have been sixty-eight dollars. This, in my opinion, is quite a striking illustration, and, further, it shows what the right kind of labor will do for the peach. I also wish to make a further reference to the eight trees the year following. The four denuded trees made a middling good growth of bearing wood for the following year, but the four undenuded trees made quite a small growth of bearing wood during the same time, and had a yellow taint throughout the following summer. It will make my writing of this part too long, and will treat more fully further on under the proper heading of the yellows.

V. The Borer, or Peach Grub.

The peach worm, or borer, is a four-winged insect, wasp-like in shape, and of a steel-blue color. It deposits its eggs from early in the summer until fall, near the ground, at the base of the tree. It attacks the peach, nectarine, apricot, as well as the apple tree. It is very easily destroyed by scraping away the earth at the base of the tree, and following the worm to the end of its hole with a sharp-pointed knife beneath the thin shell of the bark, under cover of which extends its depredations. It rarely happens that healthy trees are entirely destroyed by it, unless greatly neglected, as it confines its depredations to the bark, not entering the wood on the peach. But it will on the apple and quince trees. Destroying the borer has been done in this way ever since I have any knowledge of the peach, and I think it a very laborious task every spring and fall of the year. Using my remedy the borer becomes a mere myth, and the injuries done by the

peach borer and small insects that infest the bark and the leaves, are, in my opinion, mythical, in comparison with the yellows, a disease from which I have often been told that none would survive. The borer has for a long time been considered the cause of the yellows, but such opinions have gone to the winds long ago. In my opinion his sharp-cutting mandibles are just as clear of communicating disease as the clear steel of the sharp instrument that followed him with unerring fatality to his insecure quarters at the root of the tree. The borer has long enough been the scapegoat for the true "murderer," but, we must confess, he is, nevertheless, a most audacious sneak-thief to the peach orchard. He carries no contagion or infection with him in his depredations to supply his wants and gratify his appetite. He does not make the least effort to escape our vigilance, but is always found at the scene of his depredations, and is just as easily captured in Pennsylvania as in the great peach centres of Delaware and Maryland, both of which forming the greatest fields for his success. He is found just as much in healthy as in unhealthy districts, as well in healthy as unhealthy trees, and no place escapes him. "The Turk," he has no east, no west, no north, no south, being the autocrat of his own empire and eating out the substance of his whole people.

I think we have now traced his haunts, and in the following will give a remedy how to counteract and prevent his depredations: First, remove the ground around the base of the tree to the root, afterwards applying the following com-

position at the base of the tree, from the roots as far up as six inches above the level of the ground, in a warm state of consistency, and while applying keep the composition well stirred up in order to keep the soap well mixed with the rest of the ingredients. One application is sufficient for one year. I have found some trees to last two years if applied strictly in accordance with directions. The expanding growth of the tree will cause divisions in a year or so. Such divisions or separated parts become necessary to be looked after, otherwise this sneak-thief of a borer may discover the divisions before we do. Again, if the following is applied, as before named, I will guarantee the borer will not commit any of his depredations on such a tree. I have found the composition to be an excellent remedy for any fresh wound on a tree. The sap will flow up between the composition and wood on the tree the same as it will between the bark and wood.

Following is the composition: 1. Four pounds of rosin; 2. One and one-half pounds of beef tallow; 3. Eight table-spoonsful of pure linseed oil; 4. One pound of common or home-made soap. Heat over a slow fire until it is well mixed, when it will be ready to be applied.

This composition should be applied first, then the second, as follows: 1. One peck of fresh lime, well slacked; 2. Six good-sized, fresh cattle droppings; 3. Three pounds of caustic soda, adding enough water to dissolve the soda; 4. One bushel of yellow clay (generally found on top or between limestones; 5. One-quar-

ter pound of Paris green, and have the whole well mixed by adding of water to the consistency of soft mason mortar, when it should remain in such a state for twenty-four hours before applying to the trees. Afterwards take two buckets, one with water and the other partly filled with the mortar, and reduce it to the thickness of thick white-wash by adding water. Then cover the tree over from the roots with the first composition around the whole stem into the branches as far as can conveniently be done. For good results the latter composition should be applied early in the month of May, and then at the end of July or beginning of August, which is the time when these insects will look for their breeding places. The first named composition need only be applied once in three to four years, unless divisions should appear, then replace or re-cover them again as before, when the latter composition should be applied as before stated. The foregoing having been done as directed, replace the ground around the base of the tree, and if properly done you will experience little trouble from insect depredations. But follow my advice, as I have experimented with the former remedies and they did well for me.

VI. The Yellows and Their Indications.

The yellows I have heard explained in a great many different ways, and always listened to the explanations with care. In the course of my examinations I have found much good common sense, as well as a great deal of good nonsense, on the subject. The cause of the disease is supposed to be due mostly to insect

depredation, which, I think, is a great error, I having planted trees in the spring of the year and have failed to find the first sign of insect depredation.

Towards the fall of the same year a few of them were in full sway with the yellows, when they were removed, root body and branch at once, but not the first indication of insect depredation on the roots or stem. Sometimes trees are already affected when taken from the nursery grounds, they not having been noticed at the time.

The plan, and I think it the only and, consequently, safest plan, is to take them out as above, root, body and branch, *at once*, to prevent any spread by contagion. I may remark just here, and most emphatically, that *at once* is the time to be observed in the removal of the diseased tree. Suffer no hindrance in ripening the approaching promising crop, and on the first appearance of but a single specimen of immature fruit, eradicate the whole tree, showing no sympathy, nor itching palm, to be relieved by a gold or silver dollar or two in prospect of the approaching crop, and indulge in no penny-wise and pound-foolish system of economy. But strike at once at the root of the evil and save yourself from, perhaps, a ten-fold sacrifice at the first symptom. The first indication, as I have generally noticed, is seen in the small wiry shoots springing from the body and large branches, or from the roots at the base of the tree, producing in every instance small yellow lanceolate (lance-like) leaves, and the whole tree in appearance has a sickly look in leaves and branches.

The second indication is a premature ripening of the peach. Sometimes only in a single branch, or even a fruit spur, and on other trees the fruit on a large limb may present the same early maturity, while in both trees the balance of the fruit retains its natural green, thrifty condition. But the premature peach is a highly colored fruit with the peculiar spots and blotches, as described, only more numerous, with flesh deep red and stringy, and fruit worthless for any purpose of family use or for marketing.

Presuming that fungi is the cause of the yellows, of which, I think, there is no doubt, and if what we call diseased infections, spread by contact, such as budding, trimming, or in any other way, and as they affect the root, body and limbs, any remedial agent, or any curative agent cannot at once, nor in a year, surrounded as they may be by careless cultivation, at times, whose only use is to cultivate parasitic fungi and not peaches, prove effectual. In this aspect of the case, in addition to lime, potash, guano, poudrette and other caustic alkalies, it will require the sharp eye of the peach grower to detect the symptoms that may so provokingly find their way into the orchard and nip the peach trees in their buds. It is the parasitic fungi that produces the sickness, though it is microscopic and not visible to the naked eye, and its seeds or spores are its infection, and its touch is its sickness. I am satisfied if a knife is inserted through the bark of a sick or diseased tree, the moving or current of sap will carry with it, in its incision into a healthy tree, a thousand spores, marking, in this way, their

new victim for an early grave. This active sporadic agent appears on the body, branches and roots of the tree, and the application of alkalies, in a diluted form, may be made use of as a wash against further spread. Caustic alkalies will destroy fungi, and of this there can be no question. The peach grower, commencing right at the beginning of his work, will have no trouble if he examines thoroughly his orchard several times during the season, and attends to these "exceptional" intruders, which will come uninvited from the nursery, or on a sporadic visit from a neighbor, and have all such, as soon as they appear, rooted out, replanting young trees in their place, first renovating the earth well with our caustic alkali, such as lime, ashes, guano and poudrette. These are the ingredients that I have made use of, and good results have been obtained. But I wish to say that where planting is done on a small scale, and where the choice of exposure presents itself, I would, unhesitatingly, say, all other things being equal, and by all means, select a high, dry, northern exposure, for occasionally a season of early blooming occurs, and as the peach is more sensitive to a few days of warm sun on a southern exposure than almost any other fruit, a northern exposure may save the crop, while on the south it may be partially or entirely destroyed. Still a total destruction seldom occurs.

In season of overbearing the orchard should be cultivated up to about the middle of July, with the cultivator and harrowed, the same as with the young trees before their bearing and while cultivated in corn, and if they appear to

need manure, a light shovelful of wood ashes applied to the tree at its base, first removing the earth from around it with a heavy hoe. This course of treatment will keep the trees in a thrifty, growing condition, forming wood for the next year's crop, and sustaining them through their exhaustive efforts under an over cropping. But this unnatural draft upon the strength of the tree may be avoided by a judicious thinning out of the young fruit to a moderate crop, as given under the head of pruning and planting. The peach grower, looking to success, which is found alone in the health of his trees, must be a bold operator. On the first symptom of disease, if only in a twig or a fruit spur, it must be eradicated, root, body and branch, and, like the barren fig tree, cast into the fire, renewing its place by first applying to the soil in which it grew the necessary curative alkalies in sufficient quantity for a healthy reception of a new tree at the proper season for planting. I think we would have but little trouble with the yellows if the foregoing directions were carried out fully, and followed as given in a preceding part of this dissertation. But as long as we have no law compelling the eradication of a peach tree upon the first symptom of disease, so long will we have to contend with the yellows, and plenty of dying, yellow skeletons of peach trees in the yards at our homes. Even they are generally left until quite dead before removal, and thus a chance is given them to disseminate their entire sporadic disease to all their neighbors for a distance of from five to ten miles. One man may say: "I don't care," another, "O,

this don't matter," while the third, "This is good enough." Three poor, miserable neighbors are these, not even worthy the name applied to them. As before stated, such a tree should be eradicated, root, body and branches, upon the first symptom, even if in but a twig.

Next, I should like to call attention to the black knot on the plum tree. I have noticed plum trees full of black knots from one end of the limb to the other. I think this is due, in a great measure, to negligence. I have frequently heard the remark made, "I have no time to attend to such things." To all such I would say if there is really such a thing as no time to attend and cultivate such fruit properly, ten times to one it would be better not to plant at all, as to plant it to breed insects and to annoy your neighbor, who, perhaps, is using all his efforts to cultivate the fruit in a proper way, and he who has not forgotten, "In the sweat of thy face shalt thou eat bread," &c.

I well recollect thirty-five to forty years ago the plum tree to be in a vigorous state of growth, and bore abundantly. But the tree was left to itself, and to its own care, with grass at its base and no cultivation. The time arrived, however, when we were awakened to the tree's wants, and the necessity for its protection for the faithful services it had done. My remedy for the black knot is to have the limbs, or twigs containing the knot, divested of the knot back into the healthy wood in the month of February, afterwards burning the knots in order to fully insure their thorough eradication. Repeat this operation two to three years,

and renovate the soil at base of tree as far as the limbs extend with good alkalies or manure, to cause the tree to produce a vigorous growth. Such have been my remedies, and I have found them to attain good results.

If the tree is not too far advanced in its stage of disease, then I should say, as with the peach, remove roots, body and branches and cast the entire tree into the fire, showing no sympathy at all.

I have omitted to mention in the preceding treatise, that with all my experience I have never found anything better for the apple tree than the two foregoing compositions, named under the head of the "Borer," with the exception that a cloth should be wound close around the base of the tree, when a shovel or other iron implement should be taken and all the loose or extending bark on the stem of the tree carefully scraped off on the cloth, and then burned, so as to avoid future destruction. Behind such extending bark are found good harboring places for all such insects to do their breeding. Thousands of them can, however, be destroyed in the way as before indicated, thus protecting the tree during the following summer. Finally, if the apple tree is subjected to the same careful treatment as is given in my former directions for the peach, it will be found the following spring that the apple tree will have a bark as nice and as smooth as a man's face after a clean shave.

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BERKS COUNTY, PA.

April 1st, 1890.

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