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JULY, 1892.

The
Canadian

RORTICULTURIST.

A JOURNAL DEVOTED TO FRUITS, FLOWERS, AND FORESTRY

EDITED BY L. WOOLVERTON, M.A.
 PUBLISHED BY

* THE FRUIT GROWERS ASSOCIATION OF ONTARIO *

Published at Toronto • Office Address—Grimsby, Ont. *

Price? \$1.00 per annum (including Membership, Annual Report and Share in Plant Distribution).

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June 10

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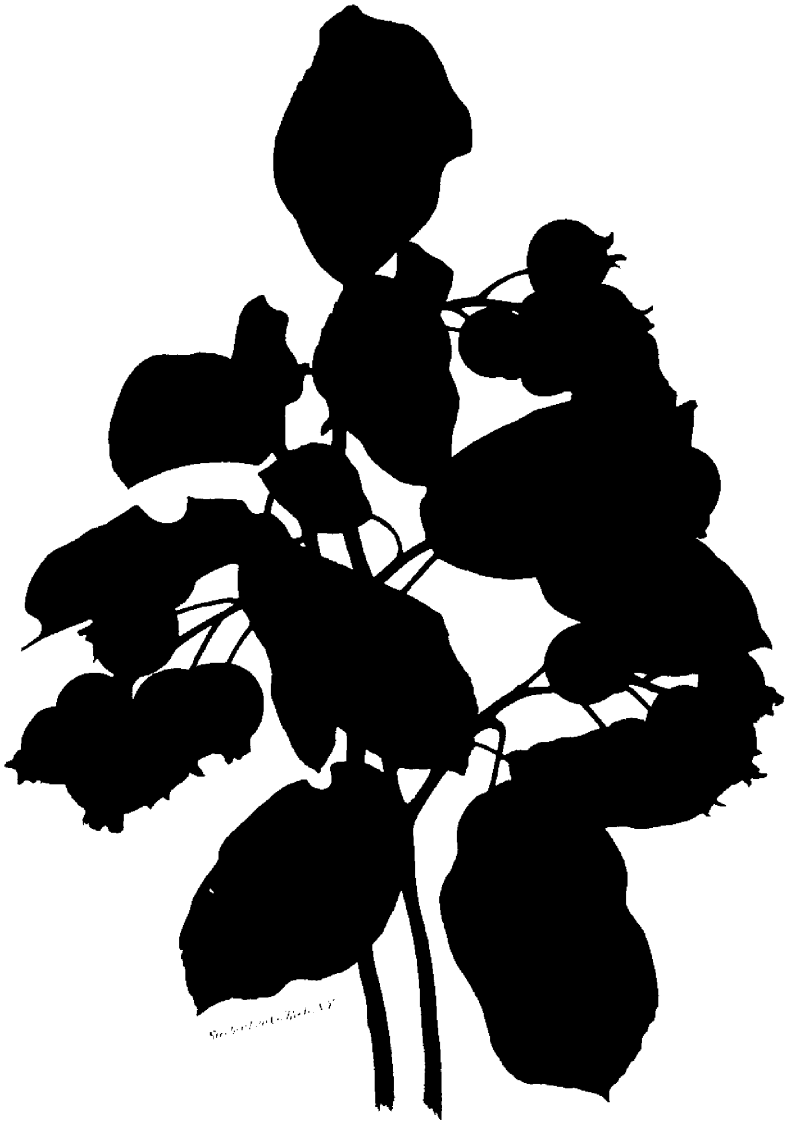
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July 5



DWARF JUNEBERRY.

THE
Canadian Horticulturist.

VOL. XV.

1892.

No. 7.



DWARF JUNE BERRY.

AMELANCHIER CANADENSIS.



AMONG the new fruits which seem to be possessed of a certain degree of merit, is the Juneberry, which is indigenous to a large portion of North America. There are a number of varieties of these, ranging from about the size of a currant bush to a handsome ornamental tree. The latter form may be found growing alongside the old forty-mile creek at Grimsby, and it is handsome enough to grace a lawn, especially when in bloom. The dwarf varieties, no doubt, were originally introduced from the Rocky Mountains. These are more productive and fruitful than the larger growing ones.

The fruit of the Juneberry is delicious, and is very desirable for pies, jellies, jams and sauces. The Indians have long known its excellencies, and use it, both dry and fresh, freely. It is a wonder that it has not been more frequently mentioned in papers descriptive of our native fruits.

The chief difficulty in raising this fruit is in combatting with its numerous insect enemies, and, in populous districts, perhaps still more serious enemies are the boys and birds, all of whom are extremely fond of it. As the form most likely to be grown in the garden is the dwarf variety, which is the subject of this sketch, it will be an easy thing to protect it from the birds by the use of leno, but this would be impracticable if it were grown in large quantities for market. However, it has recently been noticed that, where it is grown by the acre, the quantity of fruit taken by the birds is scarcely noticeable.

In season, this berry comes very opportune, just after that of the currant and gooseberry.

Prof. H. E. VanDeman, United States Pomologist, says of it: "I am not aware that any attempt has been made to improve, by cultivation, the tree-like form of the species, but in the case of the dwarf forms some advance has been made by way of subjecting them to garden culture, and with quite satisfactory results. There is really much in this fruit to encourage the experimenter in the work of domesticating and improving the species."

Mr. Greenlees says in the *Orchard and Garden*: "More of these berries in the market would be found quite profitable, if brought in early before whortle berries. Those who have had a taste of the wild service berry and have liked it, eagerly pounce upon the stray quarts and pints of this "upper ten" relative, and are glad to pay a high price for it. The culture of the Juneberry is very simple, similar to that of the currant, which it resembles in size and habit. It is increased from rooted suckers, and I have never seen it infested by insects or disease. Very tiny bushes of it bear heavy crops of the pretty fruit, of a dark, reddish purple color. The flowers are also pretty and showy, larger than those of the wild Amalanchier, whose white, graceful, tassel-like flowers are so conspicuously beautiful in spring. We cannot have too many kinds of fine berries even in June."

A special variety of dwarf Juneberry, called "Success," commended by Prof. VanDeman has been propagated for sale by J. T. Lovett, of New Jersey. Whether it is really of value for market, or will simply be confined to garden culture for home uses, is still an open question. No one in Ontario, so far as we know, has made any attempt to grow them for market purposes. The fact, however, that a variety, commonly known as the Saskatoon berry, grows freely in the North-West, encourages us to expect that this Juneberry may be a useful fruit to grow in that country.

PICKING, AND PAYING BERRY PICKERS.—I would rather pay \$250 to \$400 per acre for land near a good market, than \$25 for land of equal fertility 20 miles distant. I can save annually \$150 to \$175 per acre in express charges, commissions and lost berry crates. Engage your pickers early and pay good ones 2c. per qt. the season through; others who are needed only in a rush, 1½c. I give my pickers a stand containing six quart boxes. When filled, this is taken to the foreman in the fruit shed, who gives a tin check stamped with my initials for it. At night these checks are called in and each picker credited on a berry card his day's picking. Saturday night all the pickers are paid off at the rate of 1½c. per qt. the other half cent being held as a hostage until the season is over. Crate as soon as possible and place in a cool cellar. Avoid commission men, and sell direct to merchants who do a retail trade.—*Farm and Home*.

PEACH LEAF CURL.

(EXOASCUS DEFORMANS.)

SIR,—Is there any remedy for the peach leaf curl? Already, May 26th, the young leaves are showing its presence. The prospect of a good peach crop is so favorable, that I would like to try any means of stopping this curl.

W. SMITH, *Winona, Ont.*



UNFORTUNATELY we know of no remedy for this evil, at least none that can be applied so late in the season as this. Prof. Scribner suggests spraying the trees before the buds begin to swell, with a strong solution, 30 or 40 per cent. of sulphate of iron, as a preventative. The curl, though usually considered a minor evil, has, of late years, done us much mischief, taking off both fruit and leaves before maturity. Sometimes the curl kills the young shoots.

Mr. E. Ainslie, of Beaconsfield, wrote for this journal in May, 1888, that he had succeeded in destroying this fungus by burning old leather on some coals in a tin pail, underneath the trees. The pail can be levated through the tree by the pitch-fork.

Mr. Briggs, of Massachusetts, also speaks of rubber fumes as being an effective insecticide. He states that he was successful in driving away the rosebug by the use of fumes of burning rubber. It is barely possible that good may result in the use of this remedy, but it has not yet been established. The swollen, powdery appearance of the leaves, affected with the curl, needs no description. Fig. 46 shows a cross section of a healthy leaf, from the upper to the under surface, *a* representing the upper and *b* the lower surface. Of course it is only by the use of a magnifying glass that any such distinction of cells, as these here shown, can be discerned. The fungus begins on the leaf as a small swelling on the tissue upper half of the leaf, and spreads until it affects the whole surface, and consequently becomes nearly double in width and greatly increased in thickness. As a result the leaf finally shrivels and drops. The tree is thereby so weakened as to lose its fruit as well as its foliage.

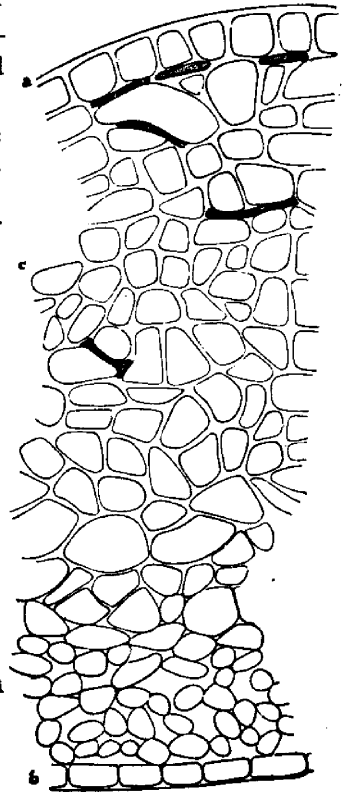


FIG. 46.

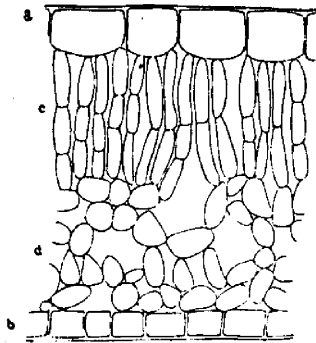


FIG. 47.

Fig. 47 shows a vertical section of a leaf thus affected, swollen out of the normal thickness ; a, as above, representing the upper, and b the under surface. The cellular structure of the under section is very little changed, but the change in the upper portion is easily seen. The walls between each of the cells above have become much thickened, and the long narrow cells much swollen and divided. The result will be that the leaf will have a tendency to curl underward. The dark lines in these cells represent the vegetative portion of the fungus, which penetrates among these cells. This

vegetative portion throws out numerous branches, as shown in Fig. 48. These enlarge and form asci or fruiting portions, containing six or seven spores each, which are the means of spreading the disease. Sometimes a somewhat similar effect upon the peach leaves is produced by the peach tree aphid, when it is very abundant. This louse, by sucking the juice from the under side of the leaves, cause hollows with corresponding reddish swellings above, and the leaves, in consequence, are made to curl. These may be destroyed by a decoction of tobacco and water, or by the kerosene emulsion.

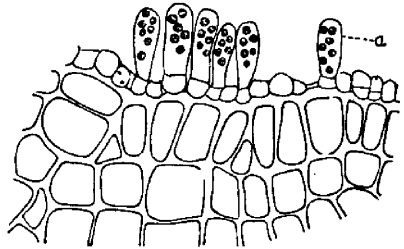
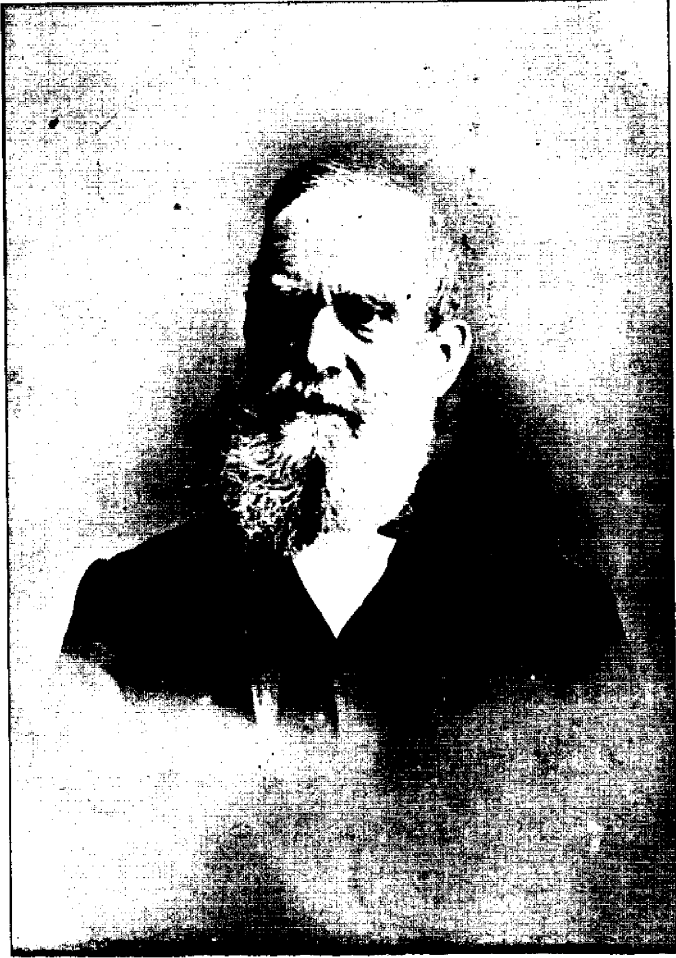


FIG. 48.

A MODEL EXPERIMENT STATION.

ONE of the most novel, instructive and elaborate exhibits, and one that will undoubtedly attract the attention of every scientific person and scholar interested in any phase of agricultural life, will be that made by the Association of American Agricultural Colleges and Experiment Stations. This exhibit will occupy nearly 8,000 square feet of space, and will be located in the southwest corner of the building, on the first floor. It will represent the entire work of a model Agricultural Experiment Station, covering entirely the field of experiment and research in crops, botany, horticulture, entomology, feeding stuffs, animal nutrition, dairy solids, milk testings and veterinary science, and will include an elaborate and complete botanical, biological and chemical laboratory.—*Selected.*

A GOOD PRACTICE commends itself to the orchardist in the cultivation of hoed crops between trees, not alone in the extra air and sunlight given to the soil, but in the moisture saved for tree's use. Mulching is a great thing for trees, and next to mulching is surface stirring.—*Farm and Home.*



THOMAS BEALL, Esq.

SOME PROMINENT CANADIAN HORTICULTURISTS.—XVI.

THOMAS BEALL, ESQ.



IN continuing the sketches of those gentlemen who are prominent in Canadian horticulture, we are enabled to give in this number a brief notice of the life and work of the Director for the Fifth Division, to which position he was elected in 1878, and has ably filled ever since.

Thomas Beall was born at St. Blazey Gate, Cornwall, England, in May, 1828. In 1840 he came with his parents to Canada, who settled on an uncleared farm near the centre of the Township of Whitby, Ontario County. Here our Director, then a lad of twelve years, commenced his experiments in fruit culture, which he may be said to have continued up to the present. His neighbors living on the front assured him that not even the apple would succeed so far north of Lake Ontario; but, nothing daunted, he resolved to try. In 1860 he removed from Whitby to Lindsay, and at once commenced experimenting in horticulture, and has now demonstrated that not only apples, but that some varieties of all of the staple fruits, except peaches, could be successfully grown. He has planted nearly a hundred varieties of apple, and forty of pear. Of the apple, some sixty kinds are succeeding well, though of the pear only four sorts have yet proved to be a success.

Nor did Mr. Beall confine his experiments to fruits alone, but proved that it was quite within the range of possibility to grow many of the best varieties of flowering shrubs and plants, including many of our most choice hybrid perpetual roses. Of the latter there are now growing in his grounds, in perfect health, some thirty varieties, the most of which were planted a quarter of a century ago. He was also the first to plant the black walnut in that part of the country. In 1880 he read before our Fruit Growers' Association his first paper on the suitability of the black walnut for cultivation in Central Ontario. This essay was widely copied by both urban and rural newspapers, and doubtless many thousands of that valuable timber tree are now growing that would never have been planted but for the philanthropic spirit that actuated Mr. Beall in giving to the public the results of his black walnut planting.

The public is also indebted to him in large measure for the efforts that are being made to secure greater uniformity and correctness in the judging of fruit at fairs, as well as to give to the residents in each agricultural division a list of the varieties of the several fruits that can be successfully grown therein.

The crowning work of Mr. Beall's life, however, will be the accumulation of meteorological data, the value of which, in its bearing upon the labors of the fruit grower, can hardly be over-estimated. When such observations shall have been so extended that we can know the average summer heat and winter cold,

and the extremes of each at least in every county, the number of days without injurious frost, and of summer sunshine, the average rain-fall, and the force and direction of prevailing winds, most valuable data will then be available for the solution of fruit growing problems. To this work Mr. Beall has given much careful attention for the past twelve years, during which time he has accumulated a large amount of valuable information.

D. W. B.

A BERRY TICKET.

Here is a cut of a ticket which I find very convenient in berry time, in keeping accounts with my pickers :

<p>Tens : 1. 2. 3. 4. 5. 6. 7. 8. 9. JAMES M. BROWN, Grower of Small Fruits. Burden, N. Y. Units : 1. 2. 3. 4. 5. 6. 7. 8. 9.</p>

The row of figures at the bottom represents units from one to nine ; the upper row of figures consists of tens. Any figure punched in this row is equal to 10 times the figure punched below. If you punch eight in the tens row, it is equal to 80. If a picker picks in a day 73 quarts, I punch seven in the upper row and three in the lower. If a picker picks 173 quarts in a day, I punch nine and four in the upper row, making 90 and 40, or 130 quarts ; then I punch seven in the lower row. I do not take up the tickets until the season is over. This method does away with book accounts, and it is easy to settle with each picker at night when through picking. One should use a good punch—one which cannot be imitated.—*Rural New Yorker*.

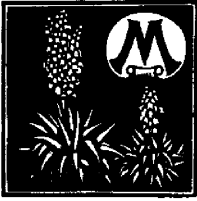
THERE ARE MANY REMEDIES for mildew and blight, but nothing is better than a simple solution of sulphate of copper. It is free from the features of other fungicides. It is in no way injurious and its operation is sure. Dissolve 1 lb. of sulphate of copper in 800 gals. of water, or 2 oz. in 100 gals., or 1 oz. in 50 gals. Probably a much weaker solution would answer, but that is for future experiments to decide. I spray the tree with this solution, using a plain brass hand syringe 1½ in. in diameter, which holds a pint. It has a rose nozzle with 99 holes, three times the usual number, and will throw from 20 to 25 feet, spreading the spray about 6 feet.—*Farm and Home*.

GROWING THE CURRANT.



THE many plantings of currant bushes one sees, bereft of foliage in mid-summer, bespeak either a want of knowledge or a lack of care on the part of those who tend them. The erroneous idea that currants may be planted anywhere is an all-prevailing one. To have them do well they need deep soil and, preferably, a damp one. A few years ago I set a row of the Versailles in such a location, and the size of the bunches and berries was really wonderful. Some of my neighbors thought that I had possession of some new sort, and more than one of them got cuttings from me, because they thought it a new kind. As a rule there is too much of the let-alone idea prevailing, and something more than this is necessary to have good currants. My neighbors have an idea that it hurts their bushes to be dug around. Now, the bushes of mine, referred to above, were on the boundary line of a grass plat and a vegetable garden, and on the latter side of them the soil was forked up every spring, and it certainly showed no injurious results at all. Still, as these bushes root near the surface, digging should not be done close to them. Forking is better, as being less liable to hurt the roots by cutting them. Those who do not get good results, probably leave their plants too much to themselves. Unless wood needs cutting out annually, the cutting back of a shoot here and there to cause some strong new ones to form for the next season, is advised. The plants of my own that I have referred to were not mulched, save by the sod on the one side of them, and they never lost their leaves in summer; nevertheless it is a good plan to do it, the coolness and moisture it induces being of much benefit. Young plants, too, are much better than old ones. It is better to cut old ones back, to have them form new wood, or plant younger ones. When not practicable to grow them in the exact station they would like, mulch them in summer with coarse hay or grass, to gain moisture, and be sure that there is good food for the roots. This will lessen the tendency of the bushes to drop their foliage in summer, a something now all too common, and which weakens the plants greatly. Partial shade is a benefit to currants, but it must not be that afforded by large trees, because, to get this, they have to be so near that they get into soil robbed of its food by the roots of the trees, which extend a long distance from the tree. That afforded by some fence, or building, is better. Regarding the best sorts to plant, there are some of our marketmen here who stick to the old red Dutch, as they say they get the greatest quantity from it. But if this doubtful statement be correct, there is no doubt at all that the larger fruit of Fays, Cherry and Versailles bring the better price. In the long run the larger sized fruit sells the best of all. Currants are largely used for preserving, and for this purpose also is a good sized fruit the best.—*Green's Fruit Grower.*

PREPARING FOR CHICAGO.



R. N. AWREY, has been appointed Commissioner for Ontario to the World's Fair, and Mr. A. H. Pettit, our President, superintendent of the fruit exhibit at the Great Exposition. This gentleman is now, June 8th, in Philadelphia, where he will meet Prof. Saunders and purchase a large number of suitable jars to contain the choice Ontario fruit. Prof. Saunders has been experimenting with various liquors in order to find one that will effectually preserve our berries, peaches, pears and other fruits, without changing the color and causing shrinkage; he is placing all the results of his investigations at our disposal.

Ontario has a large and well-chosen allotment of space of 2400 square feet in the Horticultural Hall, at Chicago, for her fruits, and it is desirable that it be filled the whole season, from the first of May until the end of October, with the best possible display of our fruits, both canned and fresh.

Arrangements are now being made to have a cold storage in Chicago, ready by the first of November, for keeping a good stock of the different varieties of our winter apples and pears. These will be brought out as required during the first month of the exhibition.

Each Provincial Government has agreed to make as fine a collection of their fruits as possible, so that Canadian progress in this industry will be fully represented. Each will undertake the work of preparing its own fruit for this great exposition, and the expenses of providing containers for the same.

Speaking of the grandeur of the horticultural exhibit, a recent bulletin says :

"In the rear curtains of the building will be shown the fruit exhibit, which will include all varieties grown in any part of the world. As far as it is possible to do so, probably in a great majority of cases, fine specimens of the natural fruit will be shown. Otherwise wax models, so perfect in appearance as to be indistinguishable from the real fruit, will be substituted. For this exhibit about 44,000 square feet, or more than an entire acre of space, is reserved. A very complete and splendid exhibit of citrons and other fruits will be sent from California, Florida, Mexico and South American countries. By means of refrigerators ripe fruit can be sent long distances without injury, and after reaching the Fair cold storage facilities will be available to keep it in perfect condition.

"In the north pavilion of the Horticultural building will be a very extensive display of vegetables, canned goods, horticultural appliances, etc. In the second story of each pavilion will be a restaurant capable of seating about 200 and profusely adorned with ferns, flowers, and exotic plants. Outside will be a number of greenhouses, where visitors may see an exceptionally complete collection of tropical vegetation. There will also be large auxiliary greenhouses, not open to the general public, where plants will be brought to perfect exhibit condition, and where plants will be cared for after their beauty season has passed.

"It may be rightly inferred that the Horticultural exhibit at the exposition will be the most complete and extensive ever made or attempted. It is certain to attract a great deal of attention and prove to be of great scientific and educational interest. It will have important features not specified above, as, for example, a very complete collection of insects, both the injurious and beneficial ones, whose operations affect the fruits and other products of the horticulturist. It is the intention to have in one place an exhibit of all of the species of plants mentioned in the Bible, and in others collections of almost equal historical interest."

PRESERVATION OF FRUITS FOR CANADIAN DISPLAY AT THE CHICAGO EXPOSITION.



WE are just in receipt of an interesting circular from Prof. Wm. Saunders, Executive Commissioner for Canada, giving a list of the various fluids recommended for preserving fresh fruits in glass jars for the Chicago Exposition. We give our readers a large extract from the same, for it is often useful to know what preserving fluids are best, for other purposes as well.

GENERAL DIRECTIONS.—Select the finest specimens of the fruit both as to form and size. Handle them carefully to avoid all bruising and place them in bottles, arranging the specimens so as to show the fruit on all sides. Fill each bottle to the neck, then pour on the fluid recommended, filling the bottles to within half an inch of the stopper so as to entirely cover the fruit, then place the stopper in the bottle and run a little melted beeswax or paraffine over the joint to make it air tight. Tie the stopper down with a piece of canvass or strong cotton and attach to each bottle a label containing the following particulars: Name of variety of fruit, character of soil on which it was grown, the name of the grower and post office address, adding the name of the province in which the party resides. Wrap the bottles in paper to exclude the light, and preserve in a cellar or other cool place where they may be kept from freezing until required for exhibition. Strawberries and raspberries should be cut from the plants or bushes with a pair of scissors, leaving a short piece of stem attached.

FLUID NO. 1.—Coal Oil or Kerosene. This fluid has been found more satisfactory than any other yet tried for preserving strawberries for exhibition. Being lighter than water the berries sink in the fluid and their natural form and appearance may thus be well preserved. It has also been found useful for Blackcap raspberries. Fruit preserved in this fluid should be free from drops of water (dew or rain) on the outside.

FLUID NO. 2.—A solution of Boric Acid in water in the proportion of one per cent. This may be made by dissolving half a pound of Boric Acid in fifty pounds of water, agitating occasionally until the solution is complete. If the fluid is not clear it may be allowed to stand and settle and the upper clear portion poured off and the remainder filtered through filtering paper.

This fluid may be used for the preservation of red and black raspberries, blackberries, red and black cherries, black currants, and other red or dark coloured fruits, including red apples.

FLUID NO. 3.—A solution of Zinc Chloride in water in the proportion of two per cent.

This is readily made by dissolving one pound of Zinc Chloride in fifty pounds of water. Allow the mixture to stand, pour off the clear fluid and filter the remainder.

When poured on the yellow varieties of raspberries this fluid has been found to preserve their colour well ; it is also recommended for the preservation of red and white currants, gooseberries, white or yellow cherries, peaches and other light coloured fruits, including green and yellow apples.

FLUID NO. 4.—Solution of Salicylic Acid one drachm to the quart. Dissolve one ounce of Salicylic in eight ounces of Alcohol and add this to two gallons of water, shake well, allow it to stand for a short time, when it will be ready for use.

This fluid has been found useful for preserving red and dark coloured grapes ; it may also be used in place of Fluid No. 2 for the fruits mentioned under that head, although it has not proven quite so successful as the Boric Acid.

Fluid No. 4 was used successfully by the writer in preparing fruits for the Indian and Colonial Exhibition in 1886. Nos. 1, 2 and 3 are recommended as the most successful of a number of fluids tested during the past year by Dr. Chas. E. Saunders, of Ottawa.

THINNING FRUIT.—An experienced orchardist in the East covers the same ground we have already advocated in *Fruit and Flowers* in what follows : He says that “he thinned the fruit on his trees at the rate of twelve trees in ten hours. They were large enough to yield an average of six bushels to a tree. He figures in this way : If he had a thousand trees it would cost him \$85 to have them thinned, with labor at \$1 a day, or \$170 at \$2 per day. He has but few culls among his apples, and the selected crop will easily bring him ten cents per bushel more than the fruit from trees which were not thinned out, which, at six bushels to the tree, would increase his sale by \$600.

“Again, he claims still another greater advantage. It is not the growth of the fruit that exhausts the tree so much as the formation of the seed, and reducing the number of seeds grown by picking off one-half or two-thirds of the fruit that sets, he relieves the tree so that it can form fruit buds in the fall for the next year’s crop. In ten years he has not had a failure of the trees to bear every year, excepting when they were overloaded and he neglected the thinning. Then all the strength was used up in growing fruit, or rather seed, and there were no blossom buds formed.”

The last clause in the above has not often been so plainly stated and is often overlooked, but is so plain that it is correct that we wonder that sensible men should need to be told of it.—*Fruit and Flowers*.

THE BEST REMEDY FOR BLACK KNOT in plums is the knife, cutting out all knots early in spring, before the leaves appear. The branches and trunk should then be sprayed with the simple solution of sulphate of copper—1 lb. to 26 gals. of water—to which 2 oz. of Paris green may be with benefit added. All wild rees in the neighbourhood should be treated in the same way, or cut down.

EXPERIMENTS WITH FRUIT PRESERVATIVES FOR EXHIBITION PURPOSES.



DURING the past three years experiments have been carried on at the Central Experimental Farm, with the object of ascertaining the effect of certain chemical solutions in preserving fruits. In view of the coming Exhibition at Chicago, and the necessity of placing samples of the fruit of the Dominion on the tables next May, in bottled form, the publication of the most important results so far obtained—though in some instances they are given tentatively—will, it is believed, prove interesting and useful to intending exhibitors and those who have charge of the fruit displays from the various provinces.

While many of the solutions tested have not proved to be successful fruit preservers, others have given good results. The work is still in progress, and the confident hope is entertained that before long it will be possible to give more definite instructions in regard to the proper fluids for the different fruits.

In considering this matter, it is necessary to remember that not only must the fruit be preserved from spoiling, but that its color and form be retained. While a certain solution may serve to retain the form and texture of the fruit, it may be found to discharge or extract the color. Again, on account of the density of the fruit-juice being greater than that of many preservative solutions, osmosis takes place—the fruit bursts and the whole becomes an unsightly mass. To overcome this latter trouble, glycerine has been used. If glycerine is added to the fluid until the fruit remains suspended in the mixture (not floating on top), the fruit will not be apt to burst or shrink, as the fluid will be of the same density as that of the fruit-juice, and there will be no interchange of liquids. From 5% to 10% of glycerine are the quantities recommended. Fairly satisfactory results, however, have been obtained without the addition of glycerine, when the following were the preservatives used :

Chloral Hydrate.—Four ounces to one gallon of water, for red currants, cherries, grapes and raspberries. This extracts the color of high colored fruits, somewhat, but, as a rule, not to the same extent as salicylic acid. It is, however, more expensive.

Corrosive Sublimate.—For red and black grapes, dark colored cherries and currants, it is advisable to use two solutions, the one in the proportion of one-quarter ounce to the gallon of water, the other half an ounce to the gallon. The latter strength, while preserving most thick-skinned fruits perfectly, is apt to coat them with a thin white film of calomel. It is, however, useful for preserving such varieties of grapes whose general appearance would not be much affected by this deposit, and, according to Prof. P. Pichi, of the Agricultural School, Cognelians, Italy, may serve to replace the weaker solution after the fruit has been

preserved for some time. Experiments are now being made with a view of obviating this deposit of calomel spoken of above.

Salicylic Acid.—One-quarter ounce to the gallon of water. For tomatoes, red and yellow raspberries and blackberries. One of the best known and most generally used of the antiseptic fluids. In order to render this acid soluble, it is necessary to treat it with hot water, allowing the solution to cool before using. As already stated, the bleaching tendency of this fluid is its principal objection. With tomatoes and yellow fruits it has given good results.

Sulphurous Acid.—For pears, peaches and light colored fruits. This may be prepared by saturating water in a barrel with the fumes of burning sulphur. The barrel being half full of water, a tin or iron vessel holding flowers of sulphur is floated on the water and the sulphur set on fire; when the flame goes out and a sufficient time has elapsed to allow the sulphurous acid formed to dissolve in the water, fresh air is admitted by taking off the cover and relighting the sulphur. This should be repeated several times.

Coal Oil.—This has been used successfully in the preservation of strawberries and raspberries. A colorless grade of oil should be employed.

In selecting the fruit to be preserved, great care should be exercised in picking and handling. Raspberries, strawberries and blackberries should be cut instead of picked, leaving the receptacle and a small portion of the stem attached to the fruit.

Ottawa, Ont.

JOHN CRAIG, *Horticulturist.*

FRANK T. SHUTT, *Chemist.*

SULPHATE OF COPPER FOR SCAB.



R. JABEZ FISHER, one of the experimenters in connection with the Hatch Experiment Station, has laid us under a debt of gratitude, if his views are well grounded. He believes copper sulphate in simple solution to be just as effective in destroying injurious fungi as any other preparation of copper. Moreover, it is much less expensive; the amount required being only one pound to 600 or 800 gallons of water, while the Bordeaux mixture requires four pounds for 50 gallons of water; counting the copper sulphate at 8c. a pound, this is 32c. per barrel full, which amounts to a considerable sum in a large orchard.

His plan of operation is as follows: As early in spring as weather permits, gather and burn all stubble, weeds, grass, and *debris*, thus disposing of a large proportion of the winter spores of the various fungi. Then spray all trees, trellises, and vines, and the surface of the ground not burned over, with sulphate of copper—one pound to 100 gallons. This strength is only allowable before foliage has developed. Just before blossoms open, spray all foliage with the solution, one pound to 800 gallons, adding Paris Green, one pound to 200 gallons. This should be repeated two or three times, in the month of June, when the great bulk of both insects and fungi appear.

THE FRUIT PROSPECTS.

A grievous change has come over the fruit prospects for the summer and fall of the current season. During the blooming season, the hopes of the fruit grower were highly exalted in anticipation of an enormous crop. Never were our apple trees fuller of bloom, and the same is true of the pear and cherry. The even year is usually the bearing year with the greater portion of orchards in Ontario, and it was only fair to suppose that this season would have been unprecedented in a prodigious yield. The abundant rains, however, which fell during the month of May appear to have washed out the pollen from the blossoms and so caused imperfect fertilization. More than this, it favored the development of fungi and blight of every kind. As a result, the young fruit was no sooner formed than it fell wholesale from the trees, and after a few days, it was evident that, instead of a very abundant crop of apples, pears and cherries, there would be, in many sections, the lightest crop known for years.

Along the line of the Great Western Railway, in Southern Ontario, the Baldwin has retained its fruit better than most other varieties; the Roxbury and Golden Russets are fair, and the same may be said of the Gravenstein and King, but the Greening, which is one of the most largely planted varieties, is almost a total failure, and so is the Spy, the Early Harvest, the Red Astracan, and many other varieties. This is so at Maplehurst and also in a greater portion of Southern Ontario.

The pear crop is almost a failure. The Bartlett particularly is either barren of fruit, or what fruit remains on the trees is so sadly blackened with fusicladium, that it will scarcely be fit for market. We have sprayed carefully with the Bordeaux mixture, but not until the scab had appeared. We hope, however, that it may check further progress of this evil.

The English cherries are a complete failure. There will be a few Knight's Early Black, and a few Black Eagle, but the trees of nearly every other variety have shed their fruit.

The plums have set remarkably heavy, but in many localities the monilia, or fruit rot, has set in so severely as to threaten the entire loss of the crop.

The leaf curl has been very bad upon the peach, and, as a result, the peach crop will be very considerably thinned.

Small fruits and grapes, on the other hand, are very promising. Indeed, should we have exemption from the mildew, in our orchards, there will be a most prodigious crop of grapes. Encouraging prospects lie before us with regard to raspberries, currants, gooseberries and other small fruits. It is possible that the abundance of these may help the disappointed fruit grower in meeting at least his needful expenses in the care of his property, even though it leaves him no balance in the bank.

The following are a few notes from letters received from various counties concerning the prospects :

PERTH COUNTY—*Sir*—Strawberries will be a heavy crop; currants, gooseberries and raspberries promise well; apples setting fairly well; pears moderate; plums very light. The latter are so badly stung with the curculio that the crop promises little or nothing.—**T. H. RACE**, Mitchell, June 21st, 1892.

Sir,—The exceptionally heavy rain falls of late have sadly marred the fruit prospects. Summer and fall sorts, however, promise well, especially the Duchess of Oldenburg. In winter varieties, the American and the Golden Russett, Swazie, Grimes and Ribston, also will be a fair crop. Pears, cherries and plums will be a medium crop. Currants and gooseberries will be light. The English sorts of the latter are mildewing badly for the first time with me.—**J. D. STEWART**, Russeldale, June 18th, 1892.

PICTON COUNTY—*Sir*—The prospects, as far as I have been able to ascertain, are very slim. Small fruits are likely to be an immense crop; cherries, scarcely any; plums, a failure; pears, good in some sections. There was an immense bloom, but the unfavorable weather and frequent showers have ruined the prospect. Some varieties of apples which happened to bloom in a favorable time have set well, but there is any amount of the apple scab upon them. We are spraying and doing the best possible, but we fear the frequent rains are very much against us.—**P. C. DEMPSEY**, Trenton, June 21st, 1892.

PETERBORO' COUNTY—*Sir*—In this neighborhood there was an extraordinary show of blossoms, especially upon the apple trees. The fruit set, however, is small in comparison. I look for a fair crop of apples. There will probably be more need of spraying this year than there was last year. Plums and cherries will be scarce. The young trees and vines are doing wonderfully well. Insects and fungus growths promise to be troublesome.—**E. B. EDWARDS**, Peterboro', June 21st, 1892.

CORNWALL COUNTY—*Sir*—You ask me for the prospects for fruit. They were never better. The season, as a rule, is about a week later than last year, but we have escaped the late frosts. True, we are having very showery, humid weather, but the growth is wonderful and the prospects good. Spraying of fruit trees, thanks to the *HORTICULTURIST* and the bulletins of the Government Experimental Farm, has been, and is, more universally resorted to; and as I firmly believe humidity of the atmosphere is the cause of the apple scab and other fungoid diseases, there is greater need of it than ever. I, myself, am setting a good example by spraying liberally, and will report the results at the close of the year.—**W. S. TURNER**, Cornwall, Ont.

OTTAWA—The fruit prospects are very cheering. Apples promise a good crop. Plums and cherries have set well, and should yield above the average. The raspberries were considerably injured in most sections; the crop will probably fall below the average, and will be somewhat later than usual. Strawberries are fruiting heavily. With a continuance of the present warmth and excessive moisture, we may look for the scab.—**JOHN CRAIG**, Experimental Farm, Ottawa, June.

SIMCOE COUNTY—*Sir*—The prospects for fruit here are the best we have had for a number of years, excepting plums, which are light.—**G. C. CASTON**, Craighurst, June.

ESSEX—*Sir*—I have just returned from a trip around Windsor, with our president, gathering fruit for the Chicago Exposition, and may say that strawberries are abundant, and the sample good. Cherries are not so plentiful, not being more than one half a crop. Currants and gooseberries two-thirds of a crop. The plum trees in some places are heavily laden, and in other places not so fortunate. On the whole I should expect 70 per cent. of a full crop. The peach blossoms were caught with the early frosts, and hence they will be as scarce in this locality as hens' teeth. Pears are setting well, and there will probably be seventy-five per cent. of a crop. Some varieties will be spotted with fungus. The apple trees promised much at blossoming time, but, alas, to-day the crop promises very little, not a quarter of a crop, probably, owing to the many rains during the blossoming time, and since.

FOREIGN PROSPECTS—**Mr. J. N. Johnston**, Fruit Merchant, 21 Victoria Street, Liverpool, who is agent for the *CANADIAN HORTICULTURIST* there, writes that the prospect for fruit in England and the continent is good. He says, "A friend who has visited Ghent, Antwerp, Brussels, Rotterdam, Amsterdam, Hamburg, and up the Elbs, driving for many hours through the principal fruit garden districts, reports to me that the apple crop is everywhere large. Pears are short there and in France."

GIPSY MOTH.



THIS is one of the worst enemies of the fruit grower, and we hope that it may never invade Canada. It has been devastating a large area in Massachusetts, spreading throughout that State with fearful rapidity, until energetic remedies were adopted to rout it. This insect was introduced about the year 1868, by Mons. L. Trouvelot, a Frenchman, then living in Massachusetts, and experimenting there in the production of silk. From this beginning, this moth has been distributed in twenty-nine cities and towns in the western part of Massachusetts. It feeds upon the apple, plum, cherry, quince, elm, linden, locust, oak, maple, balm of Gilead, beech, birch, willow, poplar, chestnut, catalpa, Norway spruce, arbor vitæ, corn, grass, clover, etc. Evidently it is an almost omnivorous insect, and in the infested region, it has stripped clean the village woods, groves, lawns, gardens and orchards, in a wholesale manner. Bulletin 19 of the Hatch Experiment Station, Amherst, Mass., gives a full description of this insect and its ravages, with excellent illustrations.

Last year, it was only with the expenditure of some \$50,000, and setting to work some thirty teams and spraying apparatus, that the terrible pest was kept in bounds. A large force of police was also appointed to quarantine the infested territory and see that the laws were enforced which had been enacted. And now, it is only by the continuance of the same energetic measures that it can be totally destroyed.

The following code of rules, which was adopted by the State with regard to the destruction of this moth, will be of general interest :

"All persons were forbidden by law to remove the gypsy moth, its nests or eggs, from one place to another, in any city or town, and requested to exercise care against so transporting the gypsy moth on teams and carriages.

"All persons were forbidden to remove any hay, manure, wood, bark, trees, rags, lumber or shrubbery of any kind, without a written permit from the Department. All loads must be covered with canvas.

"All vehicles leaving the district might be stopped and delayed until their contents were inspected.

"No person might remove the bark from trees, nor attempt to scrape and clean them, without first notifying the Department, and having said trees thoroughly inspected and, if found infested, cleaned under its direction.

"Owners or tenants were requested to gather and burn all rubbish and useless material upon their premises that might provide nesting-places for the insect, and to fill with cement or other solid material holes in trees upon their premises.

"Windows of houses were protected by screens during the summer months, as the insect lays its eggs in the houses wherever it can gain admittance.

"Fences and buildings could be torn down if necessary, and the owners were to be recompensed by the State."

IN CULTIVATING THE STRAWBERRY PATCH, run the cultivator the same way of the rows every time. This will carry the runners with the rows and not tear up the plants as if you went one way and the next time you cultivated went the opposite.—*Farm and Home.*

BLENHEIM ORANGE APPLE AND SAUNDERS' PLUM.

SIR,—The correspondence addressed during the past few months to the HORTICULTURIST on the merits of the Blenheim Pippin must, I think, have fully established that excellent apple in the confidence and favor of the Ontario fruit growers. There never was any question raised as to its high individual qualities, the only one being as to its productiveness, and the complaints as to that still come to me by letter from the localities mentioned in my first article on the subject, namely, Middlesex, Kent, and Norfolk counties. However, the Blenheim is fully re-established in my former confidence and favor as a result of the many positive testimonies as to its productiveness. It was one of the varieties that I recommended to the Fruit Committee as most suitable and desirable for this district; but when the report came out I was somewhat surprised to find that another—the Cranberry Pippin, an apple that I was entirely unacquainted with—had been substituted for it. How the error occurred, or, if not an error, why the Committee meddled with my recommendation, I never learned. I think the correspondence regarding the alleged defect—unproductiveness—has been profitable.

As to the Saunders plum, I was not aware until the last number of the HORTICULTURIST reached me that our good friend, Mr. Dempsey, had stood godfather to that most excellent fruit. I am glad to know that it had so worthy a sponsor. My only crime seems to have been in believing that I had discovered the birthplace of the plum so appropriately named by Mr. Dempsey. It was not a grave offence, and I am not yet certain that I sinned at all in that belief; though there does seem to be a discrepancy as to the season of ripening and I could not desire to conflict with so acknowledged an authority as our good friend Dempsey. But why dwell upon so trifling a matter? The plum that I referred to is a very firm one. If the Saunders is no better but a month earlier, Messrs. Morris & Wellington have in their hands a plum that cannot be surpassed in its suitability to the conditions and requirements of this country.

Mitchell, Ont.

T. H. RACE.

RASPBERRY.—Of the Black Cap family the Older, Tyler, and Shaffer's Colossal, are giving the best crops of best quality for dessert and canning in north Iowa. The secret of setting the tips to secure a uniform stand, is to put them in with the roots pressed downward as in planting the strawberry, leaving the crown at the surface or near it. Deep planting always results in a poor stand. Of the red species the Cuthbert has given the best satisfaction for home use. At the north it will pay to cover the raspberry as is now practiced with the blackberry. By watching the neighbor who has become an expert, it will be found that the job of covering is not as great a labor as is usually suspected.

PROFIT AND LOSS.

HOW SOME CROPS PAY A BIG PROFIT AND OTHERS DO THE REVERSE.



OFTEN a person who has raised a large crop reports the figures, with the profit, to the agricultural press, without telling the other side of the story. The real profits of farming are to be ascertained after averaging up the good crops with the poor ones. A correspondent of the *American Garden* gives some instructive figures of several crops. A plot of one-seventeenth of an acre grew three crops—lettuce, cabbage and celery. The income was as follows :

617 heads lettuce.....	\$ 12 20
194 heads cabbage.....	8 16
150 bunches celery.....	15 00
Total.....	\$ 36 36
Rate per acre.....	\$601 12

The above plot was manured the fall previous with two tons of well-rotted manure, costing about \$3.50. The plot was cultivated at odd times, and the crops sold with other produce. This plot also supplied a family of six persons with an abundance of the above vegetables.

Plot No 2 contained three acres, and grew potatoes, five varieties, with the following result :

7½ barrels seed potatoes.....	\$ 9 25
800 pounds phosphate, in hills.....	13 76
500 pounds plaster.....	1 50
2 pounds Paris Green.....	50
Digging.....	3 50
Plowing and cultivating.....	10 00
Interest on land.....	15 00
Total expenses.....	\$ 53 50

RESULT.

23 barrels marketable potatoes at \$2.....	\$ 46 00
5 barrels seed potatoes at \$1.....	5 00
5 barrels small potatoes at 30c.....	1 50
Total receipts.....	\$ 52 50

A plot of three-tenths of an acre was planted with strawberry plants. Everything looked promising for a good crop, when the heavy rains set in, which destroyed much pollen, causing many blossoms to blast. During ripening and picking time no rain fell, thus cutting off the crop still more. The berries were small and ill-shaped. The following is the result :

Cr.	
252 quarts berries at 11c.....	\$ 27 72
Dr.	
Cultivation and setting.....	\$7 50
Picking 252 quarts at 2c.....	5 04
Interest on hand—1 year.....	1 35
Marketing 252 quarts at 1c.....	2 52
	\$ 16 41
Profit.....	\$ 11 31
Rate of profit per acre.....	\$ 37 70

The reader must bear in mind that this crop occupied the land for the best part of two years, which, if taken into account, reduces the profit still more.

The following is his experience with a piece of sandy loam of one-sixth of an acre, planted with sweet corn and squash. The first week in May he applied seven loads of stable manure on sod and plowed it under. After harrowing, he marked out the piece into rectangles, two and a half by three feet, and planted it with white Cory corn and squash, and dropped a good fork-full of well-rotted manure in every sixth hill of every alternate row. He put four kernals of the corn in each of the remaining hills, and then dropped a handful of hen manure and wood ashes, one part of the former to two of the latter. He had a hard time with beetles on the squash vines, but managed to save three-quarters of the hills. The piece was hoed twice by hand and twice with a horse hoe, and the corn finally hilled. The corn was a fair average crop, but the squashes were below the average. August 5, the first corn was picked, and August 13 the stalks cut. The result was as follows :

CR.	
1,275 ears corn.....	\$ 13 50
165 squashes.....	17 64

Total.....	\$ 31 14
------------	----------

DR.	
7 loads manure.....	\$6 00
1 one-horse load rotted manure.....	75
2 barrels hen manure and ashes.....	1 00
Seed.....	75
Cultivation, etc.....	4 00
Interest on land.....	1 00

	\$ 13 50
Profit.....	\$ 17 64
Rate of profit per acre:	\$105 84

N. Y. Herald.

HOW TO GROW TOMATOES.—Where more than one row is set, the rows should be five or six feet apart. The plants should be kept off from the ground by stakes or some form of trellis, as fruit will soon rot unless kept hot and dry. When the plants get up to about the right size, cut off the ends of the large branches and carry the refuse away. Trim off the bottom branches also, and keep the plants well up from the ground. Many pick the fruit when it turns to a whitish green and place in a south window to ripen. If most of the leaves which cover the fruit are removed, you will get earlier tomatoes and finer flavored ones than can be secured in any other way. To get large vines, select good plants and place them in rich soil. They must have an abundance of water, and large fruit cannot be secured in any other way. To grow premium tomatoes, keep the vines pruned well back and remove the larger part of the blossoms, allowing only two or three fruits to develop. With an abundance of water and fertilizer, you should have no difficulty in growing two pound, or larger, tomatoes.

—*New England Homestead.*

The Garden and Lawn.

CUT-FLOWERS ON GRAVES.

The trough form of flower-holders, designed for use on graves, is not yet so well-known as it deserves to be. These flower-holders can be filled so that they will look very pretty, by the use of a moderate quantity of foliage and flowers, as shown in the engraving (Fig. 49) of the cross annexed, for there is no special incentive to crowd the flowers. Flowers placed loosely in water keep much fresher than if they are crowded. By placing a little sphagnum moss in the bottom of the troughs, and then filling them with water, the foliage and flowers may be kept fresh nearly as

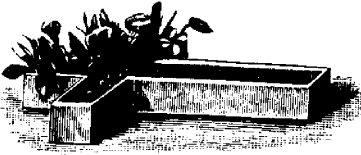


FIG. 49.—TROUGH FLOWER-HOLDER.

long as the water lasts. The holders may be made of zinc or tin, the first being preferable, on the score of durability. The forms most in use are shown in the engravings (Figs. 49 and 50). They can be made by any tinsmith at small cost. The metal should be painted green on the outside, so as to be inconspicuous when the designs lie on the sod.—*American Garden.*

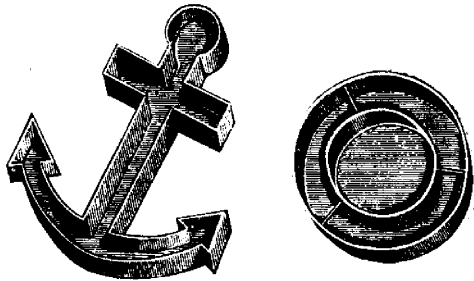


FIG. 50.—TROUGH FLOWER-HOLDER.

A NEW USE FOR TILE.—Common drain tile can be put to a very pretty use. Paint a light color, with the new enamel or metallic paints, and when dry arrange pretty colored scraps on the surface. Stand the tile on end, place a pot of ferns or flower on top, and set it wherever it will be effective, in the hall, on top of staircase, or on the lawn.—*American Garden.*

PETUNIAS FOR PAIS AND TUBS.—If you want a pretty lawn ornament, paint a tobacco-pail a delicate lavender-gray, bore several holes in the bottom, put in two quarts of coarse charcoal, over this a layer of moss, and fill the pail with very light rich earth. In the middle, plant a thrifty young double-fringed petunia, preferably pink, set the pail in a sunny situation, give the plant plenty of water every day and you will be richly rewarded with beautiful blossoms. A large candy pail similarly treated, holding three plants, is prettier; and an old tub or half-barrel, containing five, is prettiest. The plants may be all alike, or each one different; suit your own fancy about this, you will be pleased in any case.—*American Garden.*

THE APPROACH FROM THE HIGHWAY.—Do not stint nor narrow down the approach to your dwelling from the public high way. We like to see one of ample dimensions when we drive up to a farmhouse—one that is hard and smooth and free from loose stones and rubbish—one that betokens the careful, orderly hand. A border of shade trees on each side of the way adds much to the attractiveness of the homestead. A custom which prevails in Holland and some other parts of Europe, and copied in the Sandy Spring neighborhood of Montgomery County, Md., of affixing the name of the farm and that of its owner at the outer gate of the approach, ought to meet with favor and be generally adopted by farmers in this country. The custom, if general, would result in good influences to neighborhoods. It would stimulate every farmer to greater exertions and more care to have all the appointments about his premises in presentable shape for the eye of criticism. John Careless after a while would become ashamed of having his wreck of a barn or his unhinged gates and falling fences conspicuously labeled with his name, and so would go to work to fixing up things in emulation of the worthy examples of Peter Progress, Joseph Thrifty and many others of his acquaintances on the highway, who were not ashamed to let it be known to the passer, who owned and managed their sightly premises. A well-improved farm, then, with an ample driveway to it from the public highway, and your name set up at the entrance so that everybody may know where you are living and who is making the improvements.—*American Farmer.*

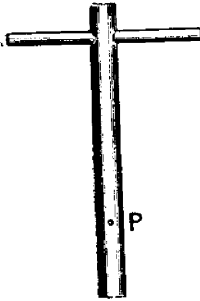


FIG. 51

A WIRE STRETCHER.—Having occasion to build a piece of wire fence with no one to help, the handy boy of the family constructed a stretcher, which did its duty excellently. It is simply a roller, 3 ft. long and about 3 in. in diameter. A stout handle 2 ft long is inserted in an augur hole, about 2 or 3 in. from the top. A wooden pin is firmly fastened about 8 in. from the bottom. It should project 2 in. at least. It stands at right angles with the handle and is marked P on the figure. The wire is twisted around the pin and then wound on the roller, which is pressed against a post, and turned by means of the handle until the slack wire is made taut. One person can do it easily.

BARBED WIRE DISCARDED.—Our best farmers in making new fences are discarding the dangerous barbed wire, which has ruined so many horses and colts. If used at all it is only in combination with some other material. Woven wire is being largely used and seems to meet the requirements of a popular fence. It is neat and comparatively cheap. A single strand of barbed wire may be used on top if desired. Fences are an expensive necessity, but safety to stock and durability should first be considered.—*Farm and Home.*



The Canadian Horticulturist

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

ERRATA.—On p. 165, for *Bubach* read Bubach. The article is commonly known as insect powder.

THE FRUIT EXHIBIT IN LONDON, ENGLAND, referred to on page 185, June No., according to a letter just received from Mr. Wilkes, Secretary of the Royal Horticultural Society, has fallen through for the present year. He will notify us farther should it revive for the year 1893. The reasons given for this, is the concentrated public interest in the general elections, in England, and representations, made by intending exhibitors, that notices for preparations were insufficient.

A VISIT TO CANADA'S VETERAN STRAWBERRY GROWER was made by the writer recently, to secure strawberries for the Chicago Exhibition. Snugly nestled away among the trees in a delightful rolling country, approached by a well-hedged carriage road, Mr. John Little, and his aged partner in life, have spent many happy years. Strawberries are his pets, and he has over eighty varieties. We were highly flattered, when he named his finest seedling, the *Woolverton*. It is a long way ahead of any berry we have ever seen. Every berry a monster and plenty of them.

LETTERS FROM RUSSIA.—We have lately received another valuable letter from Mr. Jaroslav Niemetz, our Russian correspondent. It deals with several specially hardy varieties of apples and pears, which he believes might prove of great value to Canadians; as, for instance, the Panna, Princess, White Doyenne, Slutsk, Beurre Blumenback, Flemish Beauty, Nina (or Manning's Elizabeth), Liegel's Winter Butter pear. Scions of all these he has forwarded us, and they have been placed in charge of the horticulturist of the Experimental Farm at Ottawa for careful propagation. The letter, in full, will appear in our next report.

INSECTICIDES AND FUNGICIDES are not so highly valued by Dr. Hoskins, of Vermont, as by some of us. While it may be well to use them in years of light crops, when it is important to save every apple possible, he thinks that in years of abundance, thinning of the crop done by the various insects is not detrimental to the success of the orchardist. The spotting and cracking of many fruits, he considers a sign of a weak constitution and of varieties unsuited to our climate. These should be done away with and varieties chosen which are more suitable. For instance, in place of the Fameuse, he recommends Shiawassee Beauty; and nearly all Russian apples are perfectly able to resist the spot. This advice is very good for those who are planting orchards, but to us who have large orchards, already planted with staple varieties, it means a great loss of time and very considerable expense, to dig them out and replace them with such varieties as he mentions. No doubt the best ultimate solution of the difficulty is in the line the Doctor indicates.



THE INSPECTION OF APPLES.—The following article is going the rounds of the press:

“Hon. John Costigan, on Tuesday, informed a deputation consisting of Messrs. Pettit and Awrey, accompanied by Messrs. Mackay, Carpenter, Henderson, Boyle and Montague, M. P.'s, that the Government had decided to amend the Inspection Act to provide for the inspection of apples for export. The deputation were highly gratified to hear the news. The bill which was introduced in the Senate Tuesday night makes it optional with an apple exporter to have his stock inspected at the place of shipment, the maximum fee being placed at 10 cents per barrel. A large number of shippers will avail themselves of the inspection, as it will guarantee them higher prices for first grade apples in the English market.”

We have, as yet, no official information, further than this, that the chairman of the committee, appointed by our Association on fruit inspection, has reported to us that they have received the promise from the Government at Ottawa, that provision will be made for a proper inspection and branding of Ontario apples. The inspector is not to be a salaried official, but his income will be dependent upon the amount of work done. For the work of inspection the maximum charge is to be ten cents per barrel. This, we consider, is rather high, for, while we as growers, very much value the benefits that will be derived from the inspector's brand, especially when making contracts for our apples in foreign markets, yet we shall be loath to pay \$15 a car load to have the work done, unless there is a very well-defined advantage to be gained. Two or three cents a barrel, or \$5 per car load, seems enough to pay, and, in our opinion, the Government should have made provision for a portion of the inspector's salary, at least for a year or two, until the financial benefits were plainly evident to all. Still, if we can succeed in making high contracts with European buyers on the strength of the confidence which will be established by the inspector's brand, we need not begrudge the ten cents per barrel, or, possibly, even two or three times that sum.

✧ Question Drawer. ✧

CURRANT WORM.

SIR,—What shall I use for the worm on my currant and gooseberry bushes. I have been using hellebore with water, applying it with a whisk broom. That does for a few bushes, but for a great many bushes, it is too slow. Would Paris green do? I have been thinking that a knapsack sprayer with a vermored nozzle would answer.

A. W. GRAHAM, *St. Thomas, Ont.*

Certainly Paris green applied with a knapsack sprayer would be one of the most convenient and effective appliances that could be used for ridding the currant bushes of the currant worm. The use of Paris green would be perfectly safe, a few weeks before the currants would be required for use, because the poison is so dilute and so soon shaken and washed from the bushes. Applying hellebore in water with a whisk broom is too slow a process. A watering can, or a sprayer of some kind, would be better. The writer has been applying the hellebore in the dry state, with a very fine sieve, and by parting the bushes and applying it to the lower leaves where the worm first appears, it can be quickly routed. If a sieve is not at hand, a glass goblet is a convenient article, using a piece of leno tight over the top, through which the powder may be sifted. The powder should be applied in the early morning, while the bushes are still wet with dew.

MAPLE LEAF MITE.

SIR,—I enclose you a leaf of a maple tree, covered with something, caused, I suppose, by an insect. I have two maple trees and one pear affected in this way, and the same trees were just the same last year. Can anything be done to remedy this? An answer through the HORTICULTURIST will much oblige,

E. H. D. HALL, *Montreal.*

Reply by Prof. Fletcher, Experimental Farm, Ottawa.

The insect which causes the blistered appearance like that upon the maple leaves you sent last week, is a very small mite, which causes a gall by the irritation of the tissues of the leaves. I have treated of this insect in a preliminary manner in my forthcoming report. Under the head Remedies, I say:

“No satisfactory remedy has as yet been hit upon for this pest. Prof. Comstock's experiments showed that kerosene emulsion sprayed on the leaves was not satisfactory, and all that can at present be suggested is spraying freely with kerosene emulsion at the time the buds burst in spring. It is difficult to mix any powder with kerosene emulsion, but this can be done with care, and flowers of sulphur would certainly be a valuable addition on account of its efficacy in destroying mites.”

This however is unsatisfactory and I am trying to get a better remedy.

PLUMS ROTTING.

SIR,—The plums in my orchard are rotting wholesale (June 17). Is there any remedy?
 SUBSCRIBER at *Winona*.

The fungus (*Monilia Fructigena*) which causes this rot does not show itself until actually forming its mischievous spores, and then it develops so rapidly that little can be done to destroy it. The application of flowers of sulphur is of some use, and the spraying with the Bordeaux mixture, or the ammoniacal carbonate of copper, will do still more to check the evil. Prof. Scribner thinks that if the fruit were sprayed before infection, with either of the above, the disease might possibly be prevented. Spraying the trees, before the foliage appears, with a strong solution of sulphate of copper, say, one pound to twenty-five gallons of water, will be an excellent preventive. Gathering and burning all affected fruit is also helpful.

This same fungus affects peaches and cherries, and this year seems certain to clear off the trees what little of the latter fruit has escaped the blight. It first appears as a grayish white patch on one side of the fruit. These patches are made up of little tufts, making the surface somewhat uneven. The mycelium (corresponding to roots) of the fungus penetrates among the cells of the fruit, and turns the flesh brown. A single affected plum may produce thousands of spores, and each of these may infect healthy fruit. All that is needed is a high temperature and moisture, and such spores will immediately send down a germ tube through the skin and produce rot.

As the fungus lives over winter in the rotted fruit, the needfulness of their destruction is evident, and since the twigs of affected fruit may also carry the disease over, the advantage of an early spraying with the sulphate of copper is also manifest.

 RASPBERRY CANE BORER.

SIR,—My raspberry bushes are attacked by a borer which appears to enter at the joint and then work in the pith. In some cases it enters near the top, and in others, near the root, and completely kills the cane. This is done apparently in the spring. Last year was the first I saw of it. Some of the canes came out in leaf and then withered down. This year those that were attacked did not leaf out at all. The ones that were affected last year I dug out, planting in others in their places, and I find the newly planted ones affected in the same way. The new canes came out all right but soon became very sickly, and the foliage soon turned very yellow. I have not seen it before around here, but now several gardens are affected the same as mine. The variety of raspberry which I grow is the the Cuthbert. I do not find any reference to this borer in the annual report of your Association. Can you tell me if the same trouble is found in other places, and what is the remedy?

ROBT. PHIPPEN, *Parkhill, Ont.*

This is the raspberry cane borer and it is fully described by Prof. Saunders in his "Insects Injurious to Fruits." It is injurious both to the raspberry and blackberry. The only remedy is occasionally going over the raspberry planta-

tion, and removing and burning all the withered tips, down to the lowest ring, so as to insure the destruction of the eggs. The natural home of this insect is among the wild raspberries. The perfect insect is one of the long-horned beetles, known to entomologists as *Oberea bimaculata*, and has a long, narrow black body with the tip of his thorax and the fore part of his breast pale yellow. The beetles are on the wing during the month of June. The eggs are laid between two rings, made by the insect somewhere near the top of the cane; and, as a result of the stoppage of the sap thus caused, the tip of the canes, above the upper ring, begin to wither and shortly afterwards die. The young larva burrows down the centre of the stem, consuming the pith until it is fully grown, which is usually about the end of August, when it is nearly an inch long. Here it remains during the winter, changing to the pupa state. The beetle escapes in the month of June following, by gnawing a passage through the cane.

GRAFTING DIFFERENT SPECIES.

SIR,—I have one dozen pear trees I wish to change. Will apple grafts succeed well on them, such as Baldwins, Wagners, Ontario and McIntosh Red? If not, why, and what will? Also five cherry trees I wish to change. Will plums do well on them, and if not, why, and what kind will? Are the Ontario, McIntosh Red, and Red Canada, winter apples? Please answer through HORTICULTURIST, and oblige,

WM. E. BROWN, *Blyth, Ont.*

The varieties mentioned are all winter apples. The apples would not succeed very well on the pear stock, nor the plum on the cherry. They would live for a time, and be a kind of curiosity; but very little more. The reason is that the texture of the wood and the habit of growth is somewhat different in each, so that the same perfect union is impossible, as that which takes place when stock and scion are the same kind. Of course special objects are sometimes gained by grafting different kinds, as the pear on quince stock, to dwarf it, the peach on plum stock for hardiness, or to adapt it to a heavier soil; or the pear on the Mountain Ash, to adapt it to dry light sandy soil.

MIXING VARIETIES.

SIR,—A discussion arose between a few Meaford subscribers of the HORTICULTURIST about potatoes, some asserting that, if different varieties were planted in alternate rows, they will mix; others say they will not, and that, no matter how many kinds were planted together, they will keep as separate as if planted in different fields. We agreed to refer the matter to you for solution.

THOS. PLUNKETT, *Meaford.*

No. Potatoes will not mix by planting varieties near each other, because the tubers are not the seed; they are simply enlargements of the root, and are in no way affected by the pollen. The seeds, which are grown on the potato stalks above ground, will mix, when fertilized in this way, by the pollen of another kind; and, if sown, will give rise to new varieties.

BLACKBERRY RUST.

SIR,—Enclosed you will find diseased Blackcap leaves (Souhegan). Please examine, and let me know what the disease is. Is it infectious, and what is the best thing to do for it?

GEO. SMITH, *Vanilla*.

The Blackcap leaves which you send are covered with blackberry rust, a fungus known to mycologists as *Cæoma nitens*. Experiments have been made to ascertain whether the mycelium, or portion of the fungus which grows in the interior, is perennial; it has been proved that it does live through the winter on the underground stem, hence the Bordeaux mixture, or any of our excellen

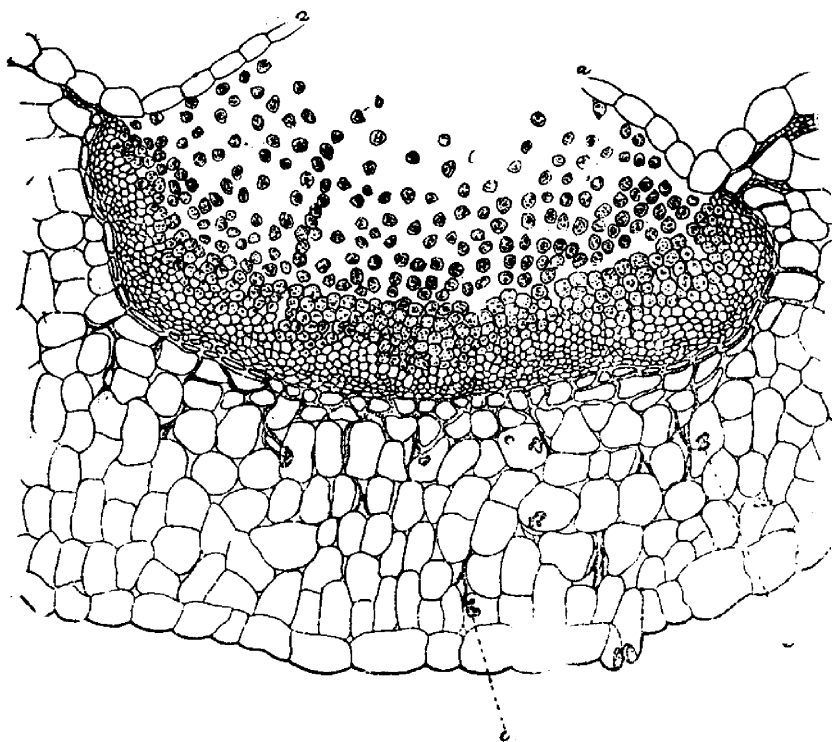


FIG 52.—*CÆOMA NITENS*, ORANGE RUST OF THE BLACKBERRY.

copper solutions, though effective in destroying the spores, will fail of entirely destroying the fungus that produces them. The only effectual remedy is to root out and burn up all affected bushes, as soon as seen, and before the yellow dust has been blown to healthy plants. The blackberry, especially the Kittatinny, is badly subject to this rust. We have almost given up growing this excellent variety on this account.

Fig. 52 shows a section through a portion of a blackberry leaf, affected with *Cæoma nitens*; *a a* shows the epidermis of the lower side of the leaf, ruptured by it, exposing to view at *b* a mass of golden colored spores, each of which is capable of conveying the disease to other plants; *c c* represent haustoria, by means of which the fungus draws nourishment from the cells.

PEAR LEAF BLISTER MITE.

SIR,—I enclose you leaves of pear trees, diseased or blighted. If you can explain the cause of the blight, and the remedy, I would be pleased. I have eight or ten trees attacked with this disease.

ROBT. FIFE, *Peterboro', Ont.*

This mite is by no means a new enemy. Leaves affected with the same were sent us last summer from J. K. McMichael, of Waterford, and George H. Nixon, Hyde Park Corner; and a description, with remedy, was then given on pages 253 and 355 of the *HORTICULTURIST* for 1891. However, for the benefit of others we will here insert a brief description of the insect. The name of the blister mite is *Phytoptus pyri*. It is an extremely small mite, that forms blister-like galls on the leaves. In each of these galls there are several young mites, which make their exit through a small hole in the centre of the gall. The young mites, after remaining inside the gall for some time, come out and work their way into the tissue of the leaves at some uninjured spot. They increase rapidly and eventually do much harm to the trees. The mites live in the galls until the autumn when the leaves fall, when most of them migrate to the leaf buds and ends of the twigs, where they pass the rest of the winter. It is a very troublesome insect to overcome. The remedies advised are close pruning in the winter or early spring, followed by a thorough syringing of the young foliage with kerosene emulsion. It is also wise to burn all the leaves which fall in the autumn. Prof. Fletcher advises the addition of flowers of sulphur to the kerosene emulsion, in the proportion of two ounces of the former to every ten gallons of the latter after dilution.

NAMING FRUITS ON EXHIBITION.

SIR,—I have for a long time been thinking of writing to you about the exhibits of fruits at the Toronto Industrial. I notice that our exhibitors, almost without exception, write the names of the different fruits so small that people with poor eyesight cannot decipher them. This causes the caretakers a great deal of trouble, answering questions. If there were printed labels used, there would be none of this trouble. Do you not think this subject worthy of being discussed in our Society? It would certainly convey a great favor upon the old and poor sighted, and, indeed, the general public, if the change were made.

THOS. HANDLEY, *Orton, Ont.*

The subject suggested by our correspondent is certainly worthy of careful consideration by the directors of the Industrial, as well as the directors of every

other fair in Ontario. We have long felt that an improvement was needed in this particular. If the people are to be benefitted by a display of the best varieties of fruits, it is necessary that they should be able to see at a glance what those varieties are. A plan was suggested by American friends, some years ago, of having printed labels suspended over each plate of fruit by a wire hook. This hook is elevated by a coiled wire, which rests on the plate, and coils about through the fruit without displacing it.

LOCAL FRUIT GROWERS' ASSOCIATIONS.

SIR,—I was much interested in a paper read by you at a meeting of the Fruit Growers' Association of Ontario on "Horticultural Institutes." I believe the scheme is a good one, and, after talking up the matter with other people here, I find that all are favorably impressed with the idea, and see no reason why we should not have such an organization in Oxford County. I am requested to send to you for organization papers. Do I understand you to say the members of such institutes, who pay \$1 into their own treasury, are entitled to all the advantages of the Ontario Association?

R. W. NEWTON, *Woodstock.*

By referring to the appendix of the report for 1891, our readers will see full draft of the scheme for the affiliation of local horticultural societies with the Ontario Association. The plan has been adopted in a general way, and several local societies have already taken advantage of it. The particular wording of the by-laws has not yet been fully decided upon. The Ontario Association is willing to arrange to hold their own meetings in connection with these local societies when so invited, and the results promise to be exceedingly advantageous to all concerned. Next December, the meeting will be held at Brantford, with the Brant Fruit Growers' Association, and the following year it will probably be held with the Peterboro' Fruit Growers' Association.

SPRAYING PUMP.

SIR,—What spraying pump would you advise for the garden and small orchards of say, 25 or 30 trees? Those sold here at \$1.50 are little use, and the larger, at \$10, are too expensive.

A. A., *Hamilton.*

We have lately been testing several spraying pumps, large and small, in order to answer such questions as these. The best hand one we have tried is the Lewis Combination Spraying Pump, sold by Mr. W. H. Vantassel, Belleville, Ont, agent for Ontario. It distributes the water in a fine spray, which is easily regulated, and can be pushed up with considerable force.

SHIPPING APPLES TO ENGLAND.

SIR,—I think of shipping a car-load of my apples to England this fall, and I have been referred to you as one who could give me all information upon this subject. I would like the addresses of some reliable firms in England. I also want to know the average cost per barrel for freight from Ontario to Liverpool or London. Do you think it would pay me to ship there? Is there any great demand in England for Canadian apples?

S. P. FOOTE, *Bechesda, Ont.*

The addresses of reliable apple firms will be given in our advertising columns. The expense of shipping apples to the old country, including the freight commission, insurance, etc., will amount to about \$1.50 per barrel. It is possible to get special rates, which may reduce the expense ten or fifteen cents a barrel below this. There is considerable risk in the business, unless one is experienced and knows exactly how to put up apples for the British markets, and there is frequently as much probability of losing money as making it. It is better for an inexperienced fruit grower to take any good offer that is made him for his fruit, in the home market, rather than venture consigning to the Old Country. What we want more and more is, to encourage purchasing on this side, and the sooner we can bring the buyer and the grower of fruit into closer relationship, the better it will be for us. If by corresponding with apple salesmen in Great Britain, sales could be made direct, on the basis of the Government brand of inspected apples, it would be the most satisfactory way to dispose of our apple crop.

BEST VARIETIES OF PEARS.

SIR,—Would you name six of the best varieties of pears for home use or market?

A MEMBER.

We would be pleased to receive the opinions of growers in various parts of the country with regard to questions like these. Mr. Hilborn, of Leamington, gives the following as his choice: Clapp's Favorite, Bartlett, Flemish Beauty, Anjou, Sheldon, Louise Bonne.

BEST VARIETIES OF PEACHES.

SIR,—What would you name as the six best tested varieties of peaches for home use or for market?

A MEMBER.

Reply by W. W. Hilborn, Leamington.

I would name the following: Alexander, Early Barnard, Tyehurst, Early Crawford, Hill's Chili, and Smock.

REFRIGERATOR SERVICE TO ENGLAND.

SIR,—A firm of fruit and ship brokers of Hull, England, are equipping a steamer with refrigerating apparatus to ply between Annapolis, N. S., and London, England, exclusively for the apple trade. If sufficient encouragement could be given them from the apple shippers of Ontario, I believe they would run the steamer to Montreal, this coming season. The steamer in question will carry ten thousand barrels of apples, and will make the voyage from Annapolis to London in nine days. Such a service would be a great boon to Ontario apple shippers, for, with such facilities, we could safely ship our tenderest apples, which, under ordinary circumstances, rot in our orchards. In addition to apples, we could experiment in shipping to England our small fruits, and the probability is that, in a short time, a lucrative market for them could be opened up. The rate of freight, of course, would be a little higher than is charged by the ordinary steamers.

JOS. SCARBOROUGH, *Hanover, Ont.*

Such a service as that referred to in this letter, would be highly appreciated by all growers and shippers of apples in Ontario. We could afford to pay a higher rate of freight to have our apples landed in first class-condition, and we hope that our correspondent will encourage his friends to make the experiment this present season, if possible.

CORROSIVE SUBLIMATE.

SIR,—Has any one tried corrosive sublimate in dilute solution for extermination of insects and destruction of fungi?

I. J. CLEMENT, *Sarnia.*

We know of no one who has tried this substance. Probably the strength required would be also destructive to the foliage of the plant, which we would wish to protect. Prof. Shutt of Ottawa, to whom we have referred the matter, says he will undertake a series of experiments, determining the effects of using this substance.

THE GRAPE PHYLLOXERA.

SIR,—Enclosed please find a piece of the root from one of my vines. Please state in the *HORTICULTURIST* what is the matter.

P. SCOTT, *Cromarty.*

Prof. Fletcher has examined this root and finds that it is severely infested with phylloxera. This subject is exhaustively treated in Saunders' "Insects Injurious to Fruits." See also the *CANADIAN HORTICULTURIST* for 1891, page 247.

* Open Letters. *

GROWING AND KEEPING APPLES.

SIR,—My method of handling apples is as follows :—(1) Hand pick in September. I handle them like eggs, and never pack fallen apples, or dent with the finger the apples intended for sale. Then sell them as early as possible. (2) I never keep my apples in a damp cellar. I find it better to build a cellar purposely for fruit. I keep them airy until freezing weather, in piles, not too deep, eight inches is enough. I never put apples in barrels or boxes before shipping time ; they do not succeed as well as if kept open to the air, and they are apt to sweat and draw dampness, then “good-bye Mr Apple,” for it will lose flavor and rot. If properly handled and kept in a suitable place, winter apples should last until the first of June. I consider it careless and shiftless for any man to neglect close attention to his fruit in which there is so much money. (3) The orchard should receive special care. I have learned by experience the benefits of pruning. Prune one tree as it should be and leave another unpruned ; gather the fruit carefully, and keep them separate, giving the same attention to each, and the result will be that the apples from the well cared-for tree will last two months longer than that from the unpruned one. It astonishes one to travel through the country and see how the orchards are neglected. Some trees, thirty or forty years old, have never been pruned, and sometimes you will see several hundred shoots springing out from their roots, and yet the owners complain that they cannot raise apples. (4) I leave no limbs on my trees that I think ought to come off, and I prune in October only. This I find is the best time for pruning. I always keep the ground rich, using unleached ashes, two quarts annually around each tree. I am careful to keep the bark of my trees smooth and clean, allowing no worms to make webs and destroy the foliage.

J. H. SHAVER, *South Finch, Ont.*

A CANADIAN IN CALIFORNIA.

SIR,—The Mills grape vine came to hand and was planted yesterday. It is a little singular that the first vine that I have planted in this country was a native of Canada, and I sincerely hope it may do well in memory of the “auld sod.” By the way, the receipt of this vine “recollects me” (as the German says), that I ought to renew my subscription to THE CANADIAN HORTICULTURIST, which please find enclosed. In this valley, from 15 to 300 feet above tide-water, four miles east of the centre of coast line of Monterey Bay, grape vines do not do well at all. Any quantity of roses and other most lovely flowers, the year round, but “nary a vine” in the whole town. But, up on the mountains, Santa Cruz coast range, at an elevation of 1500 to 2000 feet, twelve miles inland, grapes do splendidly. Down here in the valley we raise the very finest of apples, which command good prices. Apricots and cherries are at home here. Large crops of prunes too are raised, but they do not have the same sweetness and rich flavor of the same fruit, raised where fogs are less prevalent. Our climate is very enjoyable, equable, mild and salubrious.

JAMES STIMSON, M.D., *Watsonville, Santa Cruz Co. Cal.*

THE STRAWBERRIES GROWN IN THE COUNTY OF BRANT.

SIR,—Strawberries are looking well in this county, as a whole. The winter was favorable for them. There are not so many plants being set this spring as usual. A large number of varieties are being planted, but probably the Crescent is still the leading one. The new Williams is quite largely set, and is quite a favorite in this county. I have for a few years been trying to improve the old Wilson. I put out seven acres this spring, and set three fourths Crescents and one fourth Improved Wilson, New Williams, Manchester, Cloud, Sharpless, May King, and Lovett's Early, so you see what my preference is. We are making great count on the meeting of the Fruit Growers' Association of Ontario, in Brantford, next December.

D. M. LEE, *Paris, Ont.*

PROTECTING THE PEACH.

SIR,—Perhaps you are aware that we in Paris live on the cold side of the peach growing belt; so that we cannot grow a crop more than about one year in seven, on account of the winter killing of the fruit buds. I have a seedling standing in a somewhat sheltered place, and three years ago it bore blossoms on a lower branch that was covered with snow all winter. Taking the hint, the next fall I bent down the trees, laying sticks of wood on it to keep it down, and covering all with straw until about the first of April. That year I gathered about one bushel of fruit from it. The next fall I did the same covering as before, and it bore one and a half bushels now, although partly injured by the rough treatment it is well covered with bloom, while other trees in the garden are entirely killed by the winter. I have young trees standing under an eastern bank, these I threw against the bank by cutting the roots on one side and covering as before, on these the fruit buds are preserved, evidently from the same treatment. If you please give this item a place in some corner in (our) magazine, it may help some fruit loving northerner to get a taste of his home grown peaches. Allow me to say, sir, I am proud of THE CANADIAN HORTICULTURIST. I am,

Yours, etc.,

J. A., *Paris, Ont.*

THE BISHOP BOURNE APPLE.

Sir,—The HORTICULTURIST was received last evening and read with interest. From the paragraph relating to the scions of the Bishop Bourne apple sent to you, one would infer that the name had an ecclesiastical origin, whereas it is the name of a place in England, where Mr. Sutton, the originator of the apple, was born. Also, the apple was grown from the seed of *Ribston Pippin* and not the *Newtown Pippin*. We have had a very late spring, cold frosty nights continuing through May, and only within the last week have we had any even comfortable weather; this, June 14th, being the first really warm day. I hope to hear a good account of the fruit crop in Ontario, so that we may have a car-load of your apples in due season. The last shipment proved, on the whole, quite satisfactory. —C. E. BROWN, *Yarmouth, N. S.*

FRUIT GROWING IN WASHINGTON TERRITORY.

SIR,—I wish to acknowledge the receipt of the Moore's Diamond grape vine and the volume 4 of the journal. I hope the vine will succeed in this Puget Sound region. My place is situated adjacent to the waters of this beautiful sound, and I have planted upon it two thousand fruit trees, chiefly Italian prunes. My man in charge tells me that he likes your magazine more than any other than for which I subscribe; it contains more practical articles. I would like to see articles from fruit growers in Western Canada. We have a glorious climate here with no danger of loss of trees from cold weather. Last December and January I planted over one thousand trees, a proof of the mildness of our climate. Prunes, cherries and all small fruits do better here than any other place of which I know. We can even beat California. I have just marketed some sharpless strawberries for which I received 30 cents a quart. They were retailed at 40 cents, along side of Californian fruit at 25 cents.

May 30th, 1892.

I. B. S. INSTEP, *Tacoma, Wash. Terr., U. S.*

FRUIT AT EDMONTON.

SIR,—The apple tree which you sent me has come to hand in first rate order. Many thanks for sending it. I am very sorry to report poor success in raising apples, or small fruits, here. I have received many packages of bushes and trees from the Experimental Farm, Ottawa. Some of the bushes have lived through two winters unprotected, but have not fruited yet. None of the berry bushes ever lived through the first winter except the Turner. I have a patch of the Turner growing since the year 1886. Sometimes they have yielded large crops, but last winter there was very little snow and the canes died. Sometimes the canes reach a height of five feet and, when the snow falls early and deep, they winter well.

J. H. LONG, *Edmonton, Alberta, N. W. T.*

✻ Our Book Table. ✻

FRUIT CULTURE, and the laying out and management of a country home, by W. C. Strong, Ex-President of the Massachusetts Horticultural Society, and Vice-President American Pomological Society. Published by The Rural Publishing Co., New York City, price \$1.00.

Although this is but a comparatively small book of 227 pages, yet it contains a vast amount of valuable information in a very condensed form. He begins with a brief, but very instructive chapter on Rural Homes, choice of locality, a good lawn, the approach, etc. He then proceeds to speak in general terms of the care of the orchard and garden, and afterwards to give a chapter to each of the more prominent fruits, twelve in all, with a list of those varieties, under each head which at present take the lead. We especially commend this book to all beginners in fruit growing, for it is quite up to the times.

CALENDAR OF QUEEN'S COLLEGE AND UNIVERSITY, Kingston, Canada, year 1892-93.

FROM California is to be exhibited at the World's Fair one of the famed huge redwood trees, or *sequoia gigantea*. The one selected is 300 feet high and more than 30 feet in diameter at the base. A specially constructed train will be necessary to carry the monster across the continent. It is the intention to hollow the base into booths in which will be sold California wines, fruits, and curiosities made of polished redwood.

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