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A BRANCH OF THE ARNOTTO.—Courtesy Vick's Magazine.

The Wisconsin Horticulturist.

VOL. IV. NOVEMBER. NO. 9

THE LATE FRANCIS WILLIAM LOUDON.

By J. S. Harris of Minnesota.

I am much grieved to learn of the decease of the venerable horticulturist, F. W. Loudon. Minnesota joins with Wisconsin in mourning his departure.

He was one of the few men to whose skill and untiring perseverance our Northwest is greatly indebted for the originating of some of our best and most popular varieties of fruit, and also for the patient labor and time expended in testing varieties to find such as were adapted to successful culture in our climate.

His work was largely a labor of love and never received the recognition and financial reward to which it was entitled.

Mr. Loudon is dead but his spirit and his noble example are with us and will continue to inspire our souls and the souls of those who succeed us, as long as the love of horticulture has a place in the hearts of mankind. He has left a good record. His works are a rich legacy to our people and an enduring monument to his memory.

La Crescent, Minn.

Fruit growers throughout the country lose a friend in Mr. Loudon. He spent the larger part of his life in experimenting with seedling fruits, produced by careful hybridizing. Such work as this, however, has proved unprofitable to every one who has undertaken it. Jacob Moore, Peter M. Gideon and Luther Burbank are well known origi-

nators, and all of these men say there is no money in such work. It is safe to say, therefore, that while Mr. Loudon labored hard and faithfully he did not die rich in worldly goods.

He has told me the experiences of his life which are exceedingly interesting, but with the bright days came dark days and trials. He was repeatedly burned out, and repeatedly injured by falls from trees, or from runaway horses, or through other accidents, from which he came near losing his life. He also met with misfortune in his financial affairs in early life.

I knew Mr. Loudon well and have found him a very friendly man, and one with whom it was a pleasure to visit. He was by nature big-hearted and trustful.

C. A. GREEN in Green's Fruit Grower.

THE LOUDON RASPBERRY.

From Green's Fruit Grower: "Say, Editor, the claims you have made for the Loudon raspberry are none too large for Southern Ohio. With me it stood on low ground last winter and unprotected at 32 degrees below; came through unscratched and gave me a bountiful crop of fine red berries this summer and produced many fine plants. I don't regret the time when I tramped out through the snow and got four subscribers to Green's Fruit Grower for the eight plants, which was my start in the Loudon. Kansas and two other blackcaps stood by side of Loudon and froze to death, and were it not for the Loudon I would have had no berries this year. Blessed be the Loudon; it has come to stay; am going to enlarge my patch next year."

The Loudon raspberry is one of the very best of all the red varieties, as regards hardiness and all other good qualities.—H. E. Van Deman.

APPLES FOR QUEEN VICTORIA.

All the apples for Queen Victoria's table are said to be imported from New York State. Lady Randolph Churchill introduced the Spitzenberg apple to her majesty about twelve years ago, and since then a supply is sent yearly to Windsor. These apples are highly polished, each one is wrapped in vari-colored tissue-paper, and the barrels are painted in parallel stripes of red and green, and glossily burnished, while around and inside the top of the barrel apple blossoms and leaves are realistically painted. On the head of each barrel is stenciled the address: "To the Under Steward of the House, Windsor Castle, England."—Good Health.

WHO INVENTED THE LATH TREE PROTECTOR?

By J. S. Harris of Minnesota.

The first writing bearing on the question that has ever come to my notice is a statement made by J. A. Carpenter of Waukesha, Waukesha County, Wis., published on page 277, Part II, Patent Office Report for 1853, which reads as follows: "To prevent the depredations of gophers, ground squirrels, cotton-tailed rabbits and field mice in our orchards, we protect the lower parts of the trunks of the trees by winding strips of old cloth or rye straw around them to the hight of two and one half feet above the ground, heaping up a cone of earth a foot high at the roots. Some tie around the trunks cornstalks, laths or barrel staves to save the trees."

While clover cannot be excelled for seeding down an orchard, it should not be done until the trees are in bearing.

FALL WORK IN ORCHARD AND GARDEN.

Geo. J. Kellogg.

It hardly seems possible but that your readers all know enough to get ready for winter without some hints. The cold nights are reminders of what is coming and we all KNOW better than we DO. How many neglect to bank up their apple and other fruit trees. I have known evergreen trees four inches in diameter, standing in grass, completely girdled by mice. Clean away the grass and just a little fresh dirt put about the trees will save from the mice.

The rabbits must be fought with lath, hay bands, sacking, whitewash, with sulphur and carbolic acid, and one of the most effectual ways is to give the boys 10c for each dead rabbit.

Strawberries need half a mulch as soon as the ground begins to freeze and the other half later. I think we don't mulch quite heavy enough unless the leaves and ground are WELL COVERED from sight.

With last year's experience with dry root freeze we are not safe without winter mulch on and about everything. After banking with dirt we can apply any kind of mulch. The ground is dry yet and it will pay to draw water and put it freely on all newly set trees, plants and vines. We have only had a little over an inch of rain the past month. We need seven inches more before it freezes up. An inch of rain is a thousand barrels per acre, so you see what puny watering we do.

Asparagus, currants, gooseberries, pieplant, herbaceous hardy flowering plants, lilies and bulbs should be planted this fall and well wet down.

Trees should be dug, root-pruned and put indoors, either shed or cellar, and well heeled, and set in spring. Our boys have just completed an outdoor cellar 30x48 feet to store trees for spring; after last winter's experience it is not safe to heel in anything out of doors. We lost 2000

roses heeled in and well wet down, all our trees and plants dug and heeled out, and we don't do so again.

Again I say protect from mice and mulch, MULCH, MULCH.

Lake Mills, Wis.

THE ARNOTTO TREE OR SHRUB.

Attention is being called to the fact that poisonous mineral substances are quite extensively employed for coloring butter. All butter-makers should be alert when buying butter-coloring to make sure that none of these mineral colors are palmed off on them.

A harmless butter-color is made from the fruit of the Arnotto, a shrub or small tree which is a native of the West Indies. This shrub grows wild in Porto Rico and is destined, under the new regime, to become of great commercial importance.

The name is variously spelled, Arnotto, Annotto, Anatto and Arnatto being the most common forms. The botanical name is BIXA ORELLANA.

Vick's Magazine for April contained this description of the tree copied from THE SAN JUAN NEWS, a Porto Rico paper: "Anyone taking a day's ride in the country cannot travel very far without passing it on the road side. Few know how easy it is to grow it, its yield, its price, or even its use. Ask where one may for information on the least point, the invariable answer is, "Oh! good to color soup." To enlighten the uninitiated I will say it is one of the most valuable dyes known, and is much used for coloring butter and cheese, and as a dye for silks, wool, cotton goods, ivory and bone, feathers and skins.

"The tree grows no very great height and is somewhat shrubby in appearance, the leaves are heart-shaped and the waxy pulp or testa which envelopes the seeds is contained in

capsules, which grow at the ends of the branches. These capsules are covered with soft spinules, and when ripe split open and disclose the seeds.

"The waxy pulp or testa which envelopes the seed is removed by various processes, all very simple, and is the marketable part of Anatto—the dye itself. It is found under a variety of names. The Indians call it Roucou, which is the name now used for it in the French islands. A peculiarity of the dye is that a red or yellow color can be got from it. The plant is an extremely hardy one and may be said to grow on any soil not actually swampy, and if cultivated on the banks of streams in a gravelly soil, or on rich, flat, well-drained land, it will give large returns. It grows near the sea coast, and also at an elevation of 2,000 or more feet, and it likes a moist temperature, with plenty of rainfall."

MY "MUMS."

I must have at least one yellow chrysanthemum in my window. Nothing like these flowers to produce sunshine through gloomy November. They are rather "cranky" in an amateur's hands, but they'll grow for you, if you study their peculiarities. I pull the roots of the old ones apart and plant out each piece with roots attached in the spring. Keep soil loosened and well watered, and pinch off the tops. By August they are ready to pot. Take a cloudy day, but a sunny one will do, if you put them in a dark, cool place afterwards. Generally, they do not turn a leaf. After two or three days place the pots in the sun only, being careful to water plentifully, once or twice a week, using manure tea. Bring into the house and place in a room where there is no fire. They will keep in flower up to Thanksgiving. A "Mum," covered with yellow flowers, is a blessing to the neighborhood on gloomy November days. When through blooming cut the tops off and put down cellar. They will

take care of themselves all winter, and send up sprouts in the spring for the next season.—Green's Fruit Grower.

THE LONGFIELD APPLE FROM AN EASTERN STANDPOINT.

The judge of the apple and pear exhibits at a late New York State Fair, writing in the New York Farmer, calls attention to the Longfield apple exhibited by S. D. Willard, of Geneva, N. Y. It was not for competition, but rather to call the attention to its many advantages as a profitable market fruit. The apple was introduced to this country by the Department of Agriculture at Washington, as the writer best recollects some ten or twelve years ago. It has not received the attention its merits warrant. One reason for this is that its growth in the nursery is of a drooping tendency and it is an awkward one to propagate, but this tendency disappears when the trees are old enough for transplanting.

It is a very early bearer and is frequently found carrying apples when three years old in the nursery row. The apple is of the Fameuse type; specimens of wood showed 21 handsome specimens of the apple within the space of two feet on a single branch. Of course, the trained grower would not permit so many apples to grow in such a limited space. They were left for simply exhibition purposes. It is very productive, so that it requires severe thinning to produce the finest results.

It is above medium size and ripens about the middle of September, and keeps easily well into November. This type of apple fills a want that has never been thoroughly supplied.

It is sub-acid, flesh white, tender and juicy, of excellent quality either for dessert or cooking purposes. So far as known, it seems entirely exempt from leaf blight and scab, and it is a vigorous grower.

THE FAMEUSE APPLE IN MONTANA.

The Montana Fruit Grower says: "Where will you find an apple finer in appearance or better in quality than the Snow or Fameuse as grown in the Bitter Root Valley. Small, to be sure, but no one notices that after once tasting its delicious flavor and testing its tender, melting flesh. It is a regular annual bearer, of medium sized fruit, and does not overbear. The trees are not so hardy as Duchess or Wealthy, but will stand all but our exceptionally hard winters. The markets are not and will not be glutted with Snow or apples of like quality."

FALL TREATMENT OF THE ASPARAGUS BED.

R. M. Kellogg of Michigan advises leaving the asparagus tops standing during the winter to hold the snow and thus protect the bed from freezing and thawing.

Peter Henderson, in his book, "Gardening for Profit," says: "The fall treatment of Asparagus beds varies with the locality; in cold regions where, if left unprotected, the frost would penetrate below the roots, a covering of three or four inches of rough manure or leaves is necessary. Although a perfectly hardy plant, it will start earlier and with greater vigor in spring if the root has not been subjected to severe freezing."

He adds: "We believe the common practice of top-dressing asparagus beds with manure in the fall to be a very wasteful one in districts where it is not necessary to provide against severe freezing." Experiments convinced him that better results are obtained by fertilizing the beds in April.

Those Filipinos are splendid fighters in one way--they stand an awful lot of licking.

A SHORT COURSE PRIZE PAPER.

By Willard Abbott, Appleton, Wis.

[Following is a copy of the paper which took the prize offered by the Wisconsin Agriculturist in an examination of Short Course students at the College of Agriculture, University of Wisconsin. It shows the character of the work done during the first year of the Short Course.]

1. Why do not seeds germinate as well in puddled soil as in soil in good condition?

Seeds do not germinate as well in puddled soil as in soil in good condition because of lack of oxygen which is shut out by the puddling. Puddled soil while wet is not as warm as not puddled soil. It does not warm up as fast, and when warm and dry it bakes, thus making it difficult for the plumule to come to the surface and for the hypocotyl to grow down and send out roots.

2. Why may we plant the pea deeper than the bean?

We may plant the pea deeper than the bean because the hypocotyl of the pea does not push the cotyledons to the surface as does that of the bean. The cotyledons of the bean in coming through the soil must displace more soil than the plumule alone would, thus making it much more difficult to get to the surface.

3. Why does the clover crop enrich the land?

The clover crop enriches the land because it has on its roots a species of bacteria which are capable of fixing the free nitrogen of the air; that is, they take the nitrogen from the air and put it in such form as the plants may use. They not only furnish enough for the needs of the clover plant on which they live, but also leave a surplus in the soil which may be used by another crop.

4. What 3 elements of soil fertility are likely to be lacking?

The three elements of the soil most likely to be lacking are nitrogen, potash and phosphoric acid.

5. Can we keep our land rich by growing clover alone, or is it necessary to apply some other material?

Land cannot be kept rich by growing clover alone. Clover will furnish nitrogen but it is at the same time taking other constituents from the soil which it does not furnish, and would therefore cause a scarcity of these elements if they were not applied in some form.

6. Does cultivation of the surface soil tend to waste, or to save soil moisture? Why?

Cultivation of the surface soil tends to save soil moisture by forming a mulch of fine earth through which the moisture from below does not readily pass because of the lack of capillary action. This dry mulch is loose and the spaces between the soil grains are filled with air which tends to prevent water from coming through, as a dry cloth does not readily take water because of the air in it.

7. For what class of insects would you use the kerosene emulsion, those that eat the leaves, or those that suck the juices?

I would use the kerosene emulsion on that class of insects which suck the juices from plants.

8. What is the difference between a cross and a hybrid?

A cross is the result of one variety being fecundated by a different variety of the same species. A hybrid is the result of one species being fecundated by a different species of the same variety.

9. How can you tell if a variety of strawberry can bear fruit well alone?

If each flower has both the stamens and pistil or pistils it will be self-fertilizing and will bear fruit well alone. If one flower of the same plant has pistils and another stamens one will fertilize the other and it will also bear fruit well alone.

10. Which of these four parts of the flower are essential to seed formation? (Calyx, Corolla, Stamens, Pistils.)

The stamens and pistil or pistils are necessary to seed formation.

11. Is the Bordeaux used to destroy insects, or fungous parasites?

It is used for fungous diseases when used alone, but is often used for both by putting Paris green or other insecticides with it.

12. Is it best to plant pumpkin seeds flatwise, endwise or edgewise?

It is best to plant pumpkin seeds flatwise because it gives the hook like growth with which nature endowed them a better chance to do its work. This hook is for the purpose of removing the seed case. If the seed be planted edgewise or endwise the hook will often slip between the halves of the seed case and thus fail to do the work intended, and make it very difficult for the young plantlet to get to the surface of the ground.

13. What does chlorophyll do for the plant?

Chlorophyll is a green coloring matter found in the cells of plants and aids in the formation of plant food. It helps to change the materials taken in by the plants so that they may be used by the plant. It is only formed where there is sunlight.

14. Can fertilizing materials do the plant any good until they are dissolved in the soil water?

Fertilizing materials can do the plant no good until dissolved in the soil water because plants only take in substances in solution.

15. What do you mean by the "dew point"?

The dew point is that stage of the atmosphere when it commences to precipitate some of its moisture. Warm air will hold more moisture than cold air. When warm air is cooled it precipitates some of its moisture in the form of dew, rain, snow and hail, etc.

16. What is the best method for keeping the striped beetle from destroying cucumber vines?

The best method to keep the striped beetle from the cucumber vines is to cover the hills with a box covered on the top with fine wire netting. They should be covered as soon as they show through the ground and before the beetles have gotten on them. They should be left covered until the vines crowd the netting on the box.

17. What fertilizing materials do wood ashes contain?

Wood ashes contain principally potash and phosphoric acid.

18. Mention as many as you can of the crops that act like clover in enriching the land with nitrogen.

The following crops enrich the soil the same as clover: beans, peas, alfalfa.

19. Why does rotation of crops tend to keep up soil fertility?

Rotation of crops keeps up the soil fertility for this reason: All crops do not take out of the soil the same fertilizing constituents nor the same amount. By rotation we allow accumulation of those constituents which have been heavily drawn upon by one crop while another crop is growing which does not require so much of this element. Also by having clover or other legumes included in the rotation we enrich the soil with nitrogen.

20. What is the effect of too much nitrogen on plants?

Too much nitrogen causes a very rank growth of stalk and hinders seed or fruit formation.

The Atchison Globe says that one observing farmer accounts for the high price of eggs on the ground that more people are raising fancy poultry. He says that the new kinds of poultry are so highbred and lazy that they have to be lifted to their roosts at night, and they are too lazy to lay eggs. The old common kind, without feathered pants or pedigree, laid eggs early and late.

HOUSEHOLD SUGGESTIONS.

A HOT SAND BAG.

A bag of hot sand is better than a hot-water bag in many cases, and is cheap as well as soothing. Suppose you prepare two or three against the winter's need.

Procure your sand where you can, by wayside, lake shore or sea beach. Wash it in several waters,—when it is clean the water will look clear, as the sand settles; dry it perfectly dry in a hot oven. Make a bag (or bags) seven or eight inches wide and nine or ten inches long, of thick, strong flannel; fill the bag with the dry sand, fold the end over so the sand cannot work out and baste it securely.

When needed the bag can be heated in the oven then slipped into a clean case of cotton or linen. If wanted to retain the heat a long time it is best to pull out the basting thread in the end of the bag and pour the sand into a kettle or spider. When very hot return it to the bag, fold over the end and baste again. Good for tooth-ache, neuralgia, cold feet, etc.

SNOWBALLS.

This is an attractive dish for a child's party. Cream one-half cupful of butter, add one cupful of fine granulated sugar, beat well; mix two level teaspoonfuls of baking powder with two cups of flour, add alternately with one-half cupful of milk; beat the whites of four eggs very stiff and add lightly. Fill buttered cups half full and steam three-fourths of an hour, taking care to place a cloth under the cover of the steamer to absorb the moisture. Roll them in powdered sugar after removing them from the cups.

A CHERRY ROLY-POLY.

Open a can of stoned cherries and drain off all the juice. Sprinkle liberally with sugar, if not already sweetened. Make a rich biscuit crust as for shortcake. A good rule

for the crust is, two heaping cups of flour sifted with two teaspoonfuls of baking powder and a pinch of salt; rub into this two tablespoonfuls of butter and add sweet milk enough to make a dough that can be rolled. Roll into an oblong sheet a half inch thick; spread with butter and then with the cherries, moisten the edges, roll the pudding up and pinch the ends firmly together. Place onto a buttered pie-plate and steam an hour or more. Serve hot with a sauce made as follows: To one cup of the cherry juice add one-half cup of water; add sugar to taste. When it is boiling stir in a teaspoonful of cornstarch dissolved in a little cold water.

This pudding is good when baked instead of steamed. Bake about three-fourths of an hour.

REPORT ON NURSERY INSPECTION IN WISCONSIN, 1899.

To Professor W. A. Henry, Director,
Agricultural Experiment Station,
Madison, Wisconsin.

Sir:—Pursuant to instructions received from Prof. Goff, the following nurseries in the state of Wisconsin have been personally inspected by me to ascertain whether or not they were infested by San Jose scale (Aspidiotus perniciosus), or other dangerously-injurious insect, or plant disease.

1. At Janesville, Nursery of Mr. George J. Kellogg.

2. At Fort Atkinson, Nurseries of Mr. F. C. Edwards, Messrs. J. M. Edwards & Son, and Messrs. Coe & Converse.

3. At Sparta, those of Messrs. Z. K. Jewett & Co., Thayer Fruit Farms, and Messrs. Geo. Hanchett & Sons.

4. At Ripon, Nurseries of Mr. L. G. Kellogg (Prairie City Nursery), and Messrs. Kellogg & Runals (Green Lake Orchard & Nursery Co.)

5. At Sturgeon Bay, Messrs. Hatch & Bingham, and Evergreen Nursery Co.

6. At Wauwatosa, Hawk's Nursery Co. (Mr. T. J. Ferguson, Manager.)

In no case was San Jose scale nor any of its near relatives, nor any other dangerously-injurious insect or plant disease found to be present in these nurseries, and it may be said with safety that they are fully entitled to a certificate showing their stock for trade the coming year, to be in apparently good, healthy condition so far as those ailments are concerned which come within the scope of the inspector's work.

Before entering into details of the work of inspection it may be well to consider a few general facts regarding the nurseries inspected.

The past winter was one of the most severe ever experienced in Wisconsin, and dealt a heavy blow to those who had planted young apple trees, either in the nursery or in the orchard. In some sections the cold was partially counter-balanced by a covering of snow. This was especially true in the more northern section of the region inspected.

At Janesville and Fort Atkinson the fall of snow had not been sufficient to protect the roots and severe loss followed from "winter-killing,"–the roots being frozen. Where this trouble prevails the whole tree will die early in the summer, though it may leaf out in the spring. The nurserymen at these points lost practically all of their apple stock and are now planting anew.

At the other places, the fall of snow had been sufficient to protect the roots and comparatively few dead trees were to be seen in the nurseries. Here, however, a new difficulty arises, as it seems that the cold in these sections must have been more intense. Although the roots escaped, the twigs are sometimes found to be dead,—the trouble commonly known as "freezing-back." It will thus be seen that although the sections with snow endured the winter much better than those without, they did not entirely escape its damaging effects.

The present season has been a good one for growing nursery stock. Rain was more abundant than usual during the spring and early summer, giving the plants a good growth. This is especially fortunate for the nurserymen who are now planting out a new stock of apples, as they have lost very few trees by drought. This comparative abundance of rain (which was especially noticeable in the spring) also had its disadvantages in that it started a large crop of weeds. In case of stock planted on low ground it had been found difficult to cultivate enough to keep the weeds within proper bounds. It is gratifying to note, however, that by most of the nurserymen, the stock had evidently been amply cultivated.

Tree fruits are hardly a commercial export of Wisconsin at present. Plums, as well as apples, appear to be rather difficult to preserve through the rigorous winters, while not a peach tree was noticed during the inspection, and pears are almost equally scarce. As a result of this, the stock grown by the nurserymen of Wisconsin consists mostly of strawberries, raspberries, currants and gooseberries, shade and ornamental trees, fruit trees, and blackberries, the order of importance being nearly as here named.

There are certain insects and plant diseases which are ordinarily of minor importance, which are to be found wherever their host-plants grow. No mention is made of these in the more detailed discussion of the inspection work which follows, as it is obviously needless to mention matters which are entirely familiar to all. The aim has been to call attention to those insects which often prove injurious, or to those whose appearance in numbers is in any way unusual, and in each case these phases of the question will be discussed. Brief remarks are usually given, showing the nature of the work which the nursery is doing.

DETAILS OF NURSERY INSPECTION.

(The following is written from notes as taken in the

field, and the nurseries are given in the order in which they were inspected.)

Mr. Geo. J. Kellogg, Janesville, inspected Aug. 29, '99.

General nursery stock, giving particular attention to small fruits. Apples were nearly all winter-killed and only a few of those which survived in good condition will be sold. Others will soon be taken up and burned. Budded plums were badly winter-killed, but those on their own roots are doing fairly well.

Mr. F. C. Edwards, Ft. Atkinson, inspected Aug. 30, '99.

General nursery stock, especially small fruits. Lost all apples and was obliged to set new last spring, hence will have no home-grown to sell for at least two more years yet.

J. M. Edwards & Son, Fort Atkinson, inspected Aug. 31, 1899.

General nursery stock. Apples were nearly all winter-killed. Plowed up about 17,000 trees last spring. A young orchard which he had planted for fruit was also killed. Set out 10,000 apple trees last spring, and these are doing well.

Coe & Converse, Fort Atkinson, inspected Aug. 31 and Sept. 1, 1899.

General stock and gives considerable attention to apples as well. Lost about 25,000 apple trees by winter-killing last winter. This is the heaviest loss reported among nurserymen.

Jewett & Co., Sparta, inspected Sept. 2, 1899.

General nursery stock, giving special attention to apples. Snow protected trees well, but some show the results of freezing-back.

Thayer Fruit Farms, Mr. John L. Herbst, Manager, Sparta, inspected Sept. 4, 1899.

Grows only small fruits. Does not raise or handle trees at all. Four and one-half acres of gooseberries died early in the spring and Mr. Herbst attributes it to the severity of

the winter, though there is no definite proof that this was the cause.

George Hanchett & Son, Sparta, inspected Sept. 4, '99.

Raises only small fruits and does not grow trees at all. Has a good many acres in strawberries but will only take plants from a small strip of the field.

L. G. Kellogg, Ripon (Prairie City Nursery), inspected Sept. 6, 1899.

Small fruits only at Ripon, and no trees grown at this place. All fruit trees are grown at the Green Lake Orchard Nursery Co. (See next ahead.)

Green Lake Orchard Nursery Co., Kellogg & Runals,* Ripon, inspected Sept. 6, 1899.

Only apple trees are grown at present at this place.

*This is the same Mr. Kellogg as the one of the preceding nursery, but the one at Ripon is his private property, while the Green Lake nursery is owned by him and his partner, Mr. Runals, and hence the two nurseries are essentially separate.

Hatch & Bingham, Sturgeon Bay, inspected Sept. 8, '99.

Berries and fruits. Plum trees planted in his orchard seemed to suffer from the cold. Snow protected apples. Some twigs frozen back.

Evergreen Nursery Co., Sturgeon Bay, inspected Sept. 9, 1899.

Devotes attention entirely to evergreens and ornamental stock. Has stock in small beds and at various places, so that it is not possible to form any definite idea as to the amount in nursery stock. "Damping-off" is the worst trouble with which they have to contend.

T. J. Ferguson (Hawk's Nursery Co.), Wauwatosa, inspected Sept. 12, 1899.

Only started in the nursery business last spring and most of his stock was planted out at that time. At present his stock consists only of shade and ornamental trees. Has given no attention to fruit trees, as yet.

[In addition to these, the nurseries of W. B. Davis of Janesville, F. K. Phoenix & Son of Delavan, A. Clark Tuttle of Baraboo and Henry Lake Sons Co., of Black River Falls, were inspected by Prof. Goff later in the season. The first of these is devoted wholly to small fruits; the second is devoted largely to shade and ornamental trees and shrubbery.

Fruit trees were largely destroyed by the winter at Delavan. The third is a small nursery, and includes mostly apple trees. This nursery, for some reason not easy to explain, suffered comparatively little from the past disastrous winter. The fourth grows apple trees rather extensively, and also small fruits and some ornamental stock. Apple trees were killed back some in the last year's growth, but the stock, for the most part, passed the winter in good condition.]

METHOD OF INSPECTION.

In nursery inspection, those ailments which cause the greatest alarm, and on account of which the inspection is principally conducted, must receive first attention. Hence, as most of the state laws aim especially at the San Jose scale (Aspidiotus perniciosus, Comst'k) the great object in nursery inspection is to determine if this pest is present in the nurseries, and also to make note upon any other dangerously-injurious insect or plant disease. It is not intended to give all other pests a slighting notice at all, for they must also be watched, but the San Jose scale calls for the most close attention among the insects,—just as peach "yellows" commands attention of peach growers where this disease is prevalent. Wisconsin has yet cause to congratulate herself upon her apparent freedom from the San Jose scale. It is not known to occur within her borders at the present writing.

For these reasons the nurseries were inspected with the San Jose scale as the principal object of the search, and it

may be interesting to some to know the method which is commonly used.

It is obvious that it is not practicable to examine each individual plant to ascertain its condition and it is only possible to examine certain plants in each section of the block. Thus, if a certain nursery row of apple trees is to be examined, every tree might at least be glanced at to ascertain that it is not in seriously unhealthy condition, but about one tree in every twenty or thirty should receive a somewhat closer inspection, so that if the scale is present in any section of the nursery, it will probably be found. In any case, every tree which shows signs of being unhealthy should be closely examined, and when possible, the cause of the weakness, whether it be scale or not, should be determined.

As the San Jose scale is only known to occur upon very few of the ornamental plants and upon none of the small fruits, except currants and gooseberries, inspection is rendered comparatively easy when only small fruits, ornamentals, etc., are grown. Evergreens also have never been known to be attacked by this species of scale.

Strawberries are exceedingly easy to inspect, for, standing at one place, a person may see every plant within a radius of 25 or 30 feet. With fruit trees this would be impossible. Fifteen acres of strawberries could be as thoroughly inspected in an hour as a single acre of apple trees could be in the same time. For these reasons it would hardly seem that the same stress should be laid upon the inspection of an acre of berries as upon an acre of fruit trees. Small fruits, moreover, are usually less injured by other insects than are fruit trees.

OBSERVATIONS ON BLIGHTS, ETC.

As before stated, certain blights are almost universally present, and wherever raspberries and blackberries were grown, these were most prevalent. The raspberry anthracnose was found in every lot examined. Its presence is indicated by discolored spots on the stems, which are slightly

indented in the bark. These spots are usually most noticeable near the ground, and the black varieties,—the Gregg especially,—seem to be most subject to its attacks. No especially serious outbreak of this disease was noticed.

SEPTORIA.—In many cases the leaves were observed to be dropping prematurely from raspberry and blackberry vines and Mr. Hatch (who is well informed in these matters) says that it is due to a species of Septoria. The presence of this disease is evidenced by small, yellowish speckles, with a dark brown center, on the leaves. As the disease advances the whole leaf turns yellowish and finally drops off. No alarming damage was noticed from this.

LEAF MOULD.—While at Sparta Mr. Fisher of that place called attention to raspberry vines in his fields, which were affected by a disease which is here designated as Leaf Mould. The terminal shoots had evidently been killed, but new shoots had pushed out afterwards. The leaves, six or eight inches from the end of the shoot, were dead and of pitchy blackness. The terminal shoots, which had pushed out after the attack, were infected by a fungus which was plainly evident on the under side of the leaves. The fungus was evidently then in its fruiting stage, and Mr. Fisher was advised to send specimens to the proper authorities for identification. Later on the same trouble was noted in vines belonging to Messrs. Hanchett & Sons, which they were raising for the fruit and from which no plants will be sold. The suggestion is offered that unless the disease lessens materially, the parties so troubled be urged to spray the vines or to destroy them, as the disease will evidently become much more serious if it is not combated quickly.

"DAMPING-OFF."—This is an ailment which has caused the growers of young evergreens much trouble. Its ravages are confined, it seems, to the yearlings, and the loss is often quite serious. It was especially noted in the beds of the Evergreen Nursery Co., at Sturgeon Bay, but it kills

the plant while it is yet young and is not an ailment which is carried with the plant and which would spread as other dangerous diseases do. Hence the fact that plants are lost by "damping-off" is not an argument to the effect that the stock is poor. On the contrary, those plants which were weaker in the beginning are the ones which would naturally succumb to the disease. Hence its presence acts more as an insurance to the purchaser than otherwise, even though it is an unwelcome guest to the grower of the yearlings. It never troubles older trees.

The above is the main part of the report submitted by Franklin Sherman, Jr., Acting Inspector of Nurseries. The report closed with "Observations on Insects." Below are descriptions of some of these insects.

APHIS MALI.—This is the common green plant-louse which is so often injurious on the leaves and younger twigs of apples early in the season. It is apt to become less abundant later on but the fact that it has been present is usually betrayed by the presence of a blackish substance which is really a fungus which grows upon a sweetish excretion of the plant-louse. Few insects are so dependent upon special seasons for rapid reproduction as are plant-lice. In some seasons they are extremely abundant and injurious, while another year they may be scarcely noticeable.

DATANA MINISTRA.—This insect is also known as the yellow-necked apple-tree worm. These caterpillars feed in colonies, and infest oak and hickory trees as well as apple. They assume a very threatening appearance when disturbed, posing with the head and tail thrown upward from the branch to which they cling by means of the large, fleshy prolegs on the abdomen. When full grown the larva descends into the ground and passes through its transformation to the adult moth. The adult is of a buff or brown col-

or, with a dark velvety-colored head and shoulders. The wings expand nearly two inches, and the fore-wings are banded with a still darker brown.

MELANOPLUS FEMUR-RUBRUM.—This is the very common grasshopper about an inch long, which is so very numerous all over the state. Its principal food is grass, grains, clover, etc., but it was observed to feed with considerable voracity upon apple leaves in the Green Lake Orchard Nursery near Ripon. In justice to the grasshopper be it said that it is rarely a pest upon fruit trees. This little creature is so very familiar to every one that no description is needed.

APHIS FORBESI.—This is one of the worst pests of the strawberry, though it is unfamiliar to most of the growers of that fruit. It is a very small greenish-black plant-louse that attacks the roots of the strawberry, and where it is once thoroughly established, usually does considerable damage. The presence of the insect is indicated by the vines wilting as if for want of water, and in such cases wilted (not dead) plants should be pulled and the roots examined. If this pest is found to be present, the most stringent measures are advisable to prevent its spread. In the states of Maryland, New Jersey and Delaware, where strawberry growing has long been one of the leading industries, it is not an exaggeration to say that hundreds of acres of vines have been rendered valueless on account of its attacks. This insect was found in one old bed of strawberries. No plants will be sold from this bed, and assurance has been given that it will be destroyed. It will not be advisable to plant strawberries in the same ground again for two seasons to come. Special stress has been laid upon the presence of this insect for the reason that strawberry growing is a rising industry in Wisconsin and has not yet reached its best and fullest development, hence it is desirable to catch the insect invaders in time.

LACHNOSTERNA.—Every farmer knows the White Grub and especially is it known to the grower of strawberries, for

it causes the loss of many plants. To name the nurseries in which this insect was found would be to name all of those in which strawberries are grown. This insect does not always remain a grub, however, but finally changes to one of the brown beetles, about three-fourths of an inch long, which annoy us by buzzing round our lamps during the warm evenings of June.

DEILEPHILA LINEATA.—This is one of the most handsome moths and is often attracted to bright lights. It has fore-wings of a buff or light brownish color marked with yellow along the veins of the wings, and with a yellow stripe from the base to the apex of the wing. The hind wings are bordered with black, while the middle areas are of a beautiful reddish pink. The wings expand about two and three fourths or three inches.

COLOPHA ULMICOLA.—This is another of the plant-lice, but it lives within a gall which the colonies form on the leaves of the elm. These galls are often known as cockscomb galls.

GRAPTA INTERROGATIONIS.—The adult of this insect is a very pretty, active butterfly and the name "interrogationis" was suggested by the presence of a metallic-like mark on the underside of the wings which bears a close resemblance to an interrogation mark. Another species is known as GRAPTA COMMA for a similar reason. The caterpillars of the former species were noticed feeding upon the leaves of elm at several places. The caterpillar is fairly well protected by a sparse covering of stout spines, and when feeding usually clings to the under side of the leaf so as to be hidden from its enemies.

There's many a slip 'twixt the cup and the lip,
  There's many a slip to be slipped on.
And here's to "Columbia," gallant young ship,
  The ship 'twixt the cup and the Lipton.

—Harper's Bazar.

WINTER KILLING OF FRUIT TREES.

William Toole.

The injury to fruit trees in Sauk County from last winter's severe freezing was not extensive enough to warrant a cutting down of our list of hardy varieties and probably there will be as many young trees planted out next spring, if not more, than any previous season. Yet there was enough of injury by root killing to prompt us to carefully compare experiences with the hope of being able to prevent in future the same amount of loss from like causes.

We were surprised to note so little injury to the tops or bodies of fruit trees, even plum trees of the foreign class coming through all right when on hardy roots, while native varieties, Hawkeye and Pottawatamie, which had been grafted on Marianna stocks were killed outright, in our own orchard. No more Marianna roots for us.

We have been led to think that we may be safely provided with hardy trunks to our apple trees if we use Virginia crab for stock; but what about the roots? Does the Virginia crab throw out roots readily from the scion? No one hereabouts seems to have tried the Virginia crab to work on.

There seems to be quite a difference in the ability of different varieties to provide their own roots after using the short root and long scion. A neighbor complained that the Wealthy in his orchard is weak in the root. A. Clark Tuttle when showing his long keeping Russian apple at our County Fair said he had grafted some of them on young Hibernal trees to have them soon in bearing, but that the Hibernals had failed to make their own roots and so went with the tender varieties. We are told to plant only seeds of hardy varieties but we are no more certain of the roots than we are of the tops of seedlings of hardy varieties. Of course the chances are in their favor but we are hunting for a certainty. Perhaps we may adopt Professor Hansen's

suggestion to plant seeds of the Pyrus bacatta—if we can get them. And may we not, for some kinds of fruit trees, make good use of the plan of grafting with long scion and short root to promote rooting of the scion, as explained by Mr. Guilford of Iowa at our last winter meeting of the State Horticultural Society? Mr. Guilford's plan is to use a long scion and short root and insert the top of the root into the side of the scion so that the bottom of the scion reaches as far down when planted as the bottom of the root and he claims that this plan will cause kinds of trees to make their own roots which would not under any other circumstances.

Baraboo, Wis.

THE COMING CHRYSANTHEMUM SHOW AT OMRO.

We are in receipt of a dainty and artistic little pamphlet, bound in lavender and gold,—the Premium List of the Omro Horticultural Society's Chrysanthemum Show and Fair. The dates are Nov. 22, 23, 24, and the place Masonic Hall, Omro. All entries must be made on or before Nov. 22 and all articles for exhibition must be in place the first day of the Fair.

Besides over thirty premiums on Chrysanthemums, premiums are offered on geraniums, coleus, begonias, roses, ferns, calla lilies, cannas, fuchsias, carnations, and cacti. Also on apples, best display of not less than ten varieties, best five varieties, four varieties of fall apples, four varieties of winter apples, plate of largest apples and best plate of each leading variety. The premium list further enumerates pears, grapes, vegetables of various kinds and field products. There is also a department of needlework and decorative art.

Entries of exhibits can be made by letter addressed to Mrs. Joseph Treleven, Secretary.

When Omro sets out to have a Fair it has a good one. If wishes were shekels we should be on hand to see it.

DEATH OF MINNESOTA'S VETERAN HORTICULTURIST, PETER M. GIDEON.

Mr. Peter M. Gideon, the originator of the Wealthy apple, died at his home in Excelsior, Minn., Oct. 27, 1899. Mr. Gideon was born in Ohio, Feb. 9, 1818. After moving to Minnesota he patiently persisted in planting apple trees year by year, but one cold winter every tree was killed. To use his own pathetic words: "I had left, out of doors, one cow and less than twenty chickens. In doors was a wife and a lot of little ones to feed and clothe."

The next year he planted seeds of the cherry crab and one of those seedlings when grown to fruiting age bore large and beautiful red apples. Mr. Gideon named the tree "Wealthy" in honor of his wife. The Wealthy has proved hardy as well as beautiful, and is an inestimable boom to the Northwest.

Mr. Gideon did not belong to Minnesota alone. The entire Northwest claims him as its friend and benefactor and will revere his memory.

ONE THOUSAND DOLLAR PREMIUM.

The Minnesota State Horticultural Society offers a thousand dollar premium for a SEEDLING APPLE TREE,—"as hardy and prolific as the Duchess," with fruit equal to the Wealthy in size, quality and appearance, and that will keep as well as the Malinda." Open to all. For further particulars address the secretary, A. W. Latham, 207 Kasota Block, Minneapolis, Minn.

The only way to get a hen out of a garden is to go slow but shoo'er.—Credit Lost.

APPLES IN MISSOURI.

From the Report of Secretary Goodman.

Cow peas and clover are the crops most generally grown in the older orchards. Young ones are usually well cultivated.

Very little spraying has been done, but where practiced good results have invariably been reported.

The marketable apples will be about one-half of the crop on account of injury by scab and codling moth. The average for the state is about one-fourth of a full crop.

YANKEE INGENUITY.

A writer in the New York Independent says: In the manufacture of cane sugar probably the most important advance of recent years is due to an American invention. The sugary juice is extracted from the cane by passing the stems between heavy steel rollers, and the crushed refuse, known as bagasse, is used for fuel in the engines that run the sugar-mill machinery. Sugar-cane producers do not follow the so-called diffusion method of removing the sugar—essentially a leaching process—so generally adopted for the sugar beet, because the bagasse would be full of water and could not be used for fuel. But this refuse as it comes from the rollers is still moist, and before the invention of which I will speak it was the practice to cart it away to an adjacent field, dry it in the sun and haul it back to the engines. This necessitated the continued and expensive use of carts, mules and men. A system has now been devised by which the bagasse is taken directly from the rollers on a conveyor, or narrow moving platform, and dumped into a specially constructed fire-box, which is of large dimensions, furnished with an air blast, and so arranged that the bagasse

becomes available for fuel at once, drying as it burns. By this system a large mill dispenses with two hundred men, their mules, wagons and tools, and substitutes this simple machinery with two men to look after it. The process, now in use on the large Cuban sugar estates, has made an important reduction in the cost of manufacturing sugar. The high grade of efficiency of the sugar mills in the Hawaiian Islands and in Cuba is generally due to American Industry and enterprise, and had its beginning on the sugar plantations of Louisiana.

EDITORIAL NOTES.

Get your hearts in tune for Thanksgiving.

The Short Course term in the College of Agriculture, University of Wisconsin, will open Dec. 5.

Levi Palmer, class of '99, who spent the summer at West Alexander, Pennsylvania, has finished the work he went there to do and returned to his home in Verona, Wis. Mr. Palmer writes that he "made a record" on Bismark apple trees, 50 in one plat without a loss. The 1300 trees he set out last spring are doing nicely, also other plants such as blackberries and ornamental shrubs.

D. B. Snow, class of '99, is in Illinois.

Prof. Goff, of the University of Wisconsin, is the delegate of our State Horticultural Society to the Northern Illinois Society which will hold its annual meeting in Freeport, Nov. 28 and 29.

Secretary A. J. Philips will represent our society at the annual meeting of the Northeast Iowa Horticultural Society, to be held at Cresco, Iowa, Nov. 26, 27 and 28.

Mr. Irving C. Smith, of Green Bay, is our delegate to the Minnesota meeting at Minneapolis, Dec. 5, 6, 7, 8.

The 42d annual meeting of the Missouri State Horticultural Society will be held at Princeton, Missouri, Dec. 5, 6 and 7.

Hotel Vendome in Minneapolis will be the headquarters for the Minnesota horticulturists as heretofore. Secretary Latham invites us all to pack our grip for a four days' stay, put up with them at the Vendome and have a good time. Hotel rates, 50 cents to $1.

Admiral Dewey is married, but this is not the first time. In 1867 he married Miss Susan Goodwin, daughter of the Governor of New Hampshire. She died in 1872, leaving a baby boy five days old, the Admiral's only child, George Goodwin Dewey.

Hon. Charles Hirschinger will soon move into his handsome new house in the city of Baraboo. He will retain his nursery, however, and continue his nursery business, having his packing grounds in the city, although customers will also be waited upon at the nursery.

ERRATUM: We are chagrined at our failure to notice the slip of the pen whereby we said "Switzer" instead of "Sinap" in October Editorial Notes. The Switzer is NOT a late keeper. It is an early fall apple. The long-keeping Russian which Mr. A. Clark Tuttle showed at the Sauk County Fair was the SINAP.

We like such compliments as a lady recently gave us: "I am always glad when the Horticulturist comes, it is such a friendly little magazine; it seems like getting a letter from home."

As we go to press we learn of the death of Major John A. Logan, the only son of the late Gen. John A. Logan, of Illinois. He was killed while leading a charge at San Jacinto on the island of Luzon. His mother was overcome for awhile, then rallied and drove to the White House to implore President McKinley that his body might be brought

home for burial beside his father. Besides his mother, Major Logan leaves a wife and three children.

It was through the courtesy of Secretary Latham of the Minnesota Horticultural Society that we were enabled last month to show our readers a picture of the Fruit Exhibit at the Minnesota State Fair.

At the recent meeting of the American Pomological Society in Philadelphia Mr. J. W. Kerr of Maryland read a paper on the "Evils of Prevailing Methods in Marketing." In the discussion which followed, J. H. Hale of Connecticut took the ground that people who grow fruit in small quantities must patronize commission men. He said, in substance, "When you have found a good commission man send him good goods and stay with him. If your goods are handled for several years by the same man they will get a reputation and it is this reputation which will make sales for you."

It seems that old-fashioned "dried apples" are being put to a new use. A harmless beverage is made from them in France, which the common people drink as a substitute for wine. The Farmers' Review quotes Judge Tourgee, our consul at Bordeaux, as saying: "The dried apples used in its manufacture are the lowest grade of windfalls—sliced, including skins, cores and 'inhabitants,' without distinction as to quality or variety, except as follows:

"(1) The thin slices must be well dried and securely packed, so as not to color or heat upon the voyage. The slices must be white and have a spicy odor or they will not sell. (2) Decayed or over-ripe fruit should not be used, as it gives too dark a color to the product and will not bring a price sufficient to pay the cost of shipment."

In 1898 50,000,000 gallons of this beverage were used in France.

This promises a good foreign market for American dried apples.

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