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ME. NIXON.

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McMAHAN APPLE.

THE State of Wisconsin has given us several apples of value, as Wolfe River, Pewaukee, McMahan and others, but none of them equal the latter in hardiness. At the meeting of the State Society, held in Madison, Wis., in 1890, Mr. Hatch, a fruit grower, stated that during the previous year he had raised three hundred bushels of fruit of this variety, and, in his opinion, it was very hardy and profitable.

Dr. Hoskins, of Vermont, writes us:—I have had this apple in free bearing for three or four years. It seems to be an annual bearer and very productive. It is also quite iron-clad, and the quality very good for culinary use. It comes on after Oldenburgh is gone and fills its place very well for family use, but in a commercial orchard quite a number of the large red fall Russians of the Apot family are dangerous rivals, as they, though not quite so productive, or sure, are much fairer in appearance, and not inferior in quality. In most markets a red apple will out-sell a yellow one of the same size, season and quality.

Mr. Craig, of Ottawa, reports that the McMahan was exhibited at the last meeting of the American Pomological Society, Washington, where it attracted much attention and favorable comment, owing to its large size and golden, waxen color with a bright blush on the sunny side. He says the tree is strictly hardy at Ottawa and exceptionally vigorous. The fruit may not be

suitable for distant shipping, but the planting of this variety should certainly be encouraged in the north.

The following is a description of the apple: Tree, vigorous, healthy, an early bearer. Form of fruit, large, round-obvate; Calyx partially open, set in a deep cavity, sometimes a little corrugated. Stem short and rather stout, set in deep, narrow and more or less russeted basin. Skin white or pale lemon yellow, more or less marbled or splashed with red in the sun. Flesh white, fine-grained, acid, tender and almost melting. Season, early winter. Quality very good for cooking.

GIRDLING GRAPE VINES.



R. JOHN BURROUGHS, of the Hudson Valley, writes in *American Gardening* on this subject as follows: My opinion of the practice of girdling grape-vines is, that on the whole, it is poor business. Grape-growers, I fear, are killing the goose that lays the golden egg. If all take to girdling, where is the advantage? It is like the crowd all getting up on chairs at the show; what better off are they? Girdling hastens the coloring up of most varieties of grapes, but hastens the ripening very little, while it distinctly injures the quality of certain kinds. Girdled Delawares are uneatable. People who buy them probably lose their appetite for Delawares for some time. They are as sour as vinegar. Red grapes seem to be injured by girdling more than black ones. Girdled Niagaras are large and pleasing to look upon, but their quality is not equal to the ripe ungirdled fruit. Moore Diamond is ruined by girdling. Wordens are not increased in size by girdling, but they color four or five days earlier. They are, however, much more liable to crack, as are all other girdled kinds. Fruit on a girdled Moore Early is larger and earlier, and the quality is not much injured, but it may crack badly. A vine heavily loaded will not ripen its fruit any earlier by being girdled. Girdle other kinds if you will, but when you come to the Delaware, hands off!

Mr. Jabez Fisher, Mass., also says: I cannot avoid the conclusion that wherever a grape-vine will fairly ripen fruit by natural processes, girdling is an operation that cannot be commended, certainly not for its commercial results. Its disadvantages are greater than its advantages. The fruit possesses no attractions for the connoisseur, and one year or more must be given the vine to recover from its effects. It is possible that in some situations or circumstances where the seasons are not long enough to ripen the fruit naturally, a crop might be saved by girdling if the grower were willing to devote the succeeding season to generous feeding, without production of fruit, in order to let the vine for a crop in alternate years. I doubt somewhat if even this is feasible, as my vines girdled in 1890 have not yet fully recovered.—*American Gardening*.

WESTERN NEW YORK FRUIT GROWERS.—I.



THE writer was in attendance at the recent meeting of this, in many respects, the most important Society of its kind on the continent. The fruit-growers of the western part of New York State have always taken the lead in their favorite industry, and the discussions at their meetings are always inspiring and profitable to us in Southern Ontario, where the conditions are so similar to theirs.

The meeting was ably presided over by Mr. W. C. Barry, son of the late Patrick Barry, who so long and so ably filled this position. Unfortunately, we were too late to hear the President's opening address; suffice it to say he is a worthy successor to his father, an educated man, being a graduate of Rochester University, and is an excellent French and German scholar, by means of an extended course in Germany.

PEACH CULTURE.

An important address was given before the Society by the Hon. J. H. Hale, of South Glastonbury, on "Peach Culture." Mr. Hale has made himself famous throughout the whole of the United States by his enterprise in this industry. Early in his experience he learned that where peach trees were fertilized with stable manure they nearly always became subject to the yellows, and that where commercial fertilizers were used there was much better success. In the application of these he had found that the less nitrogen and more potash that is applied to the soil the more healthful are the trees. During the last seven years an orchard of thirty-five acres has yielded him over sixty thousand dollars worth of fruit. This was a source of no small gratification, in view of the great amount of harsh criticism that was showered upon him concerning his apparently reckless adventure, in planting so freely of fruit of uncertain yield.

In Connecticut, as with us, the greatest difficulty is the winter-killing of the buds.



FIG. 510.—W. C. BARRY.

Mr. Hale believes that he has, to some extent, avoided this danger by his methods of pruning. He prunes annually, shortening in the first year about two-thirds of the young growth, aiming to produce trees with low spreading tops, and with open heads, but, after they have reached the bearing age, he trims for fruit without so much regard to the symmetry of the tree. He does this work in the spring of the year, just as the fruit buds begin to swell, because at this time he can discern the live buds, and the great point is to so prune as to avoid cutting them off.

He believes in thinning peaches. He sets boys and men at work taking off the surplus, leaving no peaches nearer together than six inches; he frequently removes one-half the fruit. In this way he believes that he gets just as many baskets of peaches, and much larger samples; for instance, instead of two hundred small peaches in baskets, he gets them of such a size that from sixty to one hundred fill a basket. The trees in this way are less exhausted, it being a well-acknowledged fact that the production of seeds exhausts the tree of its strength more than the production of fruit.

In cultivating his peach orchard his method is to plough shallow in early spring, and keep the orchard cultivated until the first of August, after which he ceases this work in order to allow the wood to mature well before the cold weather.

In harvesting his peaches, he does not believe in gathering them green, before they have attained their full color and excellence of flavor. As fast as they are picked from the trees they are taken to the packing-house, and Mr. Hale attaches great importance to the proper method of doing this work. Indeed, he attributes his success largely to his honest methods of packing his fruit. He makes three classes of his fruit, and labels them with tags of three colors, red for extras, white for first-class, and blue for seconds. In the extras, peaches are rejected measuring less than $2\frac{3}{4}$ inches; in first quality, those measuring less than 2 inches; while the third quality are marketable peaches, below the latter size. The work is done by young ladies of taste, whom he pays liberally. The instructions are, that no better fruit is to be put on the top of the basket than may be found in the bottom, and this is guaranteed to all buyers.



FIG. 511.—J. H. HALE.
A typical Connecticut Yankee.

When the crop is ready for sale he visits the leading fruit merchants of the various cities of his State, especially those who cater to a fancy trade, he explains the system upon which his peaches are graded, that they are to be sold at a price

quite above that of ordinary peaches not graded. As a result, Mr. Hale states that he has received for his peaches from fifty to seventy-five cents more per basket than the ordinary prices.

Speaking of varieties, Mr. Hale stated, that while early varieties, such as Alexander, are perhaps more hardy than others, there was little demand for them in our markets, and little money could be made out of them. He believes the best early peach of hardy character is the Mountain Rose.

Of yellow peaches the most hardy is Hill's Chili, and with him it has only failed to fruit twice in twelve years; but in order to do well it needs to be carefully thinned. In his opinion it is the best canning peach in America. The Wonderful is a seedling peach which at first promised well, but since it has been propagated by budding, it has proved to be only a poor Smock, and a failure in most places.

In answer to a question regarding the amount of fertilizers to apply per acre, Mr. Hale said that he uses an average of 1800 pounds per annum, in the proportion of a pound of potash to two pounds of bone meal. He believes in applying the elements separately according as the land seems to require.

SMALL FRUITS.

During the discussion upon this subject, a member stated that he considered stable manure best for currants and gooseberries, that it should be applied in the fall and cultivated in the next spring, but one should be careful not to apply too much. Others stated that, in their experience, wood ashes gave better results with these fruits. The statement of a Michigan fruit grower was quoted to the effect that he has received \$800 for his crop of Downing gooseberries off one acre, picked and marketed when ripe. The Downing has this advantage, that when ripe it was still green in appearance, and suits the market, at a date when others do not. A gentleman present stated that he has experimented in growing gooseberries on two kinds of soil, one stiff upland, the other a low gravel. On the latter they had failed completely, but on the stiff land they had yielded freely.

Prof. L. H. Bailey said the leaves of currant bushes should remain until about the month of October, but usually they drop much sooner, owing to mildew. This early loss of the foliage very much lessens the next year's crop. He would give the preference to the Cherry currant, because the Fay is more capricious in bearing, and more inclined to split. The leaf blight coming about midsummer, must be kept in check, or currant growing will soon become unprofitable. He agreed with the previous speaker that the Downing gooseberry is profitable, because it can either be picked green or else be left until ripe, and still be sold as a green berry.

Mr. Johnson, of Peruville, gave an address on the "How to make growing small fruits profitable." In his opinion, a great secret was to apply manure in

quantities that might be called quite excessive. He believed in planting blackberries and raspberries so that they could be cultivated two ways with a horse, thus saving a great amount of labor. He made several good suggestions to strawberry growers. His plan for mulching was to sow corn between the rows, somewhat late in the summer, which, in the fall, is bent down and left as a mulch to protect the plants.

BLACKBERRY CULTURE.—A good paper was given upon "The culture of the blackberry." The writer stated that he had found an almost gravelly loam well adapted to the cultivation of this fruit. In planting, his plan is to plough a furrow and set the plants in it from two to three feet apart. The tips are pinched back every summer when they reached a height of two feet. The prices of blackberries had averaged him about 12 cents, and at this price he found them the most profitable of small fruits. The varieties he would recommend are the Ohmer and Snyder. Mr. Hooker stated that the Ancient Briton is an old variety, hardy and productive, about the size of the Snyder, but the latter is, in his opinion, the more profitable. The larger kinds, such as Kittatinny and Minnewaski are not hardy with him. The Agawam is an early and popular berry, especially where a special market has been made for it of appreciative consumers who know its excellencies. Mr. Hale said that he had grown the Early Cluster, but had found it a poor berry. The Snyder is a success with him, but its fault is an inclination to overbear. He had tried thinning his Snyder berries with shears in blooming time, and again when the fruit was about two-thirds grown. The result was larger fruit, and nearly as much in quantity. Though the fruit is somewhat poor in quality, it has a beautiful appearance and sells well, but the Minnewaski is destined to be the best blackberry for the north. Wachuset is among the best blackberries in quality, but it is a poor bearer.

In an address afterwards given by Mr. J. H. Hale, on the subject of "Small Fruits," he stated that he believed that the ventilation of small fruit baskets, as commonly practised, is a mistake. They should be kept in a cool room until the time for shipment, and then packed in tight, close boxes. In this way they carry better, and look better when they reach the market. In order to accomplish this, it is necessary to have a cool room in which to keep the fruit temporarily until the packing time. The great secret he believed to consist in liberal cultivation and liberal feeding. It is a great mistake to grow too many plants; narrowing down the rows would aid in the production of finer and larger berries. He did not believe in the old plan of making hedges of our blackberry and raspberry plants. He prefers them to be so planted that they would be cultivated in two ways with the horse. He is careful to grade even the small fruits; and though, of course, this could not be done in the same way as with the peaches, a good deal could be done by the pickers if provided with two baskets, one for the first class and one for the second class fruit. He had found

it a good idea to print cards with the name of the grower, his farm, and a description of the fruit, and to place one of these in the bottom of each basket of small fruit. This would produce inquiry among the consumers for the fruit grown by such a shipper. He was decidedly in favor of using chemical manures for small fruits, because the barnyard manure encouraged too rank a growth of foliage. The chemical fertilizers give a firmer, a more highly-colored, and better flavored berries.

MAKING A HOT-BED.



THE situation for a hot-bed should be well sheltered from the north and north-west, and the beds should face the south or south-east, in short it should be a warm sheltered spot. Hot-beds are of two kinds, namely, above ground and under ground. A pit in the ground is a saving of manure and also of surface covering, but in the case of low or heavy lands where the water would be likely to drain into the pit and cool the manure, the hot bed should be made entirely above ground. Where the land is sandy, gravelly, or otherwise well drained, and there is no probability of the water lodging in the hole, the pit is the most economical method and the easiest worked.

As fermenting material there is nothing better than good fresh horse manure, well wetted in the stables. Throw it into a pile in a sunny place or under a shed to heat, and when it has got well warmed up turn it over, shaking it loose and mixing it well and see that it is all moist. Then pile it up till it again gets hot throughout. Now make up the beds. Throw the hot manure into the pit, shaking it up and spreading it evenly as you go along, and tread it down firmly, especially under the rafters along the sides of the pit and in the corners. Fill to within 10 or 12 inches of the surface. Now put on the sashes and keep them tight till the heat again gets strong; cover up with mats, straw or shutters at night, but let the sun shine on the sashes in the day time, it will get up the heat quicker. When the heat is well up throw in the soil spreading it equally all over the bed and four to five inches deep, and neither sow nor plant in it till the heat of the soil three inches under the surface has declined to 100°. Then all is safe.

Points to observe in making a hot-bed: Select a warm, sunny, sheltered place; make provisions for quick and effectual drainage from the beds both under ground and from the surface; never put in the manure till it is quite hot; when the pit is filled with manure and it is packed down, never put on the loam till after the manure has again become quite hot; don't sow or plant till the heat is on the fall; and so long as "steam" gathers in the frame ventilate a little day and night to let the "steam" escape, else the ammonia will burn the plants. But you can cover these ventilating apertures with straw or matting in such a way as to let the ammonia escape, and at the same time keep out the cold.

GOOD RESULTS FROM SPRAYING.



EXPERIMENTS in spraying have been carefully made under the supervision of the United States Department of Agriculture. The work has been executed by the Geneva Experiment Station; in New York State; by Professor Taft, in Wisconsin, and by the Department in the vicinity of Washington. The object was to learn the comparative efficiency of the various fungicides, and the frequency of application necessary to insure the best results. The conclusions appear to be in favor of the Bordeaux mixture as the most effective remedy, and of early applications.

The formula for making the Bordeaux mixture, full strength and half strength, is here given :

BORDEAUX MIXTURE, FULL STRENGTH.

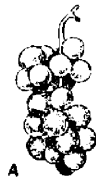
Copper sulphate.....	pounds... 6
Lime (unslaked).....	" .. 4
Water.....	gallons... 22

BORDEAUX MIXTURE, HALF STRENGTH.

Copper sulphate.....	pounds.. 3
Lime (unslaked).....	" .. 2
Water.....	gallons.. 22

The full-strength Bordeaux mixture will probably be no longer used, as the half-strength preparation has been found to be equally effective.

As an example of the benefit of the use of this mixture, Fig. 512 shows two bunches of grapes (*a*) treated with Bordeaux mixture one-half strength for black rot, and one (*b*) not treated. The latter is almost ruined with the rot, while the former is nearly perfect. These are not picked samples, but chosen out of many similar ones.



The benefit in the case of apple scab is also very evident. Fig. 513 shows the average results of three sets of eight apple trees treated for scab with copper carbonate and Bordeaux mixture as shown. The fruit, when harvested, was separated into first, second 3 and third qualities, and the proportions are indicated in the engraving, white showing first quality, lines second quality, and black the third quality. Figs. 514 and 515 show the benefits gained in treatment of plum leaf blight



FIG. 512.

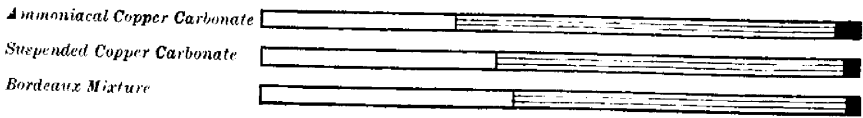


FIG. 513.

in nursery rows at Geneva, N. Y., by the use of weak strength Bordeaux mixture ; from photographs taken September 19th, 1892, one showing a representative sec-



FIG. 514.—UNTREATED.

tion of an untreated row, and the other, the same of a row that has been sprayed early. The first application was on May 21st, the second on June 3rd, and the third on June 24th. Other treatments followed later.



FIG. 515.—TREATED.

The success in treating quince fruit spot, a most injurious fungus, is shown in Fig 516, when the number of applications of Bordeaux mixture is shown. The white or blank portion of the bars represents the percentage of fruit free from spot; the portion marked with lines slanting to the left, that lightly spotted,

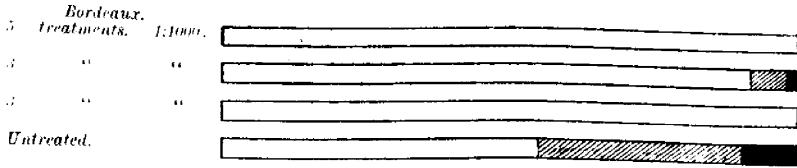


FIG. 516.

or second quality; and the black portion, that badly spotted. Each $\frac{1}{32}$ of an inch represents one per cent of fruit. Surely such careful experiments and such uniform results as these should at once settle the whole question of spraying our orchards and vineyards with copper mixtures, and lead every one who is engaged in fruit growing as a business to use them freely.

For a small quantity of Bordeaux mixture, the following formula is given :

Copper sulphate.....	ounces	4
Lime (unslacked).....	"	4
Water.....	gallons	$7\frac{1}{2}$

As to the time of application, it would appear that the Bordeaux mixture is useless before the foliage appears, but should be applied as soon as possible thereafter. It is also shown from this report that one treatment with a simple solution of sulphate of copper (1 lb. to 25 gals. of water) in early spring, say March or April, reduces the amount of scab quite noticeably.

In one instance copper carbonate in suspension was more effective than the ammoniacal solution, but this can hardly be accepted as true in all cases as yet. If it were true that the two powders, Paris green and copper carbonate, would serve every purpose applied in conjunction, a great amount of labor and expense would be saved. Professor Taft, the experimenter, found that the Bordeaux mixture was more effective than either form of copper carbonate, but whether enough difference results to make up for the increased expense may be an open question.

Wolf River Apple.—Inquiry is made of this large and showy apple for its value for general planting and for its hardiness. It is believed to have originated from seed of the Alexander, well known as a very large Russian fruit which is hardly up to second quality. Dr. Hoskins of Northern Vermont, who has given much attention to hardy apples, says it is not nearly as hardy as the Alexander, as a severe winter killed every Wolf River tree to the snow line. In other localities in Vermont it has not been injured. It may become a good market fruit, handsome in appearance, and valued in localities where a refined flavor is not wanted.

THE PEAR TREE PSYLLA.



WE briefly referred to the pear tree psylla, in our report of the Rochester meeting, as being one of the most dreaded enemies of the pear grower. It was imported from Europe upon some young pear trees in 1832, by Dr. Plumb, of Salisbury, Conn., and it has gradually spread over the United States until it has reached the Mississippi Valley, and it is quite abundant in some parts of New York State. Mr. Powell, an extensive fruit grower of Ghent, New York State, reports that in 1892 these insects reduced his

pear crop from an estimated yield of twelve hundred barrels to an actual yield of less than one hundred barrels of marketable fruit. The indications of its presence are the stunted growth of the trees, withering of young shoots, sickly appearance of the trees, the leaves turning yellow and the fruit stunted in growth, which after midsummer fall from the tree. A fluid, called honey dew, accompanies their presence upon the trees.

Mr. Slingerland, who published a bulletin from the Cornell Experiment Station upon this insect, states that an orchard which he visited in November, 1891, presented a deplorable appearance as though scorched by fire.

Fig. 517 represents an immature form of the insect, or nymph, and fig. 518 the adult form, much enlarged; the actual length being indicated by the line at the side. When first hatched, it is a translucent yellow, scarcely visible to the naked

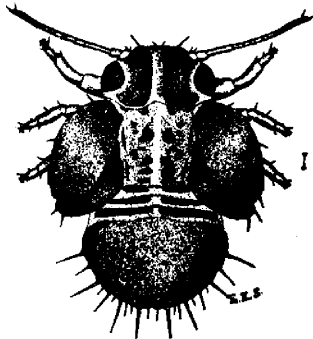


FIG. 517.—FULL-GROWN NYMPH,
DORSAL VIEW.

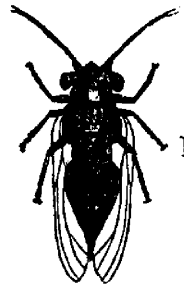


FIG. 518.—ADULT INSECT.

eye; eighty of them placed end to end would scarcely measure an inch. They gradually increase to nearly four times this size. In about a month the nymph changes to the adult insect, the full-grown nymph very much resembling a

Cicada, except that it is so small that nine of them placed end to end would only measure an inch. The general color is crimson, with broad black bands across the abdomen. The insect hibernates in the adult stage and deposits its eggs in early spring in the creases of the bark and old leaf scars. About the 18th of May the most of these insects are hatched out, and the minute nymphs soon find a suitable hiding place where they set to work sucking the sap with their short beaks.

We fruit growers in Ontario must be wide awake this coming spring, for should this insect suddenly swarm in our orchards, it will utterly destroy our prospects of a crop. Fortunately, it has been discovered that the nymphs are exceedingly sensitive to the effects of kerosene emulsion. The formula experimented with was one-half pound of hard, or one pint of soft, soap, one gallon of water and two gallons of kerosene. This was diluted with twenty-five gallons of water, and it was found that every nymph was killed soon after its contact with this emulsion. A safe plan will be to spray our trees in the early spring, just after the leaves have expanded, with this preparation; probably the two weeks succeeding the 15th of May will be the most suitable time. If done faithfully no further danger from the insect need be feared for the season. Our report for 1892 contains a carefully prepared article by Dr. D. W. Beadle, descriptive of this insect.

TREATMENT OF WINTER PEARS.

Mr. W. C. Strong, of Massachusetts, makes the following remarks on this head in the American Garden :

“Our treatment of the fruit is simple. The picking is done on a clear, dry day, into bushel boxes, as late in the fall as the weather will admit. The fruit is then stored in a cold, rather moist, cellar. If the temperature can be kept near the freezing point, even the Lawrence may be kept along through January and the Josephine into May. As the fruit is wanted, either for the table or for market, it should be placed in drawers in a warm room for about tea days before it is used. This will hasten the ripening process, and secure the right flavor in the fruit.

Winter pears will never be abundant, nor will they be wanted in large quantities, as in summer or autumn. They are a luxury, wanted mainly as a dessert fruit. If the culture and the care are given which will insure highest quality, there is every reason to believe that the demand will fully equal the supply, and at remunerative prices. The very fact that special care is required to prevent the fruit from shriveling and bring it to perfection will so limit the quantity in the market that larger profits will often be realized than with earlier varieties.

MANURING APPLE ORCHARDS.



ORTICULTURISTS and farmers are finding out that it pays them to use an occasional application of bone and potash manures in the orchard. When the apple trees get into full bearing, manure may be applied pretty freely without much danger of making wood growth rather than fruit. The paler green of the leaves in bearing apple trees, as compared with those not bearing, shows the tax on vitality which fruit productions cause. It shows probably in the case of most old trees the inability of the roots to supply food for the present crop, and anything besides that prevents the formation of fruit buds for a crop another year. In other words, if the soil were made rich enough a partial or full crop of fruit might, accidents accepted, be looked for every year. Some apples trees do bear every year but they are chiefly of the summer varieties, that mature early enough to allow time for the production of fruit buds afterwards.

In some localities there are off years for apple bearing, and the trees are generally fruitless. The fall and early spring is the best time to manure these non-bearing apple orchards. A dressing of manure, spread on the surface in the fall or early spring, will work its way through the soil by rains and melting snows the coming winter and spring. Nothing will or can be lost, for apple tree roots go down so deeply that leaching beyond their reach is hardly possible. It is not merely or chiefly under the trees that manure should be spread. Apple roots extend very widely. Years ago in digging an underdrain through a rich spot were found roots that grew fully four rods away. Whether the roots extended as widely in every direction we do not know. Probably if not interfered with by other trees they did.

Stable manure is a complete fertilizer for crops that grow mainly to leaf and stalk, but it is not a full manure for grain, and still less so for fruit trees. In naturally fertile clay soils the carbonic acid gas, caused by decaying manure in the soil, will make soluble some portions of inert potash which all clays contain. But even here potash salts or hardwood ashes will be useful, while on sandy or gravelly soils the addition of potash is always indispensable. Without the potash the trees will grow most luxuriantly but without fruiting. The potash is most necessary for the fruit at the time the seeds are being produced and the fruit is ripening. Without potash, the change from the sour and acrid juices of the green fruit to the ripe, melting sweetness of the same fruit when ripening would be impossible. Overloaded grape vines often suffer from lack of available potash, when the grapes hang for days and weeks, without change, upon the vines.

It should be remembered that years ago, when the soil was rich and insect enemies were unknown, apples were the most easily cultivated of all fruits, and the surest to produce a crop. They ought to be and may be made so again. With

the right proportion of various plant foods properly administered, apple growing ought to be the most certain and successful business known, instead of being, as it has become, the most uncertain. We know now how to destroy or guard against insect enemies and it only requires the proper manures to make the apple crop one of the most profitable crops of this country.

Hamilton, Ont.

W. A. FREEMAN.

PROFITABLE STRAWBERRY GROWING.



fertilizing the strawberry remember it feeds from near the surface, and, as a consequence, is easily winter-killed. Therefore, to make success sure it is best to well under-drain a piece of land to carry off the surplus moisture in the fall and spring. The soil should be moist but not wet. Under-drains are fully as valuable in dry as in wet weather, as they prevent, in a measure, the evaporation of moisture from the soil. A soil that will produce a good crop of corn will produce a good crop of strawberries. I would recommend a good clover sod, heavily fertilized with good stable manure. Turn this under and plant to corn, which will taken off fertilizer than any other hoed crop. After the corn is taken off, plow the ground, have the plants ready in the spring and set them in rows four feet apart. Grow them in what is known as the "matted-row system," not allowing the rows to spread more than 16 or 18 in. Keep the cultivator going and the ground free from weeds.

The second season you will obtain the best crop. Early in the spring, after the plants are large enough for you to decide, go in and take out the smallest, weakest crowns. When the crop has been harvested, put in the plow and turn under the whole mass. Take off but one crop from a bed. Have a new bed coming on each year for next season's crop. If the rows are four feet apart, a row of beans may be grown between them the first season, but the ground should be well cultivated, the cultivator running within six inches of the crowns till the runners start to grow. When the runners have reached a distance of eight or nine inches on each side pinch or cut them off. As fine specimens and as large crops may thus be grown as by the hill system.

Potash is the best fertilizer for the strawberry and is most chiefly obtained from hard wood unleached ashes. Have them guaranteed to analyze at least five per cent. of potash and there should be at least one and a half per cent. of phosphoric acid in them. The vine and foliage require nitrogen and the fruit potash and phosphoric acid. The former will be more cheaply obtained from good barnyard manure, the latter from ashes and ground bone. Good Canada hardwood ashes may be brought for \$10 to \$12 per ton, and 50 bushels or more be profitably applied to an acre of berries.—GEORGE T. POWELL, in *Farm and Home*.

PROMINENT CANADIAN HORTICULTURISTS.—XX.

MR. NELSON J. CLINTON, WINDSOR, ONT.



NELSON J. CLINTON was born in Windsor, March 4, 1861. His father, the late Capt. W. R. Clinton, had the true sailor longing for green fields and golden fruits, and many years ago bought a small farm near Windsor, which he facetiously named "The Ranch." Here he delighted to spend his leisure, planting, pruning and improving, till the little worn-out French farm became a garden, and here Nelson took his first lessons in horticulture under his father's care, and that of a Southern gardener; who not content with Northern fruits, essayed, with marked success, to grow sweet potatoes and peanuts.

After a course in the Windsor High School, he spent one year and three months at the Guelph Model Farm, an institution for which he has the warmest

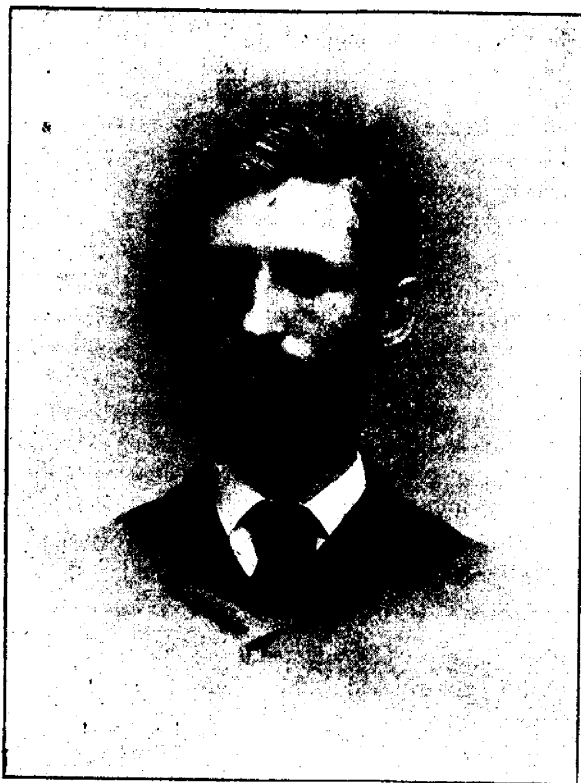


FIG. 519.—NELSON J. CLINTON.

regard and to which he is a frequent and welcome visitor. The "Manitoba fever" struck him soon after, but the climate was hardly congenial to his favorite pursuits. In 1884 he took charge of "The Ranch," growing fruits and vegetables for market, but making a specialty of apples and pears. As an adjunct to his orchard he has a large milk dairy and a herd of well-bred hogs.

As a prize-taker in fruit Mr. Clinton is uniformly successful. In 1890, in competition with the best fruit of Michigan at the Detroit Exposition, he succeeded in carrying off three of the five first prizes and two of the second prizes for pears.

His papers on fruit growing, notably those read before the Ontario Fruit Growers' Association, The Dominion Fruit Growers' Convention, Ottawa, and the Ontario Experimental Union, are well-known. Mr. Clinton is a most successful organizer. Largely through him the North Essex Farmers' Institute was established in 1889; and to him, also, is due, largely the credit of the splendid success of the local management of the 1889 meeting of the Ontario Fruit Growers' Association, of which he is a director. In 1889 he was elected to represent the fifth ward in the Town Council of Windsor, and as chairman of the Market Committee he has succeeded in making the market accommodations among the best in Western Ontario.

Oiled Calico in Place of Glass.—Many use calico both oiled and unoiled in place of glass. Anyone can easily prepare a calico sash as four strips of board nailed together with a cross piece as a brace, answers very well for the frame-work to which the cloth is tacked. For very early work this will not answer, but for later plants, after danger of severe frosts is past or in the south where there is but little winter, it answers every purpose. There are several market gardeners north of Chicago who make extensive use of oiled calico for growing vegetables such as cabbage, cauliflower and salads, using it in preference to glass during April, May and June, also to cover up cucumbers, tomatoes, egg plants, etc., which grow and crop within these same frames. The idea is that without glass as the sun gets power and yet is not warm enough for the plants to be without some protection, the calico covering answers the purpose very well. The important question with market gardeners now is how to grow vegetables cheap enough to compete with those from the south, and very extensive grounds can be completely covered with calico with comparatively little expense.

Beech Timber is especially adapted for subaqueous structures, or for positions in which it is not exposed to the action of the atmosphere. As fuel, the beech is very valuable, and is surpassed in heat-giving qualities only by the hornbeam and maple. The charcoal of the beech is highly esteemed on account of the equable heat which it emits. The bark is useful to tanners, and from the ashes of the wood excellent potash is obtained.

THE SAW-WHET OR ACADIAN OWL.



THIS district is notable for the many different kinds of owls which frequent it. Eleven distinct species are known to ornithologists here. Some of them are nearly as large as eagles, and occasionally play havoc with our domestic fowls when roosting on trees in the fall of the year. Other kinds are of very small size, and live chiefly on small vermin. The saw-whet is the smallest of all the owls, perhaps the smallest of all birds of prey which visit us here. In many respects he may be regarded as a curiosity. The first one I ever saw was

when one morning, about thirty years ago, a neighbor called my attention to what he said was a cat-bird killing a pigeon on his barn floor. There I found a little owl grasping with his talons the neck of a blue dove, about three times the owl's size, and nearly dead. It was only by physical force the slayer was compelled to let go his hold. So I slew him in order to procure his skin for preservation, for I strongly suspected him of being the murderer of some of my fine fancy pigeons.

Saw-whets are never very numerous hereabout, but last fall a few of them were observed in the orchards in this vicinity. They seem to have little fear of man, or, indeed, of any other animal. For a place of abode in the fall, they seem to prefer an apple tree; they perch close up to the trunk of the tree and will not fly until closely approached, and then will fly only a short distance.

It is well known they do not eat fruit, nor do they hunt for food in the day-time, hence we conclude they are in the orchards for the purpose of preying upon field mice during night-time. In winter they are often seen in barns or other farm buildings; there, of course, for the double purpose of shelter and food supplies.

On the cross-beam of a large barn, I lately saw one of these little owls surrounded by a multitude of English sparrows making a great noise, apparently trying to get the mysterious looking creature to make a movement, but there he quietly sat, seemingly quite unconcerned, knowing full well how easy it would be for him to procure supper and breakfast from among them after darkness obscured their visions. Probably that was the first time any of those sparrows had ever seen such a prodigy, for, although known widely throughout North America, they are not abundant in any locality. I have not yet met a naturalist who could tell me much about their habits, but it seems they are not migratory, in the ordinary sense of the word. I think, however, there can be no doubt

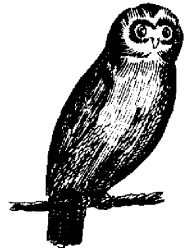


FIG. 519.—*NYCTALE ACADICA.*

that wherever they abide they destroy a great number of sparrows and mice. Being birds of prey, they do not come under the category of small birds, therefore, are unprotected by law.

They are a convenient target for boys practising with shot-guns, and for others who kill merely because killing affords them a pleasure. They breed but slowly; their nests—generally in a hole of a tree—contain only from two to four eggs. Therefore, they will never likely become numerous enough to combat the evil of the sparrow nuisance. Nevertheless, they are worthy of our careful consideration.

D. NICOL.

Cataraqui, Frontenac Co.

Hints on Mulching.—Inexperienced gardeners often fail to obtain the best results from mulching, and sometimes do more harm than good by a lack of knowledge of what to use and how to use it. The character of the plant is very nearly a reliable guide, as those which have their leaves at the time of covering, as spinach, lettuce, strawberry plants and others do not need to be covered very thickly or with anything which is likely to become matted under a covering of snow so as to exclude the air. As they breathe through those same leaves, which are the lungs of the plant, they are smothered if buried too deeply or with too close a covering. The more abundant their foliage the less the need of covering. In a locality where the ground is not likely to freeze and thaw very often there is less need of protection than upon a warm southern exposure. It is not the freezing that kills, but the fact that thawing in spring may start a new growth which will be so tender that it will be killed by another freeze. They also need to be protected from the direct rays of the hot sun when the thawing process begins.—Orange Judd Farmer.

New to Most Fruit Growers.—At the annual meeting of the American Horticultural Association Professor Budd, of Iowa, made a statement that was new to many in the matter of protection and covering as it applies to birds and insects. In this country there is no netting manufactured for the covering of cherry and like trees. In Europe they manufacture a netting for this special purpose, and manufacture it very cheaply.

The Iowa station the past year imported 1,500 square yards of this English netting, which cost in that country only one cent per square yard. That was the factory price, and the cost of transportation was one-half cent more per square yard. That netting is very durable and will be used at the station grounds over grape-vines and many other kinds of fruits. The netting is made with different sized meshes.—The Farmer's Call.

Plums should be gathered before fully colored, all wormy specimens and wind-falls discarded, and can be shipped successfully in peck boxes, twenty-four quart berry cases or the above named basket.

SOME ABUSES OF FRUIT GROWERS.



ALLOW me to draw the attention of fruit growers in general to the fact that there is a duty of 35 per cent. upon all spraying apparatus, such as knapsack sprayers, nozzles, and all other appliances of the sort. Apart from politics I do not think this should be so, as according to the horticulturist at Ottawa, and indeed to our own knowledge, no machine of any use is manufactured in Canada. I tried through our M. P. to have it altered last year, but without result. I should suggest that the President of the Fruit Growers' Association of Ontario should take steps to have the matter brought to the notice of the Government. I have orders for a number of Vermorel knapsack for spring delivery from England, and the price laid down in Ontario is \$12, and the duty is another \$4, a perfectly unnecessary addition to what is almost a necessity in the present day, in my opinion. I consider that under present circumstances fruit growers will be wiser to see what can be done to improve the quality of what they already grow, rather than trouble themselves about new plantations and more hardy varieties. Have you any statistics as to the employment of the Official Inspector of apples this season? His inspection will have to be made compulsory, it would appear, if Canadian apples keep their reputation, or I should say regain their lost reputation. Canada had the world's markets pretty well to herself this year, and a pretty mess has been made of the opportunity. Either the packers have been most criminally careless, or the English agents are a poor lot of sellers! I believe it is chiefly owing to the bad apples put up and to bad information as to the expected crops of apples and oranges. These were all said to be bad and they turned out larger than was expected (except U. S. apple crop) and in consequence the shipper gave too much money for apples. Our information as to crops of all kinds of fruit is most lamentably deficient, and I favor a member of the board of directors, or some trustworthy fruit grower, being paid to visit the chief fruit-growing districts to report. You would then get a true estimate from one man, whereas with these estimates from various persons in different districts you get a lot of views often diametrically opposed to each other. The writers are some of a gloomy disposition, some of sanguine, often a *very sanguine* disposition, others only just guess, whilst again others apparently are suffering from billousness! The consequence being, I submit, that during the last few years, in spite of the most praiseworthy efforts of the editor to get at the truth, the estimates have by no means been borne out by the crops. You have tried another most excellent innovation, namely, weekly market reports, but most unfortunately you were extinguished by the post office. Cannot something be done in that line this year? If the Society will print the reports, and have them *up to date*, I have little doubt that enough members would be willing to pay their own postage.

Another most pressing grievance I would crave space to comment on, and that is the disgraceful way the fruit growers are treated by the City of Toronto. There is no market, or rather there is a series of little markets, where our products are given away to any one who may happen to visit the place. At Geddes Wharf, at the dock where the *Garden City* arrives, and various other docks, and in a pokey shed in the Station. At any of these you are liable to find your agents either endeavoring to sell your fruit, or some one else's, whilst at the other places the fruit is trying to sell itself under a blazing sun! I trust some steps will be taken by the fruit growers to support the commission men in their attempt to get this thing arranged differently. It is a serious drawback to our industry and an indefensible expense to put upon our agents. I was unfortunately not able to go to Brantford, and do not know, therefore, if this subject was taken up or not. I had fully intended to lay both the want of a Toronto Fruit Market and the desirability of the removal of the duty on machines for spraying, before the meeting. As to the apple export, no doubt the matter will partially right itself, as the buyers have been badly nipped; but it will most undoubtedly be at the cost of the apple producers next year, as the price in the orchard is bound to be lower, especially if the United States has a crop, for what would have happened if they had had a crop this year? In the meantime, as you will see from the enclosed cutting from *The Times* (London, Eng.), others are up and doing, and our chances of a good market in March and April, in England, are now dependant upon how many apples Tasmania and New Zealand send. And why should their apples sell at an average of 10/ per bushel box, whilst ours seldom average much over 15/ for a three bushel barrel? Surely we have got something to learn in sending apples to Europe.

The trade between Australasia and the mother country in respect to fruit is also undergoing great developments, and, at the same time, helping, in the colonies at least, to solve the problem as to how to keep the rural populations in the rural districts. It dates back to 1885, the year of the Colonial Exhibition, of which it may be regarded as a practical outcome. Consignments of apples had previously been received here from Australia as ordinary cargo; yet, though they sometimes arrived in fair condition and brought a fair price, at other times they were found almost rotten, and did not realize enough to defray the charges. At the Colonial Exhibition, however, there were shown some apples which, brought over in cool chambers, were in absolutely perfect condition. This fact suggested the possibility of a great trade in Australian apples, which would reach here at the end of April or the beginning of May, and continue to arrive until the commencement of the strawberry season, thus embracing a period of the year when there would be no other apples on the English market. Arrangements were made accordingly, and some small consignments were received in 1886. More came in 1887, and in 1889 a fair trade was developed. In 1891, 130,000 boxes (each holding about a bushel, and weighing gross from 50 lbs. to 60 lbs.) came to hand, and the total for last season was about 200,000. For next season the whole of the available space in the cool chambers of the steamers (some of which load from 25,000 to 30,000 boxes at a time) has been already contracted for. Tasmania is the chief producer. The growers there have restricted themselves to about seven or eight varieties, which are precisely the descriptions best fitted for a long journey and for the requirements of the English market. The climate of Tasmania is perfect for the growth of apples, which attain there a beauty and a flavor hardly to be surpassed. As illustrating the great care taken to insure perfection of quality, it may be mentioned that the orchards are visited from time to time by a Government inspector, who, if he should find that any tree has been attacked by moth, has the fruit taken off and destroyed. From

New Zealand, apples have been coming for several years, the varieties being very fine in quality and size, but there were no large consignments until 1891, when about 8,000 boxes reached the market. Victoria has taken up the trade with a good deal of energy, and hopes to secure a substantial share in it in the course of a few years. Under the scheme already referred to, the Government of that colony offered bonuses for every acre of land brought under cultivation for fruit trees or vines, and for every hundredweight of fruit exported. They also send out experts to advise as to the selection of sites for orchards and vineyards, and as to the various processes of trenching, planting, pruning, packing, and shipping; defraying, too, as in the case of butter, all cost of railway transit, and even undertaking, if desired, to find an agent in London for the sale of the fruit on its arrival here. The result of all this, as regards the effect on the colony itself, cannot be better described than by giving the following extract from the official memorandum of last August:

The grant of £75,000 as bonuses to growers of grapes, fruits, and general vegetable products has been the means of greatly stimulating the vine and fruit industries; 1,047 applications for bonuses for planting a total of 9,468 acres of vines have been approved, and 925 applications for bonuses for planting 4,936 acres of fruit trees have likewise been granted, also 8 applications for 346 acres of general vegetable products. The objects of the grant are being accomplished, the area of vineyards and orchards having been increased from 40,419 acres in 1889 to 54,550 acres in 1891. Farmers, who formerly devoted all their energies to growing cereals and grazing stock, have added vine or fruit-growing to their means of making a livelihood, and, with the aid given by bonuses, and the knowledge imparted by the experts, vines and fruit trees are now growing in districts in which no attention had previously been given to such culture.

I am, sir, yours faithfully,

Suffolk Lodge, Oakville, Ont.

GEORGE BUNBURY.

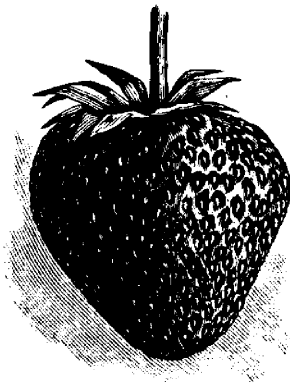


FIG. 520.

THE GREENVILLE STRAWBERRY

Is a new claimant for the first place among profitable varieties for the market gardener. It is an accidental seedling and has been tested at several Experiment Stations with favorable results. Dr. Collier, of the Geneva Experiment Station, writes: "Our Bulletin speaks of the Greenville thus;—The Beder Wood, the most productive variety this season, is followed very closely by the Greenville, and as the Greenville has the advantage of being larger, would probably sell for more per quart than the Beder Wood."

Garden and Forest says of it: "The Beder Wood heads the list for productiveness, with Greenville, a seedling from Ohio, a close second; the fruits of which are so much larger and finer in appearance than the Beder Wood, that it is probable that the receipts from the sale of the yield of the two varieties would be in favor of the Greenville."

THE NIGHT-BLOOMING CEREUS.



In a late number we drew attention to the difference between the Phyllo cactus and the Cereus as bloomers, explaining that in many cases the one was taken for the other. We now give an illustration of the Cereus grandiflorus, or Night-blooming Cereus, a plant which has become famous on account of the immense size of its flowers and their great beauty. The engraving shows a young plant which, at three years of age, is said to have produced twenty-three flowers in one season.

There are a large number of Cereus, several of which are night-bloomers. They are natives, for the most part, of Mexico and other tropical regions.

Mr. Blanc, in his catalogue on cacti, says there is a great pleasure derived from watching the buds of the Night-blooming Cereus when they appear. At first certain parts of the stem will swell and gradually open, then a little woolly tuft appears, which may be a bud or a new shoot, and several days elapse before this is settled. Sometimes it takes about a month to open, and care must be taken when it gets to be about six inches long and becomes lighter in color towards the end, for many a flower blooms before the owner is aware of it, or while he is sound asleep. Generally they begin to open about eight o'clock in the evening, and it is very interesting to watch them. Really, you can see it move and expand, grow, as it were, and when fully open the perfume is delicious. The color of the flower is a creamy-white inside, while the outside of it varies from white to reddish-brown, according to varieties. The flowers



FIG. 521.—NIGHT BLOOMING CEREUS.

only remain open from four to six hours, then gradually close. The flowers may be preserved for a long time in glass jars filled with alcohol and water.

To propagate it, get a cutting, tie it to a small plant stake about three inches above the lower end of the stake, taking good care to have the growing side up, insert this in a 3-inch pot filled with clean sand, placing a little moss or peat over the hole in the pot to keep the sand from running out. Let the cutting just

touch the sand and not be buried in it. Roots will form in about two weeks, and afterwards new shoots will appear. You may then shake the sand out and replace it with good, rich soil, one-fourth sand and one-fourth manure. In about eight days, set your plant in the full sun, water it well and let it grow until cold weather. Gradually withhold water, and during winter let it remain in a very sunny place indoors, where it will not freeze. If this place is very dry, water your plant about once a week.

Towards the end of March, when growth begins, water may be given more freely and the plant may be shifted to a larger pot where it can remain for several years.

TOMATO GROWING.



COMPARATIVELY few farmers have the advantage of a greenhouse or even a hot-bed to raise early plants for the garden. Tomatoes, the most prized of all vegetables, make too slow growth for summer use unless they are started earlier than they can be put in the open ground. Many think this a difficult task, but they are of such easy culture that almost any farmer's wife can raise a few plants in the house. A sufficient number to supply a family can be started in a small pan, or even an old tomato can is large enough to grow a dozen plants. There they will germinate and make rapid growth if care is taken to remove them to a warm place during cold nights. In the first warm spell after the second leaves appear they should be transplanted to larger dishes, setting them two or three inches apart, where they can grow until time to plant in the open ground. This course is preferable to putting the seed in a larger box, for a small dish is more easily cared for, and tomatoes need transplanting to make them grow strong and stalky. Set in rows and cultivate often with a knife.

Care must be taken that they are not kept too wet, especially through cold spells, or they may damp off. Another necessary precaution is to give the young plants plenty of air and "outdoor exercise" or they will grow too slender. Every pleasant day should find them out of doors in a sheltered location, and undergoing a toughening process to enable them to withstand the hard winds which they must inevitably meet later. Ten days before putting out run a knife between the rows close to the plants, cutting the roots somewhat. This will check the growth of tops and start a new root growth. Roots should not be long and tapering, but a compact fibrous mass. Such plants cannot fail to live and will even bear setting out on a sunny day without cover. Do not be discouraged even if you have been unsuccessful with early tomatoes heretofore. Try again. Plenty of sunshine, plenty of air, plenty of water in dry weather and not too much in damp, will insure plants that will repay the busy housewife for the care she has given them and supply the table with an abundance of delicious tomatoes in July instead of September.—The Nebraska Farmer.

ST. THOMAS NOTES AND COMMENTS.



ARTICLES sometimes appear in the HORTICULTURIST and there is nothing to indicate where the writer lives, and we cannot tell if what is said of any plant, tree or shrub is applicable to our locality or not. For instance, the article on the Best Six Kinds of Blackberries in February No. We are not told where the writer lives. Now, the best six kinds in South Carolina would not be the best in Minnesota, nor in Canada even, so I think a writer should always say something by which we could locate him. Speaking of kinds, I think six are too many best kinds of any kind of berries. I would cut down to three, at most: early, medium and late. In this section Snider is the leading blackberry so far. I am trying Ancient Briton and Agawam, and will be able to report on them later. In raspberries, Gregg takes the lead in blacks, though there are few grown: in reds, Cuthbert and Turner, and Golden Queen in yellow. In strawberries, there are more Crescent come on the market than any other variety, though a good many other kinds are grown.

In the communication from A. J. C., there is nothing to locate him to give me an idea if it is the winters that injure his raspberry canes. I have had canes act in the same way, and I laid it to the borer or to the action of the cold winter on canes weakened by the borer. If A. J. C. lives north, I would advise him to try Turner. It is the hardiest red raspberry I know of. It is soft, but for a near market or home use it is excellent, and when canned it holds its flavor better than any I have tried.

W. M., P. E. I., wants information as to a spray pump and the cost. I can't tell him just what kind to get, but I can tell him what kind not to get, and that is something in the direction he is trending. Don't get a cheap pump that is used in a pail, such pumps are a delusion and a snare, even for a few small trees; their nozzles are not calculated to do good work and they are inconvenient to use. I have had two, one costing me \$3, the other \$5. So I am out \$8, and have my spraying pump yet to buy. Also, beware of a pump that is good for everything. Like most patent medicines that make such claims, they are good for nothing; and further, any pump that has no return pipe to stir the liquid is incomplete. Get one with brass working parts, so it can be used for all kinds of solutions. I hardly think the best pumps are yet made in Canada; if they are, I have not heard of them. I intend this spring to get one made in New York State, and will know more about pumps this fall. A good pump will cost between \$12 and \$15.

St. Thomas, Ont.

A. W. GRAHAM.

❖ The Garden and Lawn.

PROTECTION OF ROSES IN WINTER.



THE article in the January No. CANADIAN HORTICULTURIST, on "The Protection of Roses," copied from the American Agriculturist, gives but little encouragement to those who are thinking of growing hybrid roses in Central Ontario, because of the plan described for winter protection being too complicated, too troublesome and too expensive. It may be, and no doubt is, necessary to use much greater care in protecting hybrid roses in Southern New York, Pennsylvania or Ohio, where the winters are open and unsteady, and, therefore, more severe on partially tender shrubs, than with us, where simple and less expensive plans answer every purpose; because of our winter weather being more even in its severity, and every thing near the ground is covered with snow the whole winter long.

For the encouragement of those who are growing, or purpose growing, hybrid roses in Central Ontario, I would recommend the plan for winter protection which we adopted twenty-five years ago, and which we continue to practice to the present, viz.: Lay a block of wood close to the bush, then bend the bush over the block to the ground and keep it there by laying one or more such pieces of wood on the branches; place a little pea straw on this, and then throw two or three branches of evergreen on top to prevent the straw being displaced by the wind before the snow falls.

We have now between twenty and thirty varieties of fine healthy rose bushes that have always been treated in this way, and have never lost a healthy bush.

Lindsay.

THOS BEALL.

PRUNING ROSE BUSHES.

SIR,—I have been experimenting for four years past in the management of my rose bushes, and the plan which I have found the most successful is as follows:—As soon as the spring bloom is over, I cut the blooming wood entirely out, which gives the roots a rest. They then soon throw out vigorous young shoots which bloom at intervals during the summer and fall, and by this practice I find them very much more easily packed down for winter protection. Instead of using any kind of litter, I find soil the best cover, as it does not harbor vermin as many kinds of mulch do. Ten years ago I bought half a dozen hybrid perpetual roses. One of these always made a poor growth as if stunted, until it received the above treatment, when it threw up half a dozen vigorous shoots. These I let grow about ten feet long when I cut them back one foot. They then threw out side shoots, which, the following year, had from seventeen to twenty blooms on each shoot, counting up to eight hundred and forty.

Parkhill.

MARY WADE.

→ The Kitchen Garden. ←

VEGETABLE NOVELTIES.

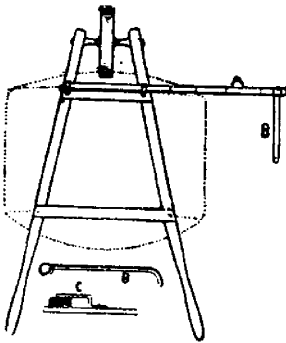


IN the past few years hundreds of new varieties of vegetables have been introduced by the leading seedsmen of Canada and the United States, many of which are inferior to the best of the old standard sorts, and he who invests his money, indiscriminately, in those untried, high-priced novelties, is almost certain to be disappointed in the result. Why is it we see in so many of the catalogues, pictures of vegetables so exaggerated in size and description, if it is not for the purpose of deceiving the inexperienced and thereby making them their dupes? Yet it would be unwise to accuse all seedsmen as guilty of untruthful representation, as there is a large, and, let it be hoped, increasing number, who are as honest and truthful in their descriptions of varieties as it is possible to be; and those are the ones who should receive the patronage of the seed-buying public. For the past six years I have been engaged in the market garden business, and in that time have tried, in a small way, many of the novelties in vegetable seeds, and among the many I have found a few that are decided improvements over the old sorts. I will mention a few of the most prominent: Among cabbages is the "All Seasons," introduced a few years ago by a prominent eastern seedsman has done remarkably well with me; another variety introduced last season, and called the "World Beater," gave me some wonderfully fine, large, solid heads. Another novelty introduced by the same seedsman as the last, and which has created quite a *furor*, is Burpee's Bush Lima bean, which, on account of the cold wet season, did not do well with me last year, but is undoubtedly a valuable addition to the list of Lima beans. I, last season, tried a small package of the Heroine peas, and from one season's trial, I have never been more pleased with anything I have ever tried; it is medium early, and was loaded with very large and well-filled pods of delicious quality. In tomatoes I have experimented with more than thirty varieties, and if I were to confine myself to what I consider the three best for market, I would choose Atlantic Prize, Matchless, and Optimus. There have been many new kinds of squash brought out lately, and among the best tried, and I think I have tried them all, is the Dunlop's Prolific Marrow, a decided improvement on the Boston Marrow, the Warren and Bay State. The new Chantoney carrot is a fine variety, as is the Oxheart. For a pickling variety, the Paris pickling cucumber fills the bill, but with me is not very prolific. The Arlington, among beets, with me, has beat the Eclipse, and the Sandwich Island salsify seems an improvement. If there is any one looking for a new potato, earlier than the Rose, handsomer and more prolific, let them try the New Queen; the Summit and the Lee's Favorite have given good satisfaction. There are other varieties of merit, among the comparatively new sorts that I might mention, but this article is, I fear, already too long, so will defer until some future time.

Knocwilton, Que.

Setting Onion Plants.—Few things in market-gardening have pleased me as much as this onion plant business. We have pushed the plants pretty freely with guano; and if the tops get so tall as to begin to lop over, we shear them off. The onions are so tenacious of life that I have seen every one grow in a long row through a large field, when the planting was done by school boys so small that I feared they would not be able to do it successfully. The ground was fine and mellow, and as it was just after a rain, all that the boys did was to push the onions down into the ground with their forefingers, and then press a little earth on top of them. No matter how crookedly they stuck them into the ground, they all stood up straight in a few days. The ground was marked out for onion plants with a wheat-drill, running a good dressing of fertilizer into the ground at the same time that it was marked. We plant the onions in every other drill-mark.—*Root's Gleanings.*

Barrow-Marker.—A good marker to mark out small pieces of ground without a horse is made by securing a simple attachment to a wheelbarrow. Take a 2x2 inch stick, Δ , 4 feet long, or longer if desired, whittled down perfectly round to within one foot of the end to be attached to the barrow. Take a piece of strong hoop iron and shape it as shown at B, making a ring to slip on the stick. Take two pieces of the hoop-iron, C, for holding the marker-stick in position in front of the first brace. Slip the iron on the marking-stick to the width desired for the row, and to keep it there bore a hole with a gimlet close to it on either side, in which insert an eight or ten-penny nail. The wheel will make a better mark than one would suppose, while the iron marks for the next row.—*Farm and Home.*



BARROW-MARKER.—FIG. 522.

Evergreen Seeds.—Seeds of Norway spruce may be gathered just as soon as the cones mature. The seeds may be sown in a cold frame in the fall and protected during the winter. They will germinate in the spring. They may also be sown in flats and kept under cover, being careful to avoid extremes of dryness or moisture.

THE MULBERRY, according to Bulletin 46, from Cornell, is quite undervalued. Though there is no demand for the fruit in the markets, it is well worth growing for home use, being valuable for dessert.

* The Apiary *

HINTS TO AMATEUR BEE-KEEPERS.—II.



CERTAIN appliances are requisite in the management of bees, if modern methods are to be followed. For the amateur, with his two or three stocks, these are neither numerous or costly. A veil, a pair of gloves and a smoker will suffice, if comb honey only be taken. For taking liquid honey an extractor is indispensable, but this may very well be dispensed with for a while. It will pay, however, to procure one, if as many as half a dozen colonies be kept. The veil, smoker and gloves need not cost

more than \$2. Smokers may be had from any supply dealer, at from 50c. to \$2 each, and cannot well be dispensed with. Some bee-keepers affect to laugh at the idea of using either gloves or veil, but it will be well for the beginner to use both, till confidence is established, and the dread and the effects of stings in a measure pass away. The fear of being stung, and the pain and swelling that follow, deter many people from keeping bees; but these are only temporary, and soon cease to be regarded with apprehension. Indeed most old bee-keepers prefer a bee sting to a mosquito bite, the latter causing them more inconvenience than the former. Some of your readers may consider this an extravagant statement, but it is nevertheless true. It is true in my own case, and true in the case of most bee-keepers who have manipulated bees for any length of time. The pain of the sting is as acute in the one case as it is in the other, but in both cases this passes away in a few minutes. With the veteran no appreciable after-consequences result— with the beginner, however, swelling usually follows, and frequently continues two or three days. In time the secondary effects gradually diminish, till the system becomes indifferent to the poison. Inoculation has then produced its full effect. Bee poison is as much a remedy against its own effects as the *virus* of the cow-pox is against the more malignant disease of small-pox. The use of veil and gloves, if properly made and worn, will effectually protect both the amateur and the veteran from being stung, and on the principle that prevention is better than cure, it will be well to wear them. Black is the best color for a veil, and silk tulle the best

material; but if this cannot be procured, mosquito netting will do. A piece two feet wide and eighteen inches long will make one.

How to make it. Sew it up the side in the form of a bottomless bag, put a wide hem at the top, into this hem run a piece of strong elastic cord, tie the ends of the cord, and the veil is made. How to wear it. Draw it down over the brim of an ordinary hat, till the elastic cord comes to the bottom of the hat band—that is, at the junction of the brim with the crown. Put the hat on the head, pull the bag-like veil over the face and neck, tuck its lower part under the vest or braces, and the face and neck will be secure against the attack of the most pugnacious bee. The brim of the hat keeps the veil out from the face and neck, so that entire protection is secured to those parts of the person. When gloves are worn, the material of which they are made should not be heavy, otherwise the free use of the hands will be impeded. Woolen gloves should not be worn, as bees are impatient of rough surfaces. Rubber gauntlets are sold by supply dealers, but they are not to be recommended, for many reasons. Whilst they are impervious to bee stings, they are too dear, and altogether uncomfortable. Besides, they soon rot from becoming saturated with perspiration, which is prevented from escaping by the character of the material of which they are made. A pair of old kid gloves are the best, all things considered. If a piece of cotton, wide enough to go over the coat or shirt sleeve, and long enough to reach half way to the elbow, with an elastic cord at top, be sewn to the top, or wrist, of the glove, and about an inch of the finger tips cut off, you will have the cheapest and best gloves for the purpose. The cotton addition, held in place by the elastic band, effectually protects the wrists, and prevents bees from crawling up the coat sleeves. The tips of the fingers protruding through the gloves gives as much freedom of action as if the hands were bare. The kid affords all the protection needed to the hands and fingers. Thus equipped, the most timid need not fear being stung, however much bees may be disposed to resent intrusion.

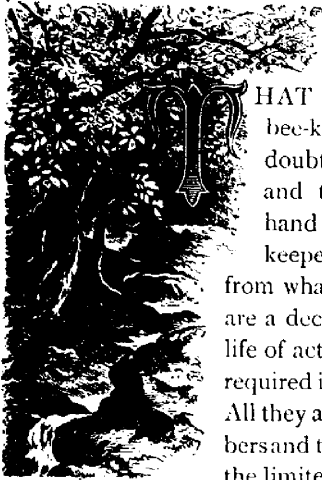
To secure absolute immunity, it only remains to draw the top of the socks over the bottom of the pants legs, and you stand forth master of the situation.

Owen Sound.

R. MCKNIGHT.

The Red Birch (*Betula nigra*), although perhaps hardly so quick a grower as our native species, is well worth attention, if only for the picturesque effect produced by the red bark during the winter months. In the Red or River birch the red bark hangs in thin, broad flakes from the stem and larger branches, and imparts a distinct and peculiar appearance to the trees—an aspect as different as can well be from that presented by the chalky-white, smooth trunks and branches of the Silver birch. The Red birch, in its native habitats along the low river banks in the United States, forms a medium, or rather large-sized tree; the wood is light-colored, and does not seem to be so valuable as that of some of the North American birches.

HORTICULTURE AND BEE-KEEPING.



THAT special reasons can be given why horticulture and bee-keeping may be combined to advantage, there is no doubt. That there is every reason why the fruit grower and the bee-keeper should be side by side and work hand in hand there is no disputing. True the bee-keeper rarely, scarcely ever in fact, secures a surplus from what we commonly call fruit bloom, yet their blossoms are a decided advantage to him. Bees, as they begin their life of action in the spring, gather honey and pollen which is required in the development of their brood and young bees. All they are able to gather, owing to their own reduced numbers and the limited amount of nectar in the flowers, or even the limited number of blossoms, is required for consumption in the hive. If the sources of honey and pollen is limited the bees will curtail brood rearing, and when clover, the first source of surplus opens, the colony is not strong enough to avail itself of this source, and we are unable to secure the best results from that colony. Fruit bloom then plays an important part in the building up of the colony, and indirectly an important part in the amount of surplus honey we may be able to secure. I propose now to turn to answer the question, In what way may bees influence our fruit crops? In what way may they be able to influence that crop and tend to make the crop more certain? This is no new subject, although we are continually receiving fresh light upon the question. In my remarks I will be largely indebted to Mr. Cheshire. Any one will find his work on Scientific Bee-keeping intensely interesting.

The honey bee has much about it to hold us in wonder and admiration, and were we by it benefited to no greater extent than it opened to us a wonderful study in regard to its habits, the construction of its various organs and the like. we would be much enriched, and in studying the created we would learn to admire and marvel at the Creator. But the honey bee has placed within the reach of all a food which is, with very rare exceptions, acceptable to all. It has an aroma peculiarly its own, medicinal properties which cannot be imitated, great nourishing properties, suitable alike to childhood, middle age and the aged, true, but especially healthful and beneficial for children. To get rid of worms, honey used in moderate quantities is an excellent medicine. For constipation it is excellent. We have then in honey a rare combination, a food pleasant to the taste, always ready for use, healthful, if used moderately, yet even daily, and, taken at its market price, even low in price, an economic food.

But all these are only secondary, and something the bee produces in a secondary way, shall we say as a by-product. Her first object, the primary object of her existence is to aid in the reproduction of plant life. The importance of the honey bee in this connection is beyond dispute. Testimony from those who were never financially interested, our greatest thinkers, those who have searched most deeply into those intricate questions, the testimony of these is overwhelming. Darwin alone has furnished sufficient evidence to satisfy almost any one. Insect life is required largely to distribute the pollen from flower to flower. It may be said that bees are not natural to our country, and why do we require the honey bee, a stranger, to carry on this work? Will not the insects of our country do this? The answer to such a question would be, that as at the time when our fruits require fertilization and their bloom is most abundant, we have comparatively few native fruit blossoms, *e g.*, a few wild plums, cherries and strawberries, and for these our native insects might suffice. But when we come to our present condition, large orchards of apple, plum, cherry, peach, pear, and again smaller fruits, we have a condition not natural to our country, and an artificial condition in plant life requires a correspondingly artificial condition in the insect life. This condition we secure by means of the honey bee.

Of the construction of the parts of flowers I propose to speak in the next issue of the HORTICULTURIST. The evidence here is so conclusive that one would really require to look no further for evidence.

R. F. HOLTERMAN.

Brantford, Ont.





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.

THE DOUGLAS FIR, number *five* on our list of ornamentals for distribution, is a valuable tree. It grows on the Western slope of the Rockies, and is supposed to be identical with the Kauri pine of New Zealand. It attains great girth, is non-resinous and non-fibrous; in fact it is of bulbous growth. It is free from the defects of eastern pine and spruce, but lacks their strength. Mr. Hendry, an experienced saw mill manager in Ontario, says that in the sixties a British Columbia firm presented to Her Majesty the Queen a flag pole of this wood, 147 feet long, 14 inches caliber at the butt end, and 10 inches at the top, but unfortunately it broke when being placed in position at Kew Gardens. It is bound to replace sandal wood for tea boxes, and being capable of taking a fine polish, should become popular for cottage furniture. It is particularly adapted for stave wood for barrel manufacture, and for this industry, the Douglas firs of British Columbia will prove a mine of wealth.

ELECTRIC LIGHT, Prof. Bailey thinks, can be used to advantage in forcing some plants. Violets and daisies bloom earlier when exposed to it. Lettuce, especially, is greatly benefited by electric light. An average of five hours a day exposure of it per night, hastened maturity from a week to ten days, at a distance of ten and twelve feet. Even at a distance of forty feet the effect was marked.

TOMATO ROT.—Experiments made by Prof. Bailey, of Cornell, show that the rot of this fruit is influenced considerably by the method of growing and training. Single-stem training, usually lessens the rot, and so does any system of training which keeps the plant open and dry.

✧ Question Drawer. ✧

Best Apple.

540. SIR,—Would you name the best apple, good keeper and shipper, for me to plant in this section? Also name one or two, placing the best first. What do you think of the Ontario apple, Anjou pear, Tyson pear, and the Saunders plum?

C. B. MOORE, *Chatham.*

It is impossible to answer in a satisfactory manner a question such as the one proposed, because a variety of any fruit which is most thought of in one locality is not the one most highly valued in another, so much depends upon the markets, climatic conditions, soil, etc. The Ontario is certainly an excellent apple, and some place it at the very head of apples for export. The Blenheim Orange, where it grows to perfection, cannot be surpassed. The latter is a fall apple, but will carry well to Great Britain. The other varieties inquired about are all excellent.

Manure for Small Fruits.

541. SIR,—Which is the best manure for small fruits, such as raspberries, blackberries, currants, etc., bone meal or superphosphates?

JOHN STEWART, *Nanaimo, B.C.*

Reply by W. W. Hillborn, Leamington, Ont.

For small fruits I use all the barn-yard manure I can get. Am also using bone meal and wood ashes with good results; am also testing Truman's Small Fruit Fertilizer. Shall be able to report on that later on. This spring I shall try nitrate of soda, in addition to the other manures named above. Berries require phosphoric acid, potash and nitrogen. If the soil is deficient in any or all of these, they must be supplied to get large crops of fruit. From what I have seen, I think bone meal and wood ashes with nitrate of soda will give best results. I have not used much superphosphates, but did not get the results looked for from their use.

Hot Air and Hot Water Heating.

542. SIR,—Which is safest to use in a greenhouse where personal attention can be given it, hot air or hot water?

JOHN STEWART, *Nanaimo, B.C.*

Reply by D. W. Beadle, Toronto.

The sources of danger in hot air heating are found in the flue through which the smoke and gases are conveyed from the fire to the chimney. The possibilities of danger increase with the increased length of the flue. In a long

flue required to warm a large greenhouse, there is always more or less danger of the escape of gases, smoke and flame from cracking of the flue, caused by the expansion and contraction of the material of which it is made. The longer the flue has been in use the more liable does it become to such cracking. If the flue is short, because the house is small, then usually the heating surface is greater in proportion to the cubic contents of the greenhouse than in the case of a large house, and it does not become necessary to fire so hard in severe weather. Hard firing always endangers cracking of the flue.

In heating with hot water, the smoke and gases of combustion are not carried through, or even into, the greenhouse at all, but into a chimney outside; hence all the dangers mentioned above are avoided. In putting the hot water pipes into the greenhouse, care must be taken to put in sufficient piping and to have the boiler of sufficient capacity, with proportionate fire-box, to heat water enough to warm the house in the very coldest weather without constant stoking. Care must also be exercised in laying the pipes to have a good fall to the return pipes, so that the flow of water shall be sufficiently rapid to keep up a good circulation, upon which the warmth of the house depends. The chief dangers in hot water heating lie in a false economy in the size of the pipe and quantity used, and in the capacity of the boiler.

Having used both flue heating and hot water heating, I unhesitatingly give the preference to hot water. But it may be that your inquirer does not propose to use a flue, but to supply hot air in a manner similar to the method of heating our dwellings. Of this method as applied to greenhouses I have no experience, nor knowledge from observation; but I have yet to see this method of heating sufficiently perfected to exclude dust and gases, both of which are injurious to plants, especially the gases.

Prof. Taft, of Michigan Agricultural College, writes in *American Gardening* as follows: For all heating purposes, and under all ordinary conditions, hot water will be found more economical and satisfactory than steam, whatever the size of the house. This statement applies only when small wrought-iron pipe is used, and would need to be considerably modified for systems using the old-fashioned four-inch heating-pipe. The only valid objection against hot water heating is that the first cost of the plant is about 15 per cent. more than it would be if steam were used, but this is soon counterbalanced by an annual saving of 25 per cent. in the cost of fuel.

Nitrate of Soda for Strawberries.

543. SIR,—Would it be advisable and safe to top-dress strawberry plants with nitrate of soda, and what quantity should be used per acre?

J. STEWART, *Nanaimo, B. C.*

I have used nitrate of soda as a top dressing for strawberries and consider it advantageous. About 200 pounds per acre, applied as soon as growth commences in the spring, will usually pay.—M. CRAWFORD, *Ohio.*

Nitrate of soda has not proved a special fertilizer for strawberries; but in

connection with manure, it will aid in making a poor soil richer, applied at the rate of two or three hundred pounds to the acre. The same may be said of superphosphate. As soils vary, both these fertilizers are useful on some soils and of little value on others, and experiment must therefore be the test of their fitness. When nitrate of soda is successful, it is particularly adapted to plants of succulent growth, as for instance to cabbages, onions, carrots, parsnips, radishes and roots generally, and, in moderate quantities to grains, and to tomatoes and strawberries.—Country Gentleman.

Nitrate of soda can be used quite safely, put on at the rate of 150 to 200 pounds per acre, before the foliage starts to grow. The proper way would be to take it and spread on the barn floor, smash it down very fine and mix about twice its weight with plaster, or soil, and mix thoroughly. By treating it in this way you will be able to distribute it much more evenly over the surface.—W. A. FREEMAN, *Hamilton*.

Tool for Cultivating Strawberries.

544. SIR,—What is the speediest, handiest and best implement for hand cultivation of strawberries, and where manufactured?

J. S., *Nanaimo, B. C.*

For two years I have used the "Gem" cultivator, and think it the best, all things considered. It is sold by seedsmen generally. Mine came from The Storrs & Harrison Co., of Painesville, O. It cost \$4 and is likely to last a lifetime. Like all hand cultivators, it should be used with two men—one to pull and one to hold. The work that can be accomplished with this little implement is a surprise to most people.—M. CRAWFORD.

545. SIR,—Would some of your readers please write an article on the cultivation of palms? Nearly every house aspires to have one, but it is seldom one ever sees in a horticultural paper what soils they should have, and whether they will bear exposure to the sunshine.

L. H. K., *Collingwood*.

546. SIR,—Please name a list of hardy climbing vines suitable for the north side of a house in Cape Breton?

D. S. MCD., *Mabou, Cape Breton*.

547. SIR,—What strawberries do you call the most prolific and the best for canning purposes?

THOS. FULLER, *Trenton, Ont.*

548. SIR,—How does the *Beurre d' Anjou* compare in hardiness with the *Flemish Beauty*?

R. B., *Montreal, Que.*

549. SIR,—Are there any sprayers made in Canada, and, if so, I wish they would advertise in the *HORTICULTURIST*?

A. J. COLLINS, *Listowel, Ont.*

550. SIR,—What is the name of the yellow barked willow that grows in the vicinity of *Hamilton*?

C. W.

* Open Letters. *

The Alexander Apple.

SIR,—I notice your recommendation of the Alexander apple in the January No. I do not think that it deserves all the credit there given it, except with regard to its size and beautiful appearance, which makes it desirable as a show apple. Its cooking and keeping qualities are so poor that I will venture to say that it will be hard to find a person who will buy a barrel of them a second time for his own use.

J. H. TOOL, *Orillia, Ont.*

The Sheldon Pear.

SIR,—You say the Sheldon pear is not suitable for planting north of Toronto, except under some particularly favorable circumstances. I have three Sheldon trees in my orchard, planted sixteen years ago, and they have stood the winter's frost as well as any of the others. They are the only trees I have which escaped the blight some ten years ago. They never showed the slightest trace of it, while other varieties growing around them perished. I endorse all you say as to the quality of the fruit, but they are shy bearers. Last year my Flemish Beauties were badly cracked and scabby. The Sheldons were as clean skinned as possible. Is there any remedy for the cracking of pears? About every alternate year I practically lose my crop of Flemish Beauties from this cause.

R. MCKNIGHT, *Owen Sound.*

[Try Bordeaux mixture.—ED.]

Prince of Wales—Stark—Beurre d' Anjou.

SIR,—In the November number you refer to Prince of Wales plum as "a novelty not yet tested except at Geneva." I have grown it for some years, and can attest to its excellency. It has been grown for several years on the grounds of Messrs. Geo. Leslie & Son, at Toronto, also, and that firm inform me that planters who tested this variety, invariably include it in any list of kinds wanted afterwards.

In question budget for February, page 74, question 21, "Would the Stark apple be profitable in Ontario," is asked. I reply, yes, if the market demand will be satisfied with a very poor flavored apple, poor as a cooker, and next to worthless for dessert. The tree is a good strong grower, an abundant bearer, and the apple good size, fairly colored, and sells in Britain fairly well. But the demand is growing for finer flavor in the apple, and my feeling would be in favor of choosing the better kinds in flavor, keeping in view hardiness of tree and bearing quality. In question 20, "Is Beurre d' Anjou as hardy as Flemish Beauty?" No, I think not, but in the general pear growing sections of the Province it is one of the most desirable kinds, and will succeed pretty generally in such sections.

ALEX. MCD. ALLAN, *Goderich.*

Hardiness of the Cuthbert.

SIR.—Anent the query of you correspondent, A. J. C., in the last number of the HORTICULTURIST, permit me to say that the Cuthbert raspberry is not hardy, and should be described in the catalogues as only half-hardy. We read about it standing a climate twenty degrees below zero without injury, but my experience of eight years with it in this locality has proved that it will not endure a temperature of ten degrees below zero without injury. On the other hand the Marlboro will easily withstand a temperature of twenty degrees below zero, and bear a full crop. The buds of the Cuthbert are tender, and A. J. C. describes a frost injured bud when he says that his failed to come out after trimming in the spring. Though not as high in quality as the Cuthbert and some others, the Marlboro is the safest and best red raspberry that I know of for the middle and more northerly sections of this Province. It is earlier than the Cuthbert, a heavy cropper, and will withstand our severest winters.

T. H. RACE, *Mitchell.*

Canada Reinette and Blenheim.

SIR,—I was pleased to see an article of the Canada Reinette, with illustration, in your January No. ; it was correctly represented. I have a large tree of it, and I intend to get more. It is scarce in this section, in fact, unknown. I consider it one of our best apples. It is a good and constant bearer, large size, very good keeper, and the tree is a strong and thrifty grower. Both the Blenheim Orange and Kings have done well with me this year. The fruit is generally of good quality, and little damaged by the codling moth. I think the weather last spring was unfavorable for the moth, it being so very wet.

WALTER HICK, *Goderich.*

Nomenclature of Russian Fruits.

SIR,—If your correspondent states of the Bessemianka that it has small seeds, he makes a mistake. It has no seeds at all, or, if any, they are very feebly developed. In Germany it might be Samenlose, but it is not grown there.

There are several varieties of the Titovka growing in Russia, as, for instance, the Autumn, Winter, Light, Colored, etc. ; which one of them is called Titovka in America it is difficult for me to understand without seeing the fruit.

The finite "sky," as in Borovisky, Charlamovsky, Tetofsky, etc., are names received abroad : here they are called Borovinka, Charlamovka, Titovka. Some sorts of Russian apples have been freely named in Great Britain, as, for instance, Count Orloff, Grand Sultan, Grand Mogul, Grand Duke, Constantine, Peter the Great ; but under such names nobody in this country recognizes them, and it has still more confused our nomenclature.

In St. Petersburg there has lately been formed a society of Russian fruit growers, which wishes to make in 1894 a large exposition of fruits in Russia, and at that time will call a congress for correcting the nomenclature of Russian apples. The president of this young, but active society, is the Grand Duke Nicholas, cousin of the Czar, who, notwithstanding his excellent position, is not only president of the society in name, but always is present at all the meetings.

One of the directors of this society, General Glouchovsky, is appointed chief of the Russian section of the Columbian Exposition. He is well informed, of an amiable disposition, and will not refuse to explain any questions which interest American pomologists in relation to our native fruits.

JAROSLAV NIEMITZ, *Winnitza, Podolia, Russia.*

The Lucretia Dewberry.

SIR,—In the debate published in our report on the profitableness of the dewberry, you suggest that people living at the north should write you their experience for publication. When I first read of the dewberry I ordered a dozen plants, and put three of them in a clean bed of rich earth (an old onion bed). I neglected covering them for two winters and, in consequence, I got no fruit. On the approach of the third winter each root had grown from two to four large, ripe canes, with a great many of smaller ones, from twelve to fifteen feet long. After clipping off some of the weak and straggling tops, I raked all the canes together in as straight a row as I could, and covered them thickly with asparagus tops from an adjoining bed. The following spring the bed, two by ten feet, was quite a picture of rich green foliage, thickly dotted with large, pure white blossoms, and on the 10th of September when the last half-pint of fruit was gathered, the garden book showed that during the season there had been picked from these three plants nine quarts of the largest and most juicy blackberries I ever saw or tasted. From this slight experience, I think that the dewberry is worthy of a place in the garden, even if they do not pay for high cultivation. The other nine roots of the dozen I planted along the grassy bank of a small creek which runs through my garden, neglected covering them, and consequently nothing but rank growth of cane in the summer and freezing back in the winter. This winter I have them all thickly covered with asparagus tops and dry corn stalks cut from an adjoining bed, and nature had aided me by sending thirty inches of well packed snow on the top, and, therefore, I expect a good crop next year. The thermometer during the past two weeks has ranged from 20° to 30° below zero here.

F. W. COATE, *Cape Elizabeth, Rosseau, Ont.*

* Our Book Table. *

WISCONSIN FARM INSTITUTE BULLETIN No 6 has come to hand from W. H. Morrison, the Superintendent. It is really a most creditable book. We know of no other State or Province where such a work is issued. In Wisconsin they hold from seventy-five to one hundred two-day institutes each winter, and at the close all the workers come together for a three days' conference, and a competent stenographer gives a *verbatim* report of this meeting. Bulletin No. 6, a volume of 256 pages, bound in cloth and carefully indexed is the result of this meeting. It contains a large number of interesting papers and discussions thereon on agricultural topics.

CATALOGUES.

ELLWANGER & BARRY'S ILLUSTRATED GENERAL CATALOGUE of fruit, ornamental trees and roses, etc., is a creditable one of considerable value as a book of reference. The Mount Hope Nurseries, Rochester, are now in their fifty-third year, and have a world-wide reputation. The catalogue is highly illustrated, and the descriptions are trustworthy. A supplementary catalogue is added, calling attention to some special varieties of roses and other ornamentals offered for sale.

J. A. BRUCE, Seed Merchant, Hamilton, sends us his Forty-Second Annual Spring Catalogue for the year 1893, certainly a very useful pamphlet for every Canadian gardener. Mr. Bruce has long held a respectable position among our Canadian seed merchants.

SEED ANNUAL for 1893, D. M. Ferry & Co., Windsor, Ont. Illustrated, descriptive, indexed, 84 pages.

BOOK OF CANADIAN PLANTS for Canadian people, 1893. Roses a specialty. Indexed, descriptive and illustrated, 74 pages. Webster Bros., Hamilton.

A. M. SMITH'S ANNUAL CATALOGUE FOR 1893. Ornamental trees, plants and vines. Dominion Nurseries, St. Catharines.

NEW CANAAN NURSERIES, Conn., Stephen Hoyt's Sons. Fruit and ornamental trees. Specialty, Green Mountain Grape.

FRUITS. Lovett's guide to Fruit Culture. Spring 1893. J. T. Lovett Co., Little Silver, N. J. Contains two colored plates of novelties, and numerous illustrations. Formerly fruits and ornamentals were both included in the one catalogue, but now, with increasing stock varieties, they appear in separate catalogues.

SEEDS. J. A. Simmers' General Annual Catalogue of Garden, Field and Flower seeds. Toronto, Ont. 1893. 84 pages, highly illustrated, descriptive, with instructions for planting etc.

GENERAL CATALOGUE OF SEEDS AND FLOWERS. Vilmorin, Andrieux & Co. Paris, France.

SPRING CATALOGUE of seeds, bulbs and plants for 1893. The Steele, Briggs & Marcon Seed Co., 130 King St. East, Toronto.

Circular from E. M. Buechly, Greenville, Ohio. Introducing Downing's WINTER MAIDEN'S BLUSH apple, produced from seed of Fall Maiden's Blush, by Jason Downing, in spring of 1874. It is said to have the beauty of the well known Fall variety.

Also the GREENVILLE STRAWBERRY, an aspirant for the first place among strawberries. It has been tested several years at the Ohio Experiment station. The berries are described as large, of good size, plants very productive and free from rust, season medium to late, pistillate.

SPRAYING PUMPS. Notice to hand from W. E. Saunders, London, that he has a complete stock of the best spraying pumps, together with compounds needed for use against insects and fungi.

PRICE LIST OF SMALL FRUIT PLANTS, Spring 1893. John Little, Granton, Ont. Four new Strawberries, Shuster's Gem, Dayton, Saunders and Woolverton.

FOSTITE, a remedy for mildew of grapes, black rot, etc., a substitute for the Bordeaux mixture. Address C. H. Joosten, 3 Coenties Slip, New York, N. Y. A descriptive circular.

COLLED SPRING HUSTLER, a monthly paper of four pages devoted to the advantages of this new form of wire fence. Published by the Page Woven Wire Fence Co., Walkerville, Ont.

OUR APPLE MARKETS.

From all reports received it would appear that those who have been able to store their apples until this season and then forward them safely to Great Britain have realized an unusually good price. The markets there seem to be almost cleared of Canadian apples now, and those sent forward bring the highest price.

Mr. J. Nugent Johnston, our agent in Liverpool, England, forwards us large batches of circulars and report sales, from the following apple salesmen in Great Britain:—*Liverpool*, James Adams, Son & Co., J. C. Houghton & Co., Woodall & Co., L. Connolly & Co., George & Jardine and L. & H. Williams; *Bristol*, Budgett, James, Branthe & Co.; *Hull*, John Seed & Co.; *Glasgow*, Simons, Jacobs & Co., and all agree in quoting Canadian apples somewhat as follows:—Baldwins, 18/6-23/, Baldwins (2nds) 15/6-18/6, Spy 17/-21/6, Russets 18/-22/6, Greenings 17/3-22/6, Canada Red 18/-20/6, Kings 19/-23/6, Ben Davis 18/-22/6.

James Adams, Son & Co. say, Feb. 18., "There is a brisk demand for Canadian apples with the upward tendency in price. The proportion of colored apples coming forward is not by any means large and high prices are consequently paid for them. Even Golden Russets, notwithstanding their predominance, realize well. Greenings have been in small demand for some time past, but as buyers seem anxious for them, any lots coming to hand in good condition are bound to do well."

L. Connolly & Co. say that about thirteen thousand barrels of Canadian and Maine apples were offered for sale on the 11th of February and changed hands at a considerable increase over the prices of last week, Golden Russets now being in particular demand.

John Seed & Co. write us a lengthy report of the fruit in their market, much of which is not, at present, of interest to Canadians. They state that the quantity of apples imported from the continent, chiefly from Belgium, has been larger during the last three years than usual, and that received from Canada has been considerably less. These circumstances have rendered it possible to secure fair prices for sales in moderate quantities.

James Adams, Son & Co. cable on the 27th February, that the demand is light, but the prices are unchanged.

A circular from Palmer, Rivenburg & Co., New York City, quotes apples there, light receipts and firm. Spitzenburg, fancy, \$3.00 to \$5.00 a bbl., prime, \$2.00 to \$3.00, Greenings, fancy, \$3.00 to \$4.00, prime, \$2.50 to \$3.00, Baldwins, fancy, \$3.00 to \$3.50, prime, \$2.50 to \$3.00.

Simons, Shuttleworth & Co., Liverpool, cable on the 24th February:—Prices show a slight decline on last quotations. The market opened strong but declined during the day and closed weaker. Good fruit in strong demand, but poor almost unsalable.

THE PROCESSIONAL CATERPILLAR.

(See next Page.)

Our closing engraving represents a scene in the Bois de Boulogne, near Paris, showing the Processional Caterpillar on the march, and attacked by both the larva and full grown insects of *Calosoma Sycophanta*.

The moths and caterpillars are different states of the same insect, *Bombyx Processionea*, and belong to a large family of moths, called *Bombycidae*, or spinners, which includes the silk worms. Some are magnificent in size, as for instance, the *Cecropia*, and *Telega phemus*, both natives of Ontario, and very beautiful.

The Processional Caterpillars are hatched in the month of May, in families of about one hundred. Very quiet in the day, they climb and eat voraciously at night, following their leader in regular order of procession, as shown in our illustration, returning again at night, in the same order. It is a puzzle to us to know by what means they distinguish the leader from the others: evidently they are endowed with a marvellous instinct. These caterpillars are a great pest to oak trees in France, and Prof. Duncan says their hairs even penetrate the human skin, giving much pain.



THE CAUTIONS OF THE GREAT EPOCH, WITH A PROFESSIONAL CATERPILLAR
AND OF COLUSSOMA SACOPHANTA.