The Wisconsin horticulturist. Vol. IV, No. 3 May 1899

Wisconsin State Horticultural Society
[s.l.]: [s.n.], May 1899

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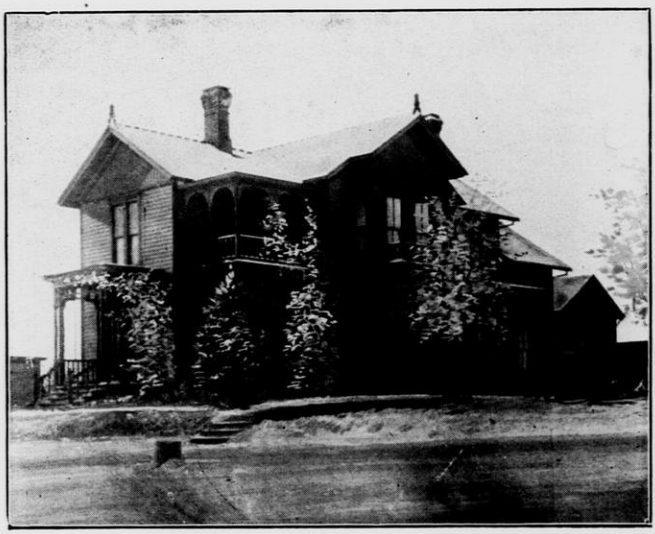

RESIDENCE OF B. S. HOXIE, EVANSVILLE, WIS.

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RESIDENCE OF B. S. HOXIE, EVANSVILLE, WIS.

By the courtesy of Mr. Hoxie we have secured a loan of the cut which forms our frontispiece and also the following letter describing the vines and trees which adorn the house and grounds.

EDITOR HORTICULTURIST:—The house faces east and north at the corner of First and High streets, Evansville, Wis. The lot on which it stands is five rods by eight. This lot is devoted to a lawn, a few trees, a flower garden, which is partly in front of the barn, arranged in horse-shoe shape, or not quite a half-circle, with the carriage track coming around quite near the northwest corner of the house.

A steel wind-mill with elevated tank, not seen in the picture, is between the house and barn. This is for watering garden and lawn, as we have no public waterworks yet.

The house stands with its end to the principal, or First, street, as shown in the picture, and the lawn is terraced to the sidewalk. For some reason the front steps do not show in the cut. From this front portico we have a view extending nearly two miles in a sweep of country from the northeast to south and southwest, overlooking the railroad track nearly half a mile away.

The high ground with thin surface soil—only about sixteen inches—resting on gravel, made it imperative to resort to watering, or puny trees and shrubs and dried-up flower gardens were inevitable. Deep holes filled with surface soil answered for street trees on the east and also for the Norway Spruce shown in the corner and another on the

south side of the lot. These, as well as two others not shown, are kept cut back every year for the sake of symmetry and are now about ten feet tall. The tree at the north side of the house is a hard maple while the others on High street are white elm.

The photograph was taken in the winter, but the artist promised to give foliage to lifeless looking vines, though he so nearly failed to do it that the vines show only in part. On the southeast corner of the portico is a Queen of Prairie rose and on the north a trumpet creeper, while in the next corner is a white clematis and next, which shows, is an ampelopsis quinquefolia, then on again to side veranda is virgin's bower and another ampelopsis. I wanted the ampelopsis to form a vine running along the cornice of the veranda and of the upper balcony without showing much foliage below. The various trees, shrubs and vines are from six to twelve years old and in dry seasons must be watered.

The room in the corner, looking east and "down town" north, with balcony above, is my library.

My vegetable and fruit garden forms an "L" to the house lot, of four rods by twelve with a greater depth of soil.

And now, Mrs. Editor, come and see us any time of the year from tulips to cannas.

B. S. Hoxie.

HOW TO PLANT GLADIOLUS BULBS.

Few people plant gladiolus bulbs deep enough, and the result is that many are blown over. Small bulbs should be covered four or five inches, and large ones not less than six, and probably eight or ten would be better. If a high wind comes when the ground is wet and the plants are in bloom, they are liable to break off at the bulb and this can only be prevented by some support. Deep planting furnishes the cheapest support, for the same reason that a bean-pole set deep never blows over.—M. Crawford's Catalogue.

NOTES ON HARDY PLANTS.

The majority of hardy perennial plants and shrubs should be set out in the spring, although many are strong enough to withstand the winter, if planted in the fall. Good protection, however, should be given if planted then.

The perennial phlox is a great acquisition to our hardy, summer blooming plants, being fine as individual specimens, with their large bunches of finely colored flowers, or as a background to smaller plants. They begin blossoming in July and last until late in the fall.

Hardy herbaceous plants should be cultivated, that is hoed, watered, mulched and trained, just as much as any of the more tender plants. This advice may seem unnecessary to many, yet some flower growers never so much as hoe these plants after they are once set out. To be sure, they do care for themselves, in a great measure, but, at the same time, are very grateful for any care that may be given them.

A hardy perennial that can never be over-praised is the grand new plant Rudbeckia Golden Glow. This is one of the most decorative of our summer blooming plants. It grows to a great height, and nearly all summer is covered with its double, golden-yellow flowers, very much like chrysanthemums. These are borne on long, wiry stems, thus making them fine for cutting. The plant delights in a sunny, open situation, and will absorb a great amount of water.

Many people make the mistake of planting that excellent hardy shrub, Hydrangea paniculata, in too shady a situation, or too near larger bushes or trees. To realize the best results it should be planted in an open, sunny place, where the soil is of the best quality and rather porous. Rigorous pruning early in the spring, and a mulch of manure in the fall are important factors in its successful cultivation. A small shrub will make a large, handsome bush, in a few years.

If there is a place on the lawn where something could

be planted to advantage, but you don't know what to plant, let me say set a Yucca filamentosa there. This is a very striking plant, with long, narrow, bayonet-like leaves, and creamy, bell-shaped flowers, borne on a long stem, well above the foliage. The plant is perfectly hardy, and will grow in almost any soil.—From Vick's Magazine for April.

PREPARING TUBEROSE BULBS FOR PLANTING.

The preparation consists in cutting away, close up to the base of the bulb, the solid, fleshy root-stock, and also in removing all the little offsets which have commenced their growth about the lower portion of the bulb. By removing offsets the strength of the roots will go into the main stem, and not be partially diverted, as would be the case if they should be left on. The removal of the solid root-stock favors greatly the emission of roots from the base of the bulb; it is highly desirable that this should be done as time saved in making roots shortens the time from planting to bloom.—Vick's Magazine.

PLANT TREES.

We should plant trees because our streams, formerly so marked a feature of prairie landscape, are drying up and being obliterated. This is due to the destruction of forests and other forms of vegetation. Trees at least equalize rainfall; they furnish protection against violence of storms and severe winds. Trees appeal to the love of the beautiful. While older people appreciate the value of tree-planting, children can easily be taught it. Trees contribute to children's welfare at school, by furnishing harmless and pure pleasure; by contributing to the child's health; anything which helps to develop sound, wholesome bodies is at this time inexpressibly valuable.—Popular Gardening.

IMMEDIATE CARE OF PLANTS AND SHRUBS WHICH WE BUY.

William Toole, Pansy Specialist.

[Paper Read at Winter Meeting.]

So various are the circumstances and environments, during the period of either transit or waiting of plants from time of removal from place of growth to future abiding place, we can lay down no set rule of care for them, which may not need a considerable modification, according to the different seasons of the year, condition of growth, manner of packing, the kind of plant and the like. We may then with profit consider the "reasons why" for certain things which, if properly understood, might lead us to adapt our methods to the different necessities of conditions as they may occur. If we wish to move a plant, shrub or evergreen to some other place on our grounds we use the greatest care to take up as many as possible of the fine fibrous roots, carrying with them a considerable amount of earth to insure a greater number of rootlets being in an unbroken condition, choosing, if practicable, a time when the soil is moist, that earth and roots may receive as little disturbance as possible.

If we see our plant roots bristling with white feeding rootlets we are all the more content with our expectation of good results to follow. And yet the carnation grower, if choosing a time for removing his plants from field to greenhouse, prefers to do so when the soil is dry enough to fall away from the roots, leaving them bare as the leaves and if possible as unbroken. Some of our nurserymen tell us that they wish their tree roots trimmed quite close, with no fine roots attached, to be assured of successful growth for the future orchard tree. We think we like pot-grown plants for removal, giving a higher price for strawberry plants grown in that way, yet we know it is often best, if shifting a plant from one size pot to a larger, to shake loose as much as possible of the soil, and separate somewhat the roots, before repotting. One customer may write to us to leave as

much as possible of dirt on the roots while, in the same mail, perhaps, another requests that the soil be shaken from them to save express charges. Each has had practical experience to confirm his faith in his practice, and knowing wherefore we act, we may do any of these things for the best, as circumstances may make one or the other seem most proper.

We know that some plants, whether with succulent or woody stems, are easily propagated from cuttings, while we can do nothing with others in that way; yet with the most tractable kinds, we would prefer having a good lot of roots in working order, to building on a new set of feeding roots. The less root it has the more is our plant like a cutting, but if our plant or shrub has only a little root from which to start new growth, our work is far easier than to make a plant from a bare cutting.

If we would have new roots our top must not work too fast, else we have withered top or dry stems, because moisture has gone off faster than it could be taken up from below. In the cutting bench if our foliage has been allowed to wilt we have little hope of root-forming to follow, yet if carefully watched and shaded before wilting can occur, the cuttings attain a condition of needing less shading, even before root growth has commenced. So too with our newly set plants if we shade sufficiently to prevent wilting, root-repairing will go rapidly on and we soon have them in normal working order, if our planting has been properly done.

We must carefully consider the condition of plants when received and at time of planting. They may have been so packed as to give us foliage bright and fresh in appearance, but with roots so loose that they have to a considerable extent become dry and lifeless. We must then put them in a cool place, dampen the roots and sprinkle freely with fresh soil, examining in a few hours or in the morning and then cut away bruised and dead portions, for new roots can only come from that which is alive and decay

promotes further decay. In the meantime we must prevent wilting of the plant if we do not wish to sacrifice any of its present growth. Sometimes the nurseryman packs so loosely that nearly all is dry, or so closely and for so long a time that heating and decay have set in. Our knife and hopes must work together to save all from decay—then careful nursing and waiting. With shrubs or trees in dormant condition it is easy to pack them for transit in cool weather, but if growth is likely to commence during the time, there need be but little danger of injury if roots are closely packed in sphagnum moss in such shape that they cannot dry out, and root action will go on if tops are not confined so closely as to heat. For this reason it is difficult to pack plants so they will go safely by mail in hot weather. If trees or shrubs are large it is impossible to dig them with any amount of fine roots so they can be packed safely to ship or remain long out of the ground. Therefore the man is right who would prefer to have such close trimmed rather than try to inspire life into dried roots. As it is natural for the feeding roots to keep extending farther out, it is much easier to manage the setting out or packing of plants which have been frequently replanted or root pruned.

It is possible to treat plants so that they may go on and make new roots to the extent of being in better shape for planting than if set out immediately when taken up; and if we have something choice it will ofttimes pay to give our plants—strawberry or others—a little careful nursing to promote root-forming before we set them out in the open ground.

Greenhouse men seem to have a love for the habit of squeezing in the hands the damp soil enclosing the roots, before packing. Often it is because there are not enough roots to hold the soil together, so they make the pressed soil hide the deficiency of roots; but, if received in this shape and if the soil is baked hard, it is better to soak the earth to wash it away from the roots, then sprinkle

soil on the damp roots and replant. The hard soil if left on may continue hard and repel the water which should reach the roots.

We know that to promote root-forming the tops of cuttings or plants should be in lower temperature than where the roots are and a hot bed is an ideal place to establish plants which are expensive enough to make it worth while. A cold frame with cloth shading makes a valuable nursing bed, but whatever may be our facilities for caring for plants and shrubs at time of setting out, after removal we must have a set of feeding roots before a healthy growth of plant can follow. If top growth is promoted too rapidly either drying up or a diseased condition must follow. Soil must be pressed firmly to the roots but it may be done within such narrow limits that the hard surrounding of the roots prevents moisture reaching them. Where shading over all is not practicable, sometimes wrapping stems is of great advantage. Roots and buds can start only from live tissue, so dried or decayed material should be cut away lest decay may spread.

It is desirable to save all the live roots possible and a mass of earth is not so valuable as a mass of active roots but dead roots or tops are worse than useless. It there has been necessarily a sacrifice of working roots at time of taking up the plants, often much may be done to promote a new growth of roots before the final planting, and in packing for shipping or holding in stock after it is too late to keep in dormant condition, the roots should be more closely packed than the tops, in sphagnum or soil, so that growth instead of decay may go on. Dipping the roots in mud at time of transplanting is not advisable because the roots are drawn together and cannot be spread out in planting. It is better to wet the roots with water and sprinkle on all the soil they will hold. Sometimes plants are received in a frozen condition. In such case it is better to cover all over with cool soil and let them remain until frost is all drawn out. We can then judge if enough life is left for hope to find a foundation.

FIVE LATE KEEPING RUSSIAN APPLES.

A. G. Tuttle.

The following is a list of the new late keeping Russian apples:

ARABKA,—an apple of fine quality that keeps till May; tree blights, but it blights no worse than Avista.

BORSDORF,—a small apple of extra fine quality, a very late keeper.

ROMNA,—a large apple, equal in quality to the Rhode Island Greening; is still keeping in good condition; fruit more liable to the attacks of the codling moth than any other variety.

SINAP,—Size and form of Ben Davis, a very little striped, mostly covered with a fine blush, quality best. The scions of this variety were received from Kieve, Russia.

REPKA,—a very late keeper of fair quality; tree inclined to overbear; in size and quality equal to the Walbridge.

Baraboo, Wis., April 11.

BEST APPLES TO PLANT IN NORTHERN WISCONSIN.

Mrs. D. Huntley of Outagamie County.

First, I would plant Tetofsky because it ripens earlier than any other variety we have, is excellent to eat out of hand, and will sell for twice as much per bushel as later summer apples.

Second, I would plant Duchess because they will live and bear and fill a market that must be supplied with cooking apples.

Third, plant McMahon. Too much cannot be said in its praise. It ripens later than the Duchess, is fully equal to that variety for cooking and is a better keeper.

I prefer the Wealthy to any other apple in its season. It is beautiful to the eye, excellent for eating, fine for can-

ning or sauce and will keep until midwinter without special care and longer if well cared for.

The "best keeper" is the Northwestern Greening. In 1897 I showed those which grew that year and also specimens of the same variety in good condition which grew in 1896.

I would also plant Talman Sweet, Eureka and one or two of the best sweet apples recommended by our State Society. We do not grow enough sweet apples.

The Longfield is a handsome apple and sells well. The tree is hardy and productive.

In an orchard of five acres I would plant all of the above mentioned varieties, fewest of the summer apples, and some of the best of those recommended on page 11 of the March Horticulturist. I mention these varieties because I have grown them, except the Eureka which has not yet come into bearing, and find them very satisfactory for home use and salable in market.

A wind break may be necessary for some orchards, others do well without it.

[The above article in answer to questions in the March Horticulturist was received too late for the April issue.]

SOME "JARSEY" NOTES.

W. J. Moyle, Little Silver, N. J.

New Jersey has been well named "The Garden State." You sit down in one of the finely furnished railway cars of the New Jersey Central R. R. and listen to the conversation which is carried on by your fellow-passengers, and you will find invariably that, if they are from the rural districts, they will be discussing the possible prospects of the peach crop, or, "What would we better plant in the line of pears this spring?" or, "Is the asparagus rust likely to destroy our crop again?"

Here you note that the people are pursuing horticulture from the practical, money-making point of view. So we find that when a man drives into our packing yard we know about what he will ask for. His order for a thousand trees would be as follows: 200 Ben Davis apples, 300 Kieffer pears, 200 Old Mixon, 200 Mountain Rose and 100 Late Crawford peaches. When you remonstrate with him and state that there are better pears than the Kieffer, he will tell you "may be so," but that the Kieffer is the money maker and the Ben Davis the apple that will keep well and sell any time in New York.

The writer, however, has been remarkably impressed with the geologic, topographic and botanical formation, structure and productions of the country. Even at this early period, before the warm days of spring have made the first impression upon sleeping nature, many are the curious and interesting things that have fallen under my eye.

It is such a pleasure to be able to look through and beyond what appears to the ordinary observer, upon the surface, and read the motive that actuates all life, whether it be the beautiful flora of Japan which grows and blooms in perfection here, or the twenty or thirty darkies curled up in the sun in all sorts of postures and apparel, taking their after-dinner snooze, laziness personified in every chunk of ebony.

Many beautiful summer homes are situated along the Jersey coast and, as these are surrounded by elegant grounds, it necessitates the planting of large quantities of ornamental stuff. One party came with team and wagon yesterday and carried away an assortment of shrubs, five hundred in all, at a cost of two hundred dollars. This was all to be planted on the grounds of said party.

It suffices to say for this time, in closing, that over the very grounds on which we work George Washington has marched with his troops as he did battle with the British at the historic spot of Monmouth.

NEW YORK FARM, VULCAN, MICH.

EDITOR HORTICULTURIST:—

As I spent the winter in the northern part of Michigan on the New York Farm, which is the dairy and truck patch of the Menominee River Lumber Company, perhaps a few items in regard to this section of the country will be of interest to the readers of the Horticulturist.

The farm is situated near the town of Vulcan, in the heart of the great iron region, and is only separated from Wisconsin by the Menominee river. Twenty-five years ago this district was covered with an immense growth of timber, mostly pine, but now only the blackened stumps remain to tell of its past grandeur. Here and there a sturdy settler has cleared a patch of ground and is digging out a livelihood, but such are few and far between, for the greater part of the people are engaged in mining. The land is, for the most part, rough and broken, with only here and there a level strip. The company have about 700 acres cleared and under cultivation and, besides raising vegetables and fodder for the lumber camps, operate a dairy of 100 cows. The butter and other produce finds a ready market among the miners. The soil is light sand and in many sections would be called poor, but I am inclined to think that it is all right for this locality, for it dries off quickly in the spring and matures its crop in a very short time, thus escaping the early fall frosts which are quite common. If given plenty of manure it will produce excellent crops.

Clover and all tame grasses do well. They raise the finest vegetables that I ever saw, and potatoes grow to perfection. I shan't attempt to tell how large the cabbages were for it might look "fishy," but they were something immense.

Six years ago an orchard of about 500 trees was set by the company. The trees are nearly all alive; most of them have made a good growth and yielded some fruit last season. So far they have shown no signs of winter killing,

but I cannot say what effect the past winter, with the mercury 35 degrees below zero, has had upon them. As the wood was well ripened in the fall I do not anticipate anything serious. There is another young orchard of about the same size five miles south of here on a hard wood ridge with a heavier soil. There have been very few trees planted here previous to this, and the result of these ventures will be watched with interest. Berries of all kinds have been abundant in the wild state, which is good evidence that the cultivated varieties would do well. There are great possibilities in the soil of this northern country, but I have an idea that it is going to take an immense amount of hard work to develop them.

L. A. CARPENTER.

Fond du Lac, Wis.

GROUND FOR STRAWBERRIES.

We are constantly learning something new. If it were not for this the world would retrograde. The up-to-date strawberry grower has to keep up with the times. He has to grow better fruit and two or three times as many quarts per acre and sell at one-third the price of twenty years ago, or quit business. Blessed is he who can grow two large strawberries where one small one grew before and sell them at a price that will enable the poorest to indulge in what should be called a necessity, and at the same time provide a good profit for himself.

To this end the first essential is the preparation of the soil for strawberries. One grower writes: "Plant pedigree plants and you are sure to grow large crops;" another says to buy plants in the far north, and another advises the buying of plants in the far south, "the natural home of the strawberry." Undoubtedly good, strong, healthy plants have considerable to do with growing good crops of strawberries. We have tried large, healthy plants and small,

healthy plants side by side. When a plant is taken up for planting the only use of the roots is to maintain life until a new set of roots can be started, and unless extreme care is taken in planting a large plant its smaller mate will get the best start and outgrow it before the season is over. We do not mean to say to buy very small plants, but good, thrifty plants of fair size only, grown by any careful plant grower; some varieties of plants are always heavily rooted, like the Parker Earle, while others are very light-rooted, as the Bederwood.

We think the soil has the most to do with production of large crops and large berries. Sandy soil produces the finest berries, but not the largest or as many per acre. The reason is plain to those who have tested the matter. If you want large crops, select your heavy soil, plow and subsoil deep, then repack the soil just as hard as you possibly can, but do not work while too wet. Strawberry roots will penetrate the hardest soil and will develop the best fruit buds and produce the finest berries. Constant and very shallow cultivation is best. Sandy soil cannot be packed so hard, hence it will produce fine plants, but not such large crops of fruit.

For plant-growing the sandy soil is the best, for it produces just as large or larger plants, which are more easily cultivated, more readily dug, etc.

Now, our friend who grows pedigree plants selects the best specimens, prepares the soil well, having it loose, etc., and grows plants with large fruit bud development which will transmit these qualities to other locations. I say they will do nothing of the kind unless the soil is prepared right and the proper methods of cultivation are carried out. We do not mean to say that plants from old fields will do as well as those from new fields, for they will not; they are exhausted, unhealthy, etc. We are not in need of plants that produce a large number of fruit buds, but we are in need of the right preparation of the soil to enable plants to bring

their crop to perfection, and we cannot get that unless we prepare the soil right and cultivate.

At this writing we are not prepared to state why the firmly packed soil will produce the best strawberries; we only know that it will, and if you do not believe it, try it. —Western Fruit-Grower.

SPRAY NOW.

Now, just after the apple blossoms have fallen, is the time to spray your orchard with Bordeaux Mixture combined with Paris Green. The Bordeaux will kill the apple scab fungus which may be present on the young fruit and leaves and which may cause the young fruit to drop; the Paris Green is added to poison the codling moth.

"To make assurance doubly sure," a second application of Bordeaux and Paris Green should be made a week later, and still another after an interval of two or three weeks.

GRAPES FOR HOME USE.

The Worden to my mind is the best grape for home use. It is an enlarged Concord, which it closely resembles. More juicy and with less pulp. It ripens a few days before the Concord and is better flavored. It is not so vigorous in its growth as the Concord, but bears quite young and if properly trimmed the bunches are quite large.

The skin is not so thick as the Concord and consequently not a good shipper. Concord is so well known that it needs no introduction, being indispensable.—Major Holsinger.

To Preserve Peaches.—Surround the orchard with a high fence, topped with barbed wire.—Chicago Tribune.

A GOOD WORD FOR THE LUCRETIA DEWBERRY.

The Lucretia Dewberry has not ranked high in the regard of Wisconsin horticulturists, but perhaps our plants have not been the "genuine Lucretia." An Iowa man writing for the Western Fruit-Grower, deprecates the fact that so many worthless wild Dewberries have been dug up, labeled "Lucretia" and sold at a high price. He thus describes the genuine Lucretia fruit:

"The fruit is much larger than the average blackberry, is of a glossy black, has very few seeds, and no core in center of berry; yet while very large, it is wonderfully firm and will stand shipping much better than the blackberry. The past season I picked 3,340 boxes from two acres. They were fine, large berries and I sent by express eighteen cases, twenty-four quarts each, to White Lake and Plankington, South Dakota, 500 miles distant, with success. The Dewberry ripens eight or ten days before the Snyder blackberry, and a good share can be marketed before the blackberry comes into market. For canning they are far superior to the blackberry, as they are almost seedless, which is a great objection by some to the blackberry.

"The dewberry will adapt itself to varieties of soil. We have it here on rich bottom ground, timber clay ground and real sandy ground, and as far as I can see, there is no preference unless it would be that the sandy ground is more easily cultivated.

"Another great advantage in favor of the dewberry, is that the roots run down deep into moist soil, and during a very dry season, my blackberries and raspberries will dry up badly, while during the past five years' fruiting the Lucretia I have never had any loss of berries by drying on the vines. Another good point is, it never throws up suckers or sprouts. It propagates from its tips."

CULTURE: Plant in rows seven feet apart and five feet apart in row, which will require about 1,300 plants for one acre. The first and second year a crop of potatoes or some

other cultivated crop may be grown between the rows. Plants that make a good growth the first year, will bear the first year from planting; the second year a fair crop will be fruited, and will continue in bearing from twelve to fifteen years before they begin to fail.

The second year stakes should be driven in the rows about every sixteen feet and two feet high, and staple a wire on top. I always cultivate my vines, going the same way every time; by so doing, the vines which trail on the ground will be all straightened. So the new growth which will be for next year bearing canes will cover the ground from one and one-half to two feet wide in the row. In the spring trim the vines to about three and one-half feet in length, and tie canes to the vine. The berries are much easier gathered than if left to trail on the ground, mixed with the young vines.

The Lucretia has been fruited here in Scott county, Iowa, for the past twelve years without a single failure of a yearly crop, and is more sure of a crop than any other berries we can grow.

WINTER PROTECTION: Straw does very well, but with me I prefer to take a plow and go one round to each row, always going the same way as when cultivating, and throw a light furrow on the vines; in the spring when frost is out of the ground, take a fork and lift the vines, which is easily done. Your vines will come out bright and green. Then trim and tie the cane to the wire. When weeds begin to make their appearance, take a small one-horse plow and throw this ridge of dirt back, then cultivate with a one-horse cultivator as often as is necessary to keep clean.

Visitor: "Well, my little man, have you any brothers?" Freddy: "Yes, I have one, but my sister Stella has two." Visitor: "Why, how can that be?" Freddy (in some astonishment): "Me and my little brother, of course."—Grip.

SPRAYING AND CULTIVATING APPLE ORCHARDS.

Joseph Cullen Blair,
Assistant Professor of Horticulture, Illinois University.

Natural advantages alone can never make fruit growing successful, unless they are supplemented by the artificial advantages of proper cultivation, spraying and other attendant operations. This is the lesson the two seasons have tried to teach, and how well the majority of our fruit growers have learned it the future will decide. Stating this lesson more fully it is this: That in order to produce healthy, vigorous and prolific trees they must be well cultivated so as to supply the soil with the necessary moisture, and also to retain it during the dry season; to make more available the plant food therein; and that spraying is absolutely imperative when the atmosphere and other conditions are most conducive to the development of fungus diseases.

The opinion held by many throughout this state in regard to the cause of the failure of apple orchards during the last season is that there was imperfect, or in many cases, entire lack of pollination, due to the cool, wet weather during the time of blooming. That this was not true can be proven by calling attention to the fact that most apple orchards set a considerable quantity of fruit, which, however, dropped prematurely in from one to four weeks after fertilization. Or, again, by noting the fact that at least one orchard did bear fruit, and that of a superior quality, while hundreds in the same locality failed to produce any. According to our observations at the Experiment Station, the true cause of the premature dropping of apples this last year was an attack of the apple scab fungus on the young apple and along the stem of the same, thus cutting off the food supply from the fruit. If there had been no fertilization there would have been no development of the ovary whatever. If there had been imperfect pollination the fruit would have been one-sided or deformed, as a result of the

failure of one or more carpels to obtain pollen. Each apple has five cells called carpels, each usually containing two seeds. These pairs are fertilized by pollen which falls on the stigma attached to that carpel. If it chances that no pollen falls on a certain stigma, the seeds in this one will not develop and the apple will be one-sided. (1) But a careful examination failed to bring to light fruit of this latter character, and in no instance did an examination of the fallen fruit show non-presence of the scab disease on the stem and fruit. Again, if lack of fertilization was the cause, why should one orchard, that of Mr. H. A. Aldrich, of Neoga, out of a hundred or more in that district escape their fate? Surely not because fertilization had taken place in but one orchard, but because that orchard had been systematically sprayed for several seasons and had received judicious cultivation, thereby preserving for the trees the soil moisture which during the dry drought last year would otherwise have evaporated, and assisting them in producing strong fruit buds.

It is absolutely certain that no one cause is responsible for the recurring failure of apple and other orchard crops. There are many causes, not in the same year to be sure, but a failure due to one cause one year may be due to a totally different one the following year and so on for a considerable period. Because many orchards a year ago dropped their fruit prematurely as a result of the drought, the bad effects of which could have been prevented by cultivation, does not argue that cultivation was a fundamental necessity of the orchard during 1898. In fact, I know of and have visited several fruit plantations in Wayne, William and other southern counties, that were materially injured this year by injudicious plowing and cultivating during wet weather. Now it so happened that the season of 1897 was a dry one; that the apple scab fungus did not develop as rapidly as it does most years; and that because of this much of the fruit that was set was allowed to mature, or to re-

main on the tree, until checked in growth by the severe dry spell.

It pays to investigate the diseases of your orchards, to learn the proper remedy for each disease, and to apply it faithfully and intelligently. It is MORE STUDY that is needed by each and every farmer and fruit-grower. Only thus as a mass can we hope to free our fruits from their diseases and insect enemies.

SPRAYING: Our experiments in spraying at the State Experiment Station, carried on at our own grounds and on those of Senator H. M. Dunlap, furnish the best proofs of the value of spraying. We found that sprayed areas which received one treatment of copper sulphate and two treatments of Bordeaux Mixture gave a wealth of luxuriant foliage until the time of dropping in the fall. The apple scab fungus had been almost wholly eradicated from the plants so treated, while the unsprayed trees were entirely defoliated as a result of the disease.

CAUSE FOR ALARM: There was, however, some cause for alarm as a result of the application of Bordeaux during the wet season. Our observations seem to show that some of the lime of the Bordeaux was often washed from the solution, or was insufficient, thus allowing the copper sulphate to act as a caustic upon the leaf, causing brownish red spots circular in form and subsequently resulting in a complete yellowing and dropping of the leaf. This occurred with us about August 10, and many of our most thoroughly sprayed trees, and those in the Neoga orchard above referred to, were almost completely defoliated. Another year's experience may prove that our observations were incorrect, but we feel that there is no ground for doubt that this is the explanation of the trouble. If so, then it means that during the wet season more lime should be added to the Bordeaux Mixture; and in any case, better be on the safe

side and add six pounds of lime to the six pounds of copper sulphate, instead of four pounds as ordinarily recommended, for the lime is a good fungicide in itself. Simply transposing the formula and using four pounds of copper sulphate to six pounds of lime would be the true remedy for the difficulty in such a season as the past.—Western Fruit-Grower.

TIDINGS FROM THE TRIAL ORCHARD, MAY 6, 1899.

A. J. Philips.

This week I spent three days in the interest of the above enterprise and I am free to admit that, after reading last winter of the extreme cold in northern Wisconsin, 45 to 55 degrees, I had some fears of the outcome. But I can assure your readers I was agreeably surprised when I found that not an apple tree, in addition to the twenty that were dead last fall, had succumbed to the cold. I found only one graft killed. One plum tree called Potter's, sent by Prof. Goff, died during the winter. I replaced that with an Aitkin. Another large plum tree sent from Madison shows some effects of the cold but I think it will recover. A Downing winter apple, top worked on Shield's crab, shows signs of injury. Almost every tree is coming out at the terminal bud. I put in some more grafts and shaped up those that were worked last season. Will have some fruit on apple and plum trees this season. Two years ago in that latitude the plum blossoms first put out May 16; this year I saw many trees in bloom on May 3. I am more than ever convinced that the orchard is located on excellent fruit soil, as the injury on young nursery trees and on last year's top grafts is less there than any place in the state that I have visited, including my own, which is seventy-five miles farther south, the difference being in favor of the less and slower growth last season. I look for a fine growth on the trees this season, and expect to visit the orchard again be-

fore the summer meeting so I can make a further report at that time.

The foreign trees, like Patten's Greening, Okabena and Alma seem to be at home, while our Wisconsin seedlings are so far doing well and are convincing visitors that northern and western grown trees are preferable to southern and eastern stock.

While away on this trip I found a new seedling tree, a competitor for the one thousand dollar premium offered by the Minnesota society last winter, though one German assured me the tree was worth five instead of the one thousand offered. I secured a few cions and will say more about it when I see the apples, which are said to be fine. It will be named Windorf, in honor of the man who planted the seed which he saved from a Northern Spy apple.

In my notes on the orchard I will add that I lost the two Marcus plums I received from Iowa and the Pilot trees came through all right. The appearance of the thirty Northwestern Greening trees in this orchard, the thirty bearing trees in my own, the testimony of the veteran, Edson Gaylord, and the experience of G. A. Ivins, both of Iowa, in this month's Fruitman, convinces me that a man may probably mention that variety, without recommending it, in a Minnesota meeting five years from now, without being hurried off to an insane asylum, as my friend, Clarence Wedge, predicts. O, no, Mr. Wedge! For if speaking of, or even recommending, a new variety that afterward failed, was evidence of insanity, the hospitals of Minnesota and Wisconsin would have been filled to overflowing long years ago.

Longfield, Hibernal and Repka, of the Russians, I find doing well in the trial orchard and, in fact, everywhere I have seen these varieties, where they are old enough to bear, I think they promise a crop the coming season.

EFFECTS OF LAST WINTER.

ED. HORTICULTURIST:—Some of the results of the dry winter were apparent as soon as the frost came out. The clover fields were found killed, also the winter wheat, and much injury was done to fruit trees, rose bushes and many shrubs. Many peonies were found dead, whether standing where they grew or properly dug, well heeled out and well wet down. In many cases tulip beds well mulched were nearly all killed. The greatest loss to the nurserymen of the state is in the apple trees in the nursery, both young and old. Everything is injured and it is a serious question whether the young stock in the nursery will recover. I see no difference in the loss in well kept grounds or those neglected. All hardy varieties are alive above ground and some that are not hardy. The loss will be more apparent in June than now. Many young orchards will leave out, blossom and set fruit; many trees will then die from the injury sustained by the dry winter.

The past winter has been more disastrous than any within the 47 years I have been in the nursery business. Vineyards have suffered equally with orchards. Blackberries and old raspberries have suffered almost a total loss. The young plantings of Loudon are alive root and branch. Plum, pear and cherry have not injured in the root like apple, and are giving a promising bloom. About one-half the strawberry beds are weakened or entirely ruined.

The 37 cold days of last winter aggregate 327 degrees below zero. But why the frost should have gone down seven feet is a mystery I cannot fathom. True the ground was bare, but the excessive deep freezing is beyond precedent.

The ground was in good condition when it froze up, but the continuous evaporation from the dry surface must have been the cause of the root injury.

GEO. J. KELLOGG.

Lake Mills, Wis.

FROM SPARTA.

As to the condition of small fruits in this locality, would say it is, so far, the best it has been for years, that is, in the way of blackberries, and raspberries that were protected by covering. Those that were left out were killed to the ground. Strawberries are in grand shape, whether they were covered or not. Apple and cherry buds are hurt very much; they will bear some fruit if it holds on after setting, but I fear it will not mature. We have no root killing to speak of, as we had some snow all winter; the first came about the 10th of November and did not leave us until in April. I notice quite a good many of the shrubs are killed back much worse than they have been for years.

Truly yours,

Z. K. JEWETT.

FROM GREEN BAY.

Our strawberry plants came out very nicely. The Columbian and Shaffer's Colossal raspberries killed somewhat, the latter badly; Gregg and Loudon are all right. Currants are elegant. Pansy plants are dead. Cherry, plum and apple trees are fine. Rose bushes are very nearly dead. Protection did not protect the above mentioned injured stock. One report from ten miles west of us announces raspberry and blackberry canes, not covered, badly injured.

IRVING C. SMITH.

FROM JANESVILLE.

Strawberry plants in this vicinity are generally reported badly winter-killed. Red raspberry canes are more or less damaged according to variety and exposure. Judging by our own, Turner, about one-third killed; Cuthbert three-

fourths of canes dead; Loudon canes, upper third of them are generally killed; Shaffer's and Columbian killed to the ground; Gregg, being sheltered on the west by our other raspberries, came through the winter quite nicely, while those of our neighbors a few rods off, having no protection, were killed down badly; Apple and cherry buds do not seem to be injured at this writing.

L. B. T. WINSLOW.

FROM BARABOO.

A large percentage of the blackberry bushes and grapevines in this vicinity were not given winter protection last fall. This state of affairs was brought about by a combination of circumstances,—there was an immense apple crop to harvest, it was almost impossible to procure farm help, and the ground froze up two or three weeks earlier than usual. As a consequence, blackberry canes of all varieties are killed to the ground; most of the grapevines are killed, though part of the Concords survive. Cuthbert raspberries are killed above ground, but the Loudon has come through the winter with flying colors; more than half of the Columbian canes are dead; our black-caps, Kansas and Older, are alive and vigorous; Richmond cherries and native plums are blossoming as lavishly as if nothing had happened; the currant bushes are healthy in foliage and loaded with fruit-stems. Most of our shrubs and ornamentals are dead, including the Wahoo and the Norway maple, but we do not know which killed them, the winter, or the seventeen-year locusts.

As we look out upon our stately white lilac bush in full bloom and catch the spicy fragrance of the flowering currant's yellow blossoms, we thank Heaven for two shrubs that are genuinely hardy!

FROM VELP.

I had a fine lot of Cuthbert and Nemaha raspberry bushes well-ripened last fall, but they seem to be all dead now. Did not give them winter protection.

E. A. BARLAMENT.

THE WAKE OF THE WINTER.

Prof. E. S. Goff, of the University of Wisconsin.

The February blizzard was unique in one respect at least. It did not confine itself to the "cold north," but visited its devastation on almost the whole country east of the Rockies. Those of us who can find comfort in the old adage "misery loves company" should be able to mitigate our sorrows by reflecting that our neighbors east and south are no better off than we are.

The warming soil has at last excited the living roots to action, and we can now prophesy with some degree of certainty what has been the outcome of the February freeze in our nurseries, orchards and lawns. We should remember, however, that where the roots of our trees and shrubs are badly injured, the whole damage may not be apparent for weeks to come.

One noticeable result of the winter is the fact that the damage seems to follow no precedent. Our native plants have in many cases suffered more than exotics. Among the evergreens on our Station lawn, the native white pine is among the worst injured, while our pines imported from Europe appear all right. Many of our trees suffered more during the comparatively mild winter of '96-'97 than during the past winter. Parsnips and salsify have in many cases been killed, while the peonies, though native to a much warmer clime, seem generally to have escaped.

Among the so-called ornamental shrubs, the snowberry,

Amure tamarix, and Fortune's spirea, are most seriously injured, being killed nearly or quite to the ground. One large Amure tamarix shows no signs of life even in the roots. The variegated-leaf privet, smoke-tree, golden elder, and Eleagnus longpipes are badly injured, but will doubtless recover. Spiraea aurea, Fortune's forsythia, Lonicera caprifolium and Douglass' spiraea are slightly injured while all of the upright honeysuckles, the syringas (Philadelphus), Rosa rugosa, Billiard's spiræa, rose acacia, variegated-leaf dogwood, Van Houten's spiræa and the large-flowered hydrangea appear uninjured. A large syringa on a neighboring lawn, however, seems to be destroyed. Prunus triloba has not only escaped with little harm to its branches, but, considerably to my surprise, many of its flowers have opened.

Among trees, the hop-tree, Prunus Pissardii, American Judas tree, Kilmarnock weeping willow, Cornus florida and the white fringe appear killed.

The gingko tree, Paul's double scarlet thorn, Camperdown elm, Tartarian maple and Teas' weeping mulberry appear uninjured. The Colorado blue spruce, Scotch and Austrian pines, Douglass spruce and Siberian arbor vitae have escaped without harm. The mountain pine, Engelmann's spruce and American arbor vitae are slightly injured.

Golden arbor vitae on the lawn is seriously injured, but is little hurt in the nursery. The junipers are all badly injured except Douglass' golden; some of them fatally. White pine on the lawn is destroyed. Oriental spruce in the nursery is wholly dead; two species of Japan cypress are either killed or seriously injured; little gem arbor vitae is badly hurt.

The damage to fruit trees is considerable, but cannot yet be fully determined. I will endeavor to furnish a report on this later.

Experiment Station, Madison.

SOME SEASONABLE VERSES.

Spring and seeding time are nearly here.
Quite soon the robin's chirp we'll hear,
The sweet violet and buttercup
Are sure already springing up.
Now I wish to plead, if not too bold,
With youth and age to search for gold,
To search where good health as well is found
And cultivate a piece of ground.

Springtime, lots of days, seem to have fled,
We know nothing is really dead,
Jack Frost has doffed his mantle of snow,
All can plant seeds of some kind I know,
So get seed, spade and long handle rake,
A pleasant spot in the garden take
The planning done 'tis well begun,
You'll find the gold if you work in the sun.

Get to work early, don't work long,
The early bird sings the sweetest song.
The morning dew, through sunny weeks,
Is better than gold, for thin, pale cheeks.
Your hands will get red, perhaps your nose,
There's vexation in picking a rose.
The search for gold is oft beguiling,
But here is gold and happy toiling.

'Twould add to pleasure to have some bees,
And to plant a few such seeds as these:
Petunia, sweet peas and double larkspur,
Honey bees and humming birds prefer.
Plant pansies for their smiling faces;
Mignonette and moss in dry places.
Rise in the earliest morning hours
And go to work among the flowers.

If you should see somewhere soggy land,
Wheelbarrow a load or two of sand,

Plant rows of black caps and grapevine,
Thus hope to taste "God's pure bottled wine."
As part reward for all your labor,
You'll have a treat for a sick neighbor,
And I hope you'll have received fourfold,
What is better than a purse of gold. H. H.

Appleton, Wis., April 6, '99.

QUESTION DEPARTMENT.

ANSWERS TO QUESTIONS IN APRIL HORTICULTURIST.

Should a bearing orchard be cultivated? Yes, until the trees come into bearing.

Should the trees be mulched? Yes, after they begin to bear full crops.

The above answers are for clay land and a hard sub-soil, where the feeding roots run near the surface. On lighter, more porous soil conditions are different and perhaps cultivation would be preferable. A. J. PHILIPS,

Secretary of Wisconsin Horticultural Society.

On pages 16 and 17 of April number Mr. Pearson asks why we differ. The parties who made the statement should rise and explain.

I think that young orchards on good soil should be planted to hoed crops for three or four years. They should be mulched summers, or the ground continuously cultivated. The mulch should be increased for winter after the tree is banked a foot with fresh earth; the mulch should not be too near the tree.

After three or four years of this treatment seed to clover and leave the grass on as a mulch. When the trees get well to bearing cultivate the orchard from early spring until Aug. 1, but not later, and on some soils I would not cultivate until after the first of July. The early and continued

cultivation conserves moisture. The trees will need ashes and manure after they get to bearing heavily. Never allow June grass to sod about orchard trees unless they are pear trees, which should be held in check to prevent blight. If your orchard trees are of the blighting varieties, cultivate less and seed more. GEO. J. KELLOGG.

QUESTIONS FOR ANSWER IN JUNE.

Which are preferable, grafted or budded trees and why?
S. M. of Elroy.

EDITORIAL NOTES.

At last the Horticulturist has the pleasure of echoing the joyful peal of marriage bells! "At the home of the bride in the village of Lake Mills, Jefferson Co., Wis., on Wednesday morning, April 5, 1899, Mr. George J. Kellogg, of Janesville, was married to Mrs. M. J. Hassam. The groom is a successful horticulturist prominently known as a speaker before farmers' institutes and agricultural societies on the subject of fruits, and the bride a highly esteemed citizen and long resident of Lake Mills. It was a quiet wedding, attended by relatives and a few near friends." —Lake Mills Advocate. The Wisconsin Horticulturist most cordially congratulates Mr. Kellogg and would like to extend to himself and his bride whole pages full of its very best "good wishes."

Summer Meeting at Eureka; date not yet fixed, will be announced in the June Horticulturist.

Hon. John M. True, secretary of the State Board of Agriculture authorizes us to say that the Board has appropriated $500 for premiums in the Horticultural Department at the next State Fair—an increase over last year of nearly $200. The Fair will be held Sept. 11 to 15 inclusive.

Mr. Geo. J. Kellogg writes that although still a "silent partner" in the Belle Cottage Nurseries at Janesville,

he has retired from active business, turning the management over to his sons. His Post Office address is now Box 84, Lake Mills, Wis.

The State Horticultural Society, through the pages of its magazine, would express its profound sympathy for Mr. Thomas Tanner, of Omro, who has recently lost his wife. Mrs. Tanner died suddenly of paralysis at her home. She was born in Wisconsin Jan. 25, 1848. An Omro paper says: "There are left to mourn her death, a husband, four children, a mother, two sisters, three brothers, and many friends. The deceased was an excellent wife and mother, domestic in her habits, yet always ready to respond to calls where her services could be utilized. She was an active member of the Horticultural Society, and took a deep interest in every move to promote floriculture and horticulture."

Orange Newell, originator of Newell Winter apple, died in March at his home near Baraboo.

We acknowledge with thanks the receipt of the last Annual Report of the Horticultural Society of Missouri, a well-bound, well-edited, instructive volume of 416 pages.

We ask the kind forbearance of readers who have not yet received the premiums due them. All business of that kind, as well as our correspondence, has fallen behind on account of a tragedy whereby a member of the editor's household met a horrible death. The young girl who had come to help us in our home duties during the summer, was coming home from an evening party in company with three other young people. They were walking on the railroad double track when they saw a train approaching. They stepped aside to avoid this, not noticing that the fast express was coming from the opposite direction. The two girls and one young man were killed and the other young man maimed for life.

Come to the summer meeting in Eureka!

THE WISCONSIN HORTICULTURIST.

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