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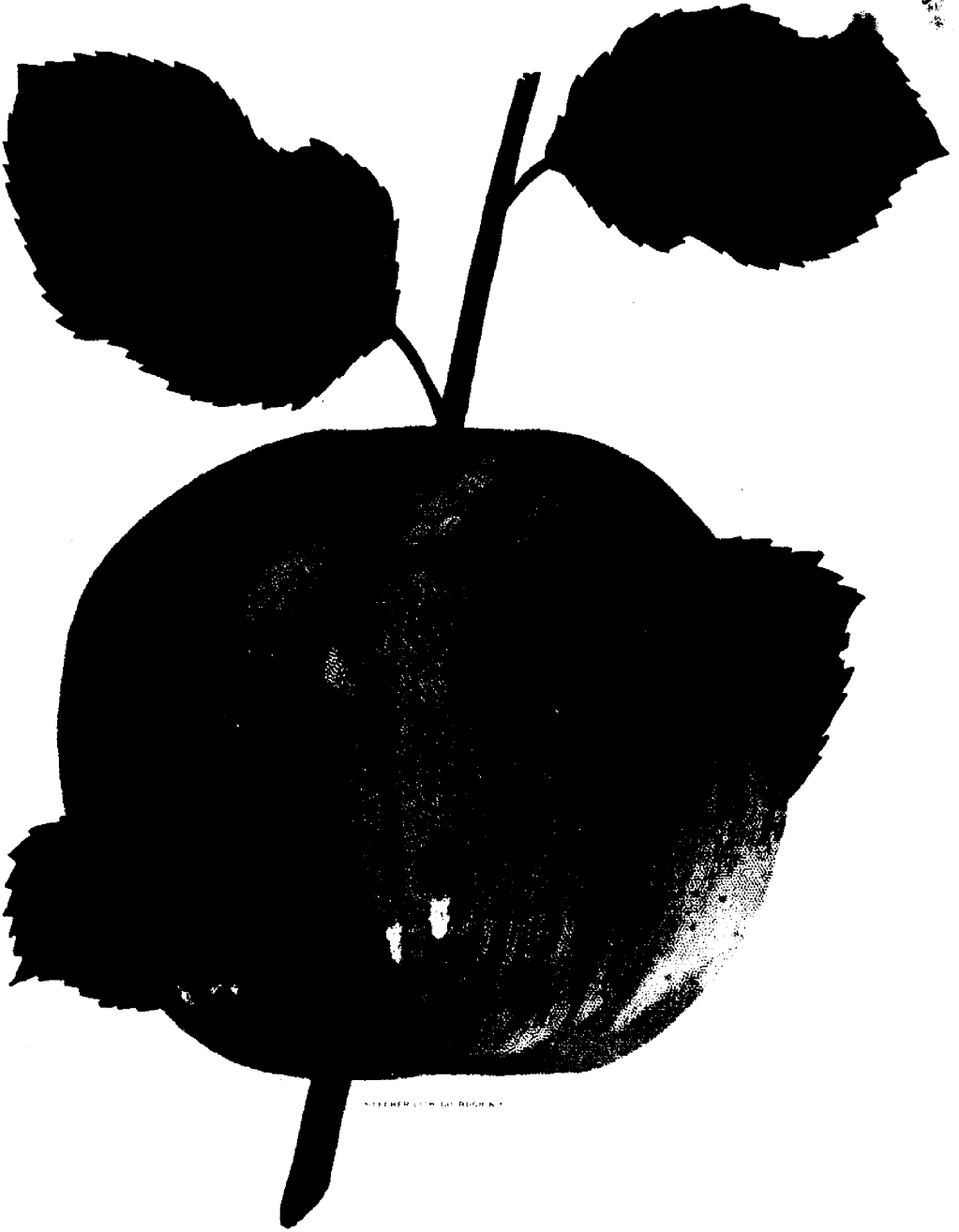
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GRAVENSTEIN.

THE
Canadian Horticulturist

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THE GRAVENSTEIN APPLE.



HERE are two or three fall apples which seem to compete for the first place for profit in Southern Ontario, viz. : the Blenheim Orange, the Ribston Pippin and the Gravenstein. The Blenheim Orange is hardier, and on this account preferable for Central Ontario; it is also a little better keeper, and therefore classed by some as an early winter apple. The apple growers around Peterboro' consider the Blenheim one of their best for the British market. The Gravenstein is not quite hardy enough to be grown in that district. Mr.

Beall, of Lindsay, writes concerning it: "I know of only two trees of the Gravenstein in this vicinity. They are about ten years old and commenced bearing about three years ago; they were very healthy trees up to that time. The crop produced was small. They are now dying out at the top and will probably last but a very few years. The fruit produced last year was very large and beautifully colored. From my present knowledge of the tree, I would not recommend it for planting here, except for experimental purposes." Mr. Nicol, of Cataraqui, writes: "As concerning the Gravenstein apple, it has never succeeded here. I know of many trees having been planted, yet I do not at present know of one bearing tree in this district. I think it is not hardier than the Rhode Island Greening."

Mr. A. McD. Allan writes :—"The Gravenstein is our best all-round apple for its season, either for dessert, cooking, local or export, and is hardy enough to be successfully grown well north of Toronto. There is money in it, being one of the highest priced in any market; a thrifty grower, early and regular bearer."

In Southern Ontario, however, the Gravenstein is perfectly hardy. At Maplehurst we have four large trees, thirty years planted, which produce an annual crop of the largest and finest samples of Gravenstein that can be grown anywhere. We have gathered them in September and forwarded them to London, where they sold at the top of the market. There is no doubt it would pay well for growers in the Niagara district to plant this apple freely for export purposes. We ought at least to agree together upon those varieties which are the best and most profitable of their respective seasons, and then produce those kinds in larger quantities, in order that our district may become famous in the markets of the world for certain apples of high quality, for each season. Already our King, as a mid-winter apple, brings us a high reputation, and Nova Scotia has become famous for her Gravensteins; so much so, that the Boston and New York buyers compete with the buyers for the British markets in the very orchards, for these famous apples. It was the fine showing of a dozen barrels of beautiful Gravensteins at one time that gave the Nova Scotia fruit exhibit such prominence at the World's Fair, under the careful management of President Bigelow.

The Ribston Pippin is one of the finest apples that grows, but not equal to either of the above in showiness, and the tree with us, at Maplehurst, does not attain more than half the size of the Gravenstein. It lacks its vigor, and consequently is unable to carry an equal load of fruit.

The Gravenstein apple originated in Gravenstein in Holstein, Germany, and is counted one of the finest apples of Northern Europe. We append Downing's description :—Tree very vigorous, spreading, forming a large, broad head. Very productive. An early bearer. Young wood reddish brown. Fruit large, rather flattened, and a little one-sided or angular, broadest at the base. Stalk quite short and strong, deeply set. Calyx large, closed, in a wide, deep, rather irregular basin. Segments long, irregular, recurved. Skin greenish yellow at first, but becoming bright yellow and beautifully dashed and pencilled, and marbled with light and deep red and orange. Flesh tender and crisp, with a high-flavored, somewhat aromatic taste. Very good, September and October. A valuable apple for market or cooking, succeeding admirably wherever grown.

Soil for Strawberries.—A very rich garden spot, or any soil highly charged with humus, stimulates a too vigorous plant growth at the expense of a good yield of perfect fruit. In addition to the extra expense of having to "work the plants to death" to keep down weeds on such a soil, here is where the plants first begin to sicken and to die during the long and sometimes very dry summers of this latitude.—Miss. Exp. Station.

PROMINENT CANADIAN HORTICULTURISTS—XXIII.

J. W. Bigelow, Esq.



HE subject of this sketch was born in Canso, Guysborough Co., N. S., in 1833; here he resided till 1869. He conducted a large and successful shipping business in Canso for a number of years, accumulating a large property. In 1869, Mr. Bigelow, attracted by the natural beauties, and superior educational advantages of Wolfville, King's Co., purchased a small farm at the west end of the town, where he has since resided; and there are but few residents of Wolfville and vicinity who have not the most pleasant recollections of hospitality received at the hands of Mr. and Mrs. Bigelow, at Spruce Bank.

Soon after coming to Wolfville Mr. Bigelow planted an orchard of some two hundred trees on his farm; these trees were for some years neglected, and, like most orchards planted at this date, a mistake was made in setting many varieties which have since proved almost worthless, necessitating re-grafting or re-planting many trees; notwithstanding these disadvantages, as well as the severe gales of August last, which stripped off a large part of the crop, this orchard produced \$800 worth of apples this past season, demonstrating beyond question, the truth of previous statements made by Mr. Bigelow, as to the profit of orcharding in the Annapolis Valley.

Becoming a life member of the Association in 1875, Mr. Bigelow has been an enthusiastic attendant of all meetings of the Society, and in 1887 made a statement in the annual meeting of the cost and value of an orchard ten years old, from the standpoint of a business man, which has attracted much attention. Some five years since Mr. Bigelow acquired a large tract of land near his farm, and has given further evidence of his faith in orcharding, by planting some forty acres of virgin soil with apple trees of the leading commercial varieties. This plantation is doing finely, and it is Mr. Bigelow's intention to double its extent in the near future.

At the annual meeting of the Association in 1890, Mr. Bigelow was elected President, and has been unanimously re-elected each succeeding year. Mr. Bigelow took an exceedingly active interest in the exhibit of Nova Scotia fruit at the Columbian Exposition, sparing neither time nor money in the effort to make it a success. He personally took charge of the exhibit during October, 1893, and the show and the gentleman in charge won most flattering encomiums. Indeed, much of the success which N. S. fruit attained at the Fair is due to the unflagging energy of the President of the Association.

The Horticultural School, recently established by the N. S. F. G. Association, has also received much attention from Mr. Bigelow. His has been the



FIG. 424.—MR. J. W. BIGELOW.

master mind guiding and developing the scheme for horticultural training, till the inception of the school is an established fact. During the few years Mr. Bigelow has sat as President, the Association has increased from less than one hundred to more than five hundred members, and the honored institution has assumed a vigor and energy that bids fair for increased usefulness, and it is the expressed hope of many members that the subject of this sketch may long fill the Presidential chair.

THE APPLE LEAF BUCCULATRIX.

At the meeting of the Brant Horticultural Society at Paris, a fruit farmer, Mr. John McRuer, of Ayr, showed some twigs from his apple trees covered with small, elongated chrysalids. The larva, he said, was so numerous in his orchard, that it did very much damage. On forwarding some samples to Prof. Jas. Fletcher, he replies as follows:

"The apple twigs enclosed in your letter, which had been handed

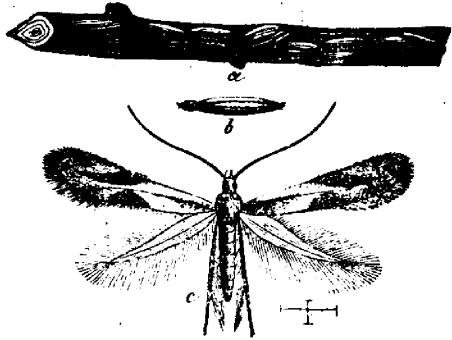


FIG. 425.

to you at the meeting of the Brant Fruit Growers' Association in Paris, are infested with the apple leaf Bucculatrix, *Bucculatrix pomifoliella*. The white objects on the twigs are the cocoons of the second brood. The perfect form of this insect is a beautiful little moth, which is figured on page 119 of Saunders' "Insects Injurious to Fruits," where the cocoons are also shown upon a twig. The moth appears in May, and the small caterpillars are occasionally so numerous as to cause considerable injury. There are two broods in the year. Probably the most practical remedy for this insect is spraying the trees, after the flowers have fallen in spring, with one pound of Paris green, one pound of freshly slaked lime and 200 gallons of water."

A Big Apple Story.

SIR,—I believe you have asked the question, What is the largest crop of apples you know to have been taken from a single tree? and having knowledge of what I think an extraordinary crop, I have for some time intended writing you regarding it. Mr. Summerfield Douglas, who is now manager of the Kay Electric Works in Hamilton, but who, ten or twelve years ago when this occurred, was living on the Douglas homestead, Burlington Plains, lot 3, con. 1, E. Flamboro', will tell you that at that time he had a tree of Maiden Blush which yielded thirty barrels. Although a twenty-six foot ladder was used in picking, a portion of the crop had to be left on the tree as it was quite out of reach. There were twenty-two barrels of first-class apples and six barrels of seconds, which, together with the cider apples and those remaining on the tree, would make up the quantity named. The net proceeds from this crop was between fifty and sixty dollars.

GEORGE E. FISHER, *Freeman, Ont.*

FRUIT GROWERS OF WESTERN NEW YORK—I.

Profit in Fruit Growing—Pruning Evergreens—Co-operative Storage of Apples, etc.



ROBABLY there is not a larger or more enthusiastic meeting of practical fruit growers than the one which takes place every January in the City of Rochester. True, we have four or five times the membership, but as we meet in so many different places we cannot expect such large numbers to attend as if we held all our sessions in some centre of fruit culture.

Mr. W. C. Barry, the able President, gave an admirable opening address, in which he maintained that, notwithstanding the present discouraging outlook for

fruit growers, there is no good reason why farming and fruit growing should not pay well, if conducted on correct business principles.

Mr. C. W. Garfield, of Michigan, was present, and gave an address on "The Art that doth (not) mend Nature," in which he condemned the senseless method of pruning, by which evergreens are robbed of their native grace, and made to assume the form of elephants, lions or eagles. Such monstrosities he compared to the compression of the Chinese woman's foot, or of the American woman's ribs, and condemned them. Mr. Pierce, of Ohio, believed there were cases in which cutting back evergreens was advantageous. In city lots evergreens could in this way be kept within bounds; the leader may be cut out every other year, and when new foliage is pushing out each year he would pinch out the leading bud—thus forming a thick, close, oblate-shaped tree—occupying little ground, and presenting a pleasing aspect.



FIG. 426.—W. C. BARRY.

Co-operative storage.—Mr. Perkins, of Newark, N. Y., who grows apples extensively, drew attention to the fact that Canadian and California apples are filling the American markets. He knew also of a Missouri apple orchard yielding 16,000 barrels in a single season, and another western orchard yielding 20,000 barrels, and, unless conditions are changed, how can we market our

apples with profit? Evaporators have done wonders for the fruit crops in certain counties of New York State, but the true solution of the problem was in constructing co-operative cold storehouses, that could hold from 10,000 to 20,000 barrels of apples each. There the fruit could be kept until markets were bare, and shipped where prices were satisfactory. Possibly such large storehouses would even bring foreign buyers. Apple growing should pay better than orange growing. In all the best markets of the world a good red apple brings more money than an orange. The Nicaragua Canal will knock the bottom out of California orange growing, and apple orchards will pay better than orange groves, if properly handled and sold.

Are novelties worth their cost? was the subject of an address by Prof. Bailey, who answered affirmatively, because old varieties of fruits are constantly being crowded out by new ones; not because the old run out, for they may be propagated indefinitely by grafting and slipping, but because the new are better, being required for various conditions of climate and soil. Novelties must pay, therefore, if horticulture is to pay; not all of them, of course, but a certain percentage. The older the type, the less hope for improvement from seeds, sowing and hybridizing, and less in old localities than in new, because in the former this line has already well worked out.

In what consists the injury to roots of dormant trees by freezing? was a question answered by Prof. Beach, to the effect that, in freezing, the crystals of ice formed outside the minute cell-walls—drawing the water slowly from the interior of them; but, in *sudden thawing*, the water was set free too rapidly to be re-absorbed, and hence the injurious effects.

The value of the Abundance and other Botan plums for general planting, was discussed. The Botan is a general name for a family of plums from Japan, and the Abundance is one of them. Mr. S. D. Willard had tried them and was convinced they were worth planting, still he advised further testing before planting largely. The Burbank is better than the Abundance, and so is the Yellow Japan. The class is valuable, productive and hardy, and has a good market value; other classes bloom too early and are often cut off, or otherwise injured. Some people like the flavor of the Abundance and consider it equal in quality to Lombard; the skin is thin and the fruit must be handled carefully. These plums are little affected with the knot, but are equally subject to curculio, with other plums.

The Burbank is not an early ripening plum; Mr. Willard exhibits it in September. He had enough confidence in it to plant four hundred trees. The Ogon is the poorest of the lot in quality. No one cares to eat it out of hand, but canned, it is very fine. In Japan they eat these plums green, while the pits are still soft.

Mr. J. H. Hale thought there was great promise in these Japan varieties, because they were better shippers than the European varieties, beautiful in appearance, and good enough in quality; except the Ogon, which he humorously compared to a cross between a Kieffer pear and a seed cucumber.

QUINCE CULTURE.

SIR,—Please give me some information about growing quinces. Are quinces grown successfully in Canada? What are the principal requirements for growing them profitably? Is there much demand for the fruit? Kindly name a few of the leading varieties.

QUINCE, *Montreal.*



On page 97, volume 14, will be found an article in which the most of the questions asked by Quince are answered. In brief we may say that quinces can be quite successfully grown in Southern Ontario. They require a deep, rich soil, and good cultivation, in order to secure the best results. Usually they are neglected and become stunted in growth, and matted with interlacing branches, as shown in Fig. 427. Under such treatment the trees produce little fruit, and are unprofitable. Not only should they have the best cultivation, but also annual dressing of stable manure and wood ashes. They should be planted about 10 feet by 15 feet, thus allowing cultivation with horses in at least one direction, after they attain full growth. Some plant 8 x 10, but unless severely cut back this is too near. Fig. 428 shows a quince tree properly pruned. Some

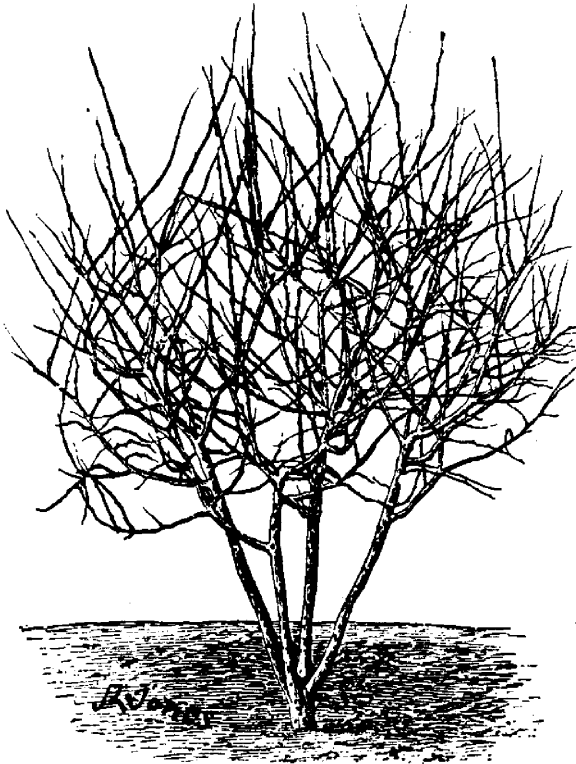


FIG. 427.—QUINCE, UNPRUNED.

allow it to grow several stems, but the tree form is best, and this well thinned. Besides this, the new wood should be annually cut back, leaving only four or five buds.

The quince is easily propagated, either [by layers or [cuttings. The latter may be made from the young wood cut at the annual pruning; this should be cut in lengths five or six inches long, which should be buried in the earth until planting time. Then set them in the rows three or four inches apart, with one bud above the surface, and the rows about three feet apart, in two or three years they will be ready for the orchard.

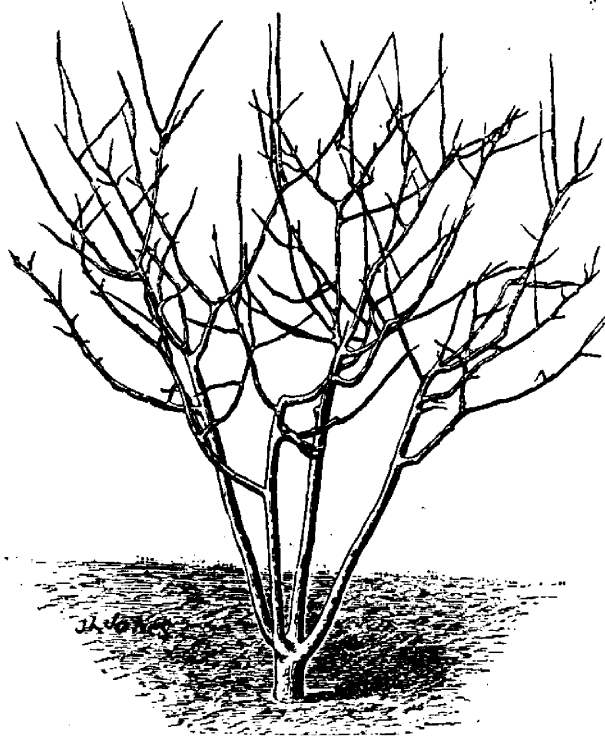


FIG. 428.—QUINCE, PRUNED.

There is but a limited sale in any market for quinces, yet, in our opinion, with an increase of the supply, a larger number of people would use them. No fruit excels the quince for preserves, jellies, marmalades, and flavorings for apple tarts. The price varies with the supply. Sometimes our shipments from Maplehurst bring quite as much as pears; at other times, an abundant crop in New York State seems to fill our market, and brings the price down to about one-half.

The quince is indigenous to Southern Europe, and gets its botanical name, *Cydonia vulgaris*, from a town called Cydon in Crete. There are several varieties, but very few that need to be mentioned as leading ones, *e.g.*, Orange, Rea's Mammoth, and Champion.

THE NORTH-WEST GREENING.



NE of the most promising varieties of apples shown on the tables of the State of Wisconsin at the World's Fair, after the Wealthy, was the "North-West Greening." The reports of this comparatively new variety are very encouraging. It originated in Waupaca county, Wisconsin, about twenty years ago. It is one of the best of the numerous Waupaca seedlings. I have taken the trouble to gather some information about this promising apple, because it is some six or seven years since I first procured root-grafts of it from Wisconsin, and the trees are very hardy here, and I was much impressed with its fine appearance and quality as exhibited at Chicago.

"The North-West Greening originated (says Mr. J. C. Plumb) about twenty years ago in a township where few apples have ever grown. The old tree was killed by heavy bearing and hard cutting of scions. Unfortunately, it fell into the hands of an inveterate crank, who blew his horn in season and out of season, to the disgust of every one. I got a few scions from him about fifteen years ago. I soon found out its great merit as a nursery tree, and scattered it by thousands all over the West, and it is now sought after as never before. It is not hardy enough for Northern Iowa and Minnesota prairies, *except on the bluffs.*

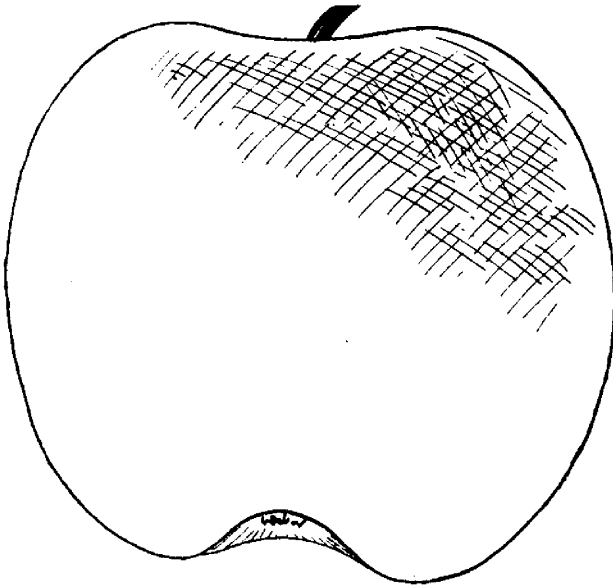


FIG. 429.—NORTH-WEST GREENING

In very rich soils, it grows too late to be perfectly hardy. But here, in all southern and eastern Wisconsin, and Michigan, it is doing finely. Prof. Budd was sure it was of the 'Anis family' and had 'Russian blood in it,' but afterwards went back on it."

Six years' trial of the North-West Greening in this province has convinced me that we have in it a valuable acquisition to our late winter apples. The

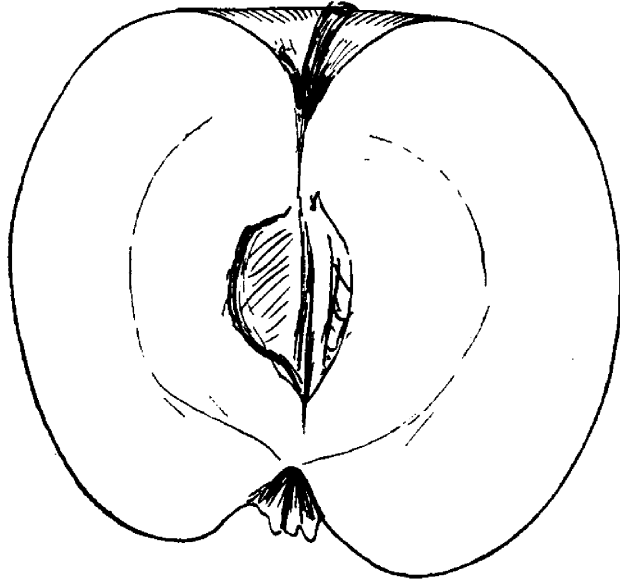


FIG. 430.—NORTH-WEST GREENING, SECTION.

fruit is certainly fine; size, medium to large; color, yellowish green, with creamy blush on sunny side; roundish oblong. Flesh, yellowish white, tender, sub-acid, juicy, crisp, pleasant. It is a fine cooking apple, handsome and symmetrical. The North-West Greening is worthy of cultivation in this province and Eastern Ontario, where the Rhode Island Greening cannot be grown successfully, and it promises to be a competitor of that admirable apple. The North-West Greening keeps till June.

Montreal, P. Q.

R. W. SHEPHERD.

Big Strawberry Crops.—Strawberry culture has become a specialty with a great many, and financially a great success. Judge Miller, of Missouri, raised 17,000 quarts per acre; Smith, of Wisconsin, raised at a rate of 400 bushels per acre; Derrand, of New Jersey, raised at a rate of 20,000 quarts per acre; Arnold, one of the successful growers of Ohio, feels satisfied that he raised 150 bushels on the average per acre.—Strawberry Culturist.

NOTES FROM BRITISH COLUMBIA.



THE Fruit Growers' Association and Horticultural Society of British Columbia held their annual meeting in the City Hall, New Westminster, January 24th, 25th and 26th, President Kirkland in the chair. Many members and others were present from all parts of the Province. Several papers were read and questions of interest discussed. In the election of officers for current year, John Kirkland, Ladner's, was re-elected President; A. H. B. MacGowan, Vancouver, Secretary.

A Fruit Growers' Convention will be held at Spokane, Washington, on February 14th, and the following States, as well as British Columbia, will be represented, Oregon, Washington and Idaho. It is proposed to meet railway officials and discuss rates, also it is expected that commission men will be there from New York, Chicago, St. Paul, Minneapolis, Omaha and Winnipeg. The following are some of the papers and subjects for discussion: "Picking, Packing and Grading of Fruits and Shipping to Through Markets," led by E. L. Goodsell, New York, and G. W. Barnett, Chicago. "Our Insect Enemies, and the necessity of more Radical Legislation to increase their Destruction." "Bees," "Hop Culture," etc. The following are the British Columbia contingence as appointed at annual meeting, President Kirkland, G. W. Henry, Heatzie; J. A. Sharpe, Agassiz; R. M. Palmer, Victoria; E. Hutcherson Ladner's.

So far everything is favorable for a good fruit season this year. Eight degrees of frost is the coldest we have had on the coast. Our fruit growers are busy pruning and spraying, and getting ready for the coming crop.

Ladner's, Feb. 3rd, 1894.

E. HUTCHERSON.

Limits of Quince Culture.—I think, in Ontario, that a line drawn from Sarnia to Toronto would form the northern boundary of quince culture in the province, and south of this line there no doubt would be included many points where the cultivation of the quince would be attended with much difficulty.

There is no portion of the Province of Quebec in which it can be grown without winter protection. The quince will be cultivated in King's Co., Nova Scotia, to a greater extent in future than in the past. It will also succeed over considerable areas of Western British Columbia.

Ottawa.

JOHN CRAIG.

Mrs. John Laing is a soft pink-colored rose with large and finely formed flowers, with high center. It is a continuous bloomer until frost, almost as free as Gen. Jacqueminot, and a good grower, with upright stems, besides, it is quite hardy. This is one of the best of modern roses.—Gardening.

CONSTRUCTION OF AN EVAPORATOR.

SIR,—Is there an evaporator manufactured in Ontario? How is sulphur applied? Is it sprinkled on the apples, or burned in a vessel under them? About how much duty would we have to pay on an evaporator which costs in the States, say, \$30?

GEORGE MARSHALL, *Clarksburg.*



As we have stated before, there is no factory in Ontario, so far as we know, where evaporators are constructed ready for sale. The duty is 30% ad valorem. It might be interesting to some of our readers were we to repeat the description of an easily constructed evaporator, which was described in the *HORTICULTURIST* for 1891. (See Fig. 431.)

"It is built of wood. All the frame required is the upright, 2 by 2 inch posts and the 2 by 3 inch horizontal drawer rests. The drawer rests are placed flatwise and between the posts, rabbeted one-half inch on each inhalation of air. The end drawers are 4 inches deep and 5 feet long, and are used to finish on. Have four extra drawers, and have some extra front pieces to put in and close up the openings when the drawers are out. The sheet-iron fenders, A B, extend the whole length, to distribute the hot and cold air. The cold air enters the ventilators below A, and is divided by B. The arch C is sheet-iron, with a two inch flange, resting on the wall of the furnace, which is two feet high and two feet wide, laid in mortar. The top course of brick is laid in mortar, in the flange, to prevent the

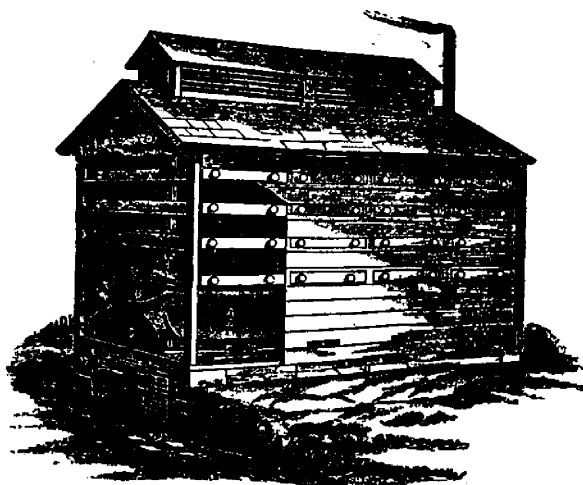


FIG. 431.—HOME-MADE EVAPORATOR.

escape of smoke. The building is $10\frac{1}{2}$ feet long, 7 feet high, and 4 feet wide. D D are connecting rods attached to the ventilators. The furnace can be built below the surface, on sloping ground. The amount of heat is great, and the thing to be observed closely is to admit plenty of cold air through the ventilators. The illustration, without going into details, gives enough to enable a good workman to construct a cheap and good evaporator that will do more than twice the work of some of the high-priced machines."—Farm and Fireside.

A writer in the California Fruit Grower says: "For sulphuring the fruit contained in a box 8 feet high by $3\frac{1}{2}$ feet square, two heaping tablespoonfuls of powdered sulphur, sprinkled upon a live coal and burned on a pan set on the stove, with lower draft open and hood door closed, is sufficient. From twenty to thirty minutes is as long as the fruit should remain exposed to the sulphur fumes. Sulphuring preserves the bright rich color of apricots and peaches and the whiteness of apples and pears, but over-sulphured fruit retains a sulphur taste to an offensive degree."

Mr. Graham, of Belleville, says in a letter just received: "There are no fruit evaporators on a small scale made here. We have been selling one of American make, ranging from \$25 to \$50; but if the people of Ontario should need them in sufficient quantity, we could make them here at considerably reduced prices. My opinion is that such evaporators will not pay. It would be better for the neighbors to form a joint-stock company and purchase a steam evaporator. If there is a good locality in any section of Ontario where the farmers should desire such a one, I will be only too glad to build one myself, or build one for them."

Mr. A. M. Purdy, of Palmyra, N. Y., who has had some experience in this line, writes: "For sulphuring fruit, I use a long bleacher box that holds six bushel drawers, one following right after the other, and the pipe running into the smoke pipe of the evaporator, going out of the back end of the bleacher box, and a cup with sulphur constantly burning in the front end. Some persons burn the roll brimstone in the evaporators themselves."

We here give the drawing of the section and ground plan of Mr. Purdy's home-made evaporator.

I give a plan for a house costing about \$50.00 that I have had in use more or less for eight years. Fig. 432 shows the plan of the heating furnaces—the outer lines being the exterior of the house. D, D are the furnace doors, through which access is had to the furnaces, F, F, which are made of sheet iron, half round, and are each about ten feet long, and fifteen inches in diameter. The smoke and hot air passes through them, and through the horizontal pipes, P, P, which are about five inches in diameter, into the brick chimney, C, standing against the end of the building. There should be a register in the pipe next the chimney, to control the heat.

The house (Fig. 433) is 7x10; posts 7 feet high; drawers No. 1—3 feet wide, 8 feet 4 inches long—eight drawers on a side. They are made of inch and a half pine for the end and back—the front is 1 x 4 inches. The bottom of the drawers are covered with common sheeting tacked on well with nails—2, 2, 2, are shelves, made tight, and 7 inches apart, and to come within ten inches of the sides of the house. 3, 3, are the furnaces; they are made of sheet iron, half round, and laid on brick arches, and are the whole length of the house; the chimney is on the outside. The sheet iron should be made of No. 4—with a flange, so that one course of brick can be laid on the flange, to make it smoke tight.

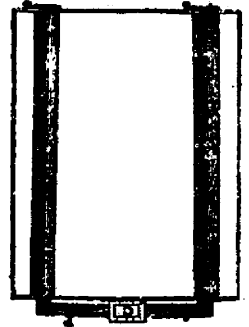


FIG. 432.—HEATERS, ETC.

The drawers should be made all alike, so that if you wish to change them from top to bottom, they will fit anywhere, and they should be made to fit tight, so that when they are all in they will make the sides of the house tight. The shelves 2, 2, 2, etc., are to distribute the heat to all the drawers; the heat will strike the first shelf, and pass to the side of the house, and thence under the first drawer to the centre, and then over the drawer, and then the other, etc., till it gets to the top. The drawers, as you will see by the drawing, is put in from the outside of the house and in the centre of the space between the shelves; 5 is a drawer 6 inches deep, 5 feet wide, and 6 feet long, to be used as required—good to use to finish fruit when in a hurry.

6 is a ventilator, the space in the roof 8 inches wide. No. 7 is a box, open at each end, to let in cold air—placed between the furnaces, so that the air will be heated in passing over them. The temperature of the house should be kept a little below the scalding point; if it should get too hot the lower drawers can be pulled out about six inches, and that will let in a draft of cold air, and soon bring down the heat to the desired point. Small pulpy fruit should not be more

than three-fourths of an inch thick, for if thicker, the air will not pass through the fruit; and it will not dry so quickly.

After the fruit has become partially dried, put three or four drawers together and finish up. The advantages of the house are: 1st. You dry quickly and save time. 2nd. You keep off flies and moths, and you don't get any moths' eggs. 3rd. Your fruit is of better color and flavor, for you dry so quick that the fruit does not become sour. The cleats that the drawers slide on should extend outside of the house two or three feet, so that they can be filled if necessary without taking down. Put a piece of sheet iron over each furnace, say 6

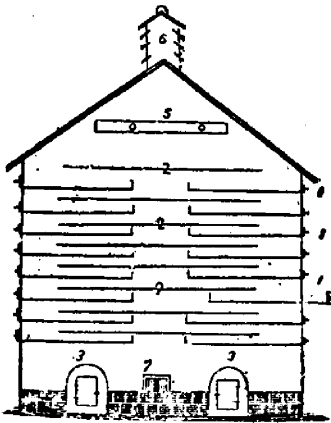


FIG. 433.—END VIEW.

inches high, to protect the first shelf, for if a careless attendant should build a very hot fire it might burn the shelf. The house can be built larger or smaller, so as to meet the requirements of any fruit grower.

Between the two fire doors is placed a wooden box or square tube (not shown in the cut), running lengthwise horizontally through the house, with sliding doors at the ends to regulate the current of air, and with holes along the top. This supplies fresh air, as it is heated and passes upwards. It regulates the temperature and prevents the fruit from cooking. The house may be larger or smaller than the dimensions given, according to the amount of fruit likely to require drying.

QUICK GROWING TREES.



NOTICE that Mr. W.W. Smith, of St. Catharines, in his article on "The West Wind," in the January number of the HORTICULTURIST, speaks of some of the varieties of the willow as being "by far the quickest growing of all our trees," and for this reason, he recommends them for planting for wind breaks. I like his article, but not the willow. It is not a good, erect grower, is a great harbor of insects and worms. It is very dirty in spring from its catkins, makes great dirt at all times from dead small twigs, etc., and its roots are liable to fill and stop drains. I would sooner recommend the basswood, a native of our forests, a very rapid grower, and very valuable as a honey-producing tree, making the air heavy with the rich perfume of its blossoms late in June, when the season of most flowers is past. I would also recommend as fast growing trees, our native tulip, or whitewood, or a still more valuable and easier transplanted—the white ash. But the tree that outstrips all others for fast growing belongs to the much despised poplar family; but, unlike its much despised relatives, it is a beautiful spreading tree, with broad dark green leaves that hold their lustre through the most severe drought that we have ever had. It is the Carolina, or, as we call it here, the broad-leaf poplar.

I have had as a common growth, the second year from transplanting, ten feet, and last year I measured two cases of thirteen feet growth, corresponding side branches, etc. One tree, measured in girth, gave twenty-seven inches, four feet from the ground, five years from transplanting—a whip then. I have not cut up any of them, but the wood in large limbs that we have occasion to cut, seems very hard (for poplar) and capable of taking on a good polish. The tree stands erect and is in every way a fine-looking one.

Port Huron.

L. B. RICE.

HOW TO MAKE A HOTBED.

A Hotbed.



It is a box or frame without bottom or top, made for one, two or four sash, as in the illustration. It may be made permanent of brick or stone, or temporary of plank or one inch common boards, the back board about twenty inches high, one-half greater elevation than the front, which should be twelve to fourteen inches—the whole made to support a sash or several of any dimensions, the best of about three by seven feet. The back being higher than the front gives a declivity to the sash, thus casting off the rain, which it would not do if flat. The box at proper season is placed upon a bed of fermenting material, which, making a gentle and continuous heat, warms up a layer of soil resting upon it, and thus germinates seed and forces plants into rapid growth.

MANURE.—The value of the bed depends principally upon the character of the fermenting material. This should be rich stable manure (no cow dung) forked over two or three times at intervals of a week and kept in a deep and compact pile till it begins to smoke or steam, indicating that the process of fermentation has set in. If the dung be very rich in grain an addition of forest leaves is desirable, as they serve to prolong the period of fermentation, which otherwise might be too rapid.

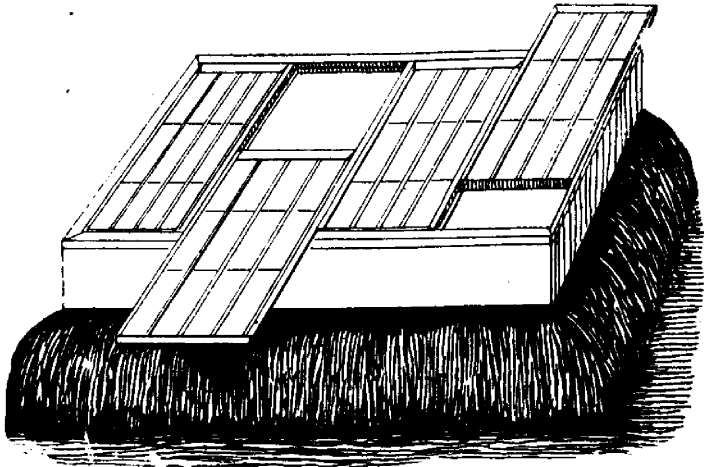


FIG. 434.—HOTBED.

LOCATION AND MAKING.—Selecting a well-drained location, and one never flooded by rain, excavate a pit one or two feet deep, and one foot longer and one foot broader than the box. Into this place six inches of rough barnyard manure, corn stalks, leaves or straw, for drainage, and on it lightly fork in the fermenting dung and tramp it firmly down to a depth of two feet. Place on the box and fit the sash lightly, cover with mats and allow fermentation to again proceed, banking up with hot manure on the outside all around at an angle of 45°. Place on top of the manure a layer of three inches of rich, moist, finely pulverized soil. In a day or so the temperature will rise to 120°. When the temperature has fallen to 90° destroy all the weeds which have sprouted, and sow the seed for which the bed is intended. Cover every night with mats to exclude frost, and give air during the day, never allowing the temperature to fall below 70° or rise above 90°. The secret of growing good plants is to give plenty of air, else the plants will be sickly, spindly specimens. Short, stocky plants are what are desired. Sow the seed in rows three inches apart and one-quarter to one-third inch deep, and cover by sifting on fine earth.

CARE OF HOTBEDS.—Water every evening. Remove the mats every morning about nine o'clock, give air about ten o'clock. Cut off the air in the afternoon as soon as the air becomes the least chilly. Cover with mats before sunset. Hotbeds should be covered early in the evening, to retain their heat, and in the morning uncovered when the sun rests upon the glass, as every effect should be made to give the plants all the sunlight possible, as its rays are vivifying to a degree beyond the amount of its heat, it having a chemical and physiological effect beyond explanation. Even dull light is better than no light, consequently it is a bad plan to cover sashes with mats, except for the direct purpose of keeping out cold. Pepper and egg plants require more heat than other plants. Success depends on bottom heat from the manure, top heat from the sun, water from daily application, and air at midday. Without plenty of air the other requisites will be fruitless. All seedlings should be transplanted into other hotbeds or intermediate beds when two inches high. Hotbeds may be used for forcing lettuce, radish, egg plant, pepper, tomatoes, cabbage, cauliflower and ornamental flowers.

ARTIFICIAL HEAT.—We have known locations where stable manure for hotbeds was not readily obtained, and to meet such conditions we give the following directions for manufacturing a fermenting material for the production of a moderate and continuous heat, the quantities named being sufficient for a box twelve by seven feet. Take as the crude materials, 500 lbs. of straw, three bush. powdered quicklime, six lbs. muriatic acid, six lbs. saltpetre. Having prepared the excavation of proper dimensions, spread three or four inches of forest leaves or old hay in the bottom. Upon that spread eight inches of the straw, tramp it down and sprinkle with one-third part of the quicklime. Dilute the six pounds of muriatic acid with twenty gallons of water, and, by means of an old bloom,

sprinkle the bed with one-third part of the solution. Make another layer of eight inches of straw, applying quicklime and the solution as before. Repeat for a third layer. Upon this make a fourth layer of straw, and upon it sprinkle the four pounds of saltpetre dissolved in thirty gallons of water. Place the box in position, bank up outside, within the box spread three inches rich, finely pulverized earth, and put on the sash. A heat will soon be generated which will continue for two or three weeks.—Landreth's Catalogue.

THE GRAPE HOE.

We show an engraving of a most useful tool in the vineyards, which was recommended by Prof. Hutt, at Peterborough, as being of so much service in the New York State vineyards. After cultivating the rows, this tool will take out all grass and weeds that remain under the wires, and around the vines and posts, and will thoroughly stir the soil close to the vines. Without careful attention in driving, the hoe is guided in and out around the vines by the dirk castor wheel, to which the handle is attached. The horse is hitched to one side of the pole, which gives plenty of room for the plow to work under the vines or bushes without injury to them from the horse or the whiffletrees. The engraving is shown by courtesy of Messrs. John H. Grout & Co., of Grimsby, Ont.

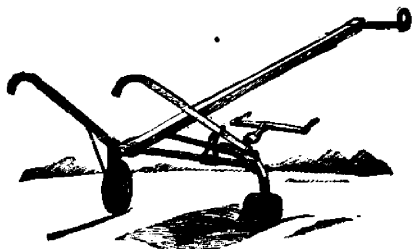


FIG. 435.—THE GRIMSBY GRAPE HOE.

Commercial Fertilizers for Strawberries.—Land of medium fertility requires but little, if any, commercial fertilizers. Good results have been obtained from planting cow peas between the rows late in July. Open a deep furrow between the rows, drill in the seed at the rate of one and a half to two bushels per acre, cover with a cultivator or harrow so as to leave the soil in proper shape about the strawberry plants. The shading of the land during August and September, and the vines lying between the rows during the winter months is a decided benefit both to the land and to the strawberries. Properly managed, land in strawberries increases rather than decreases in productiveness. With more or less vegetable matter growing on it during the greater part of the year, and exposed to the sun only a part of the summer, the mechanical condition is being constantly improved, and the vegetable matter plowed in adds fertility.—Miss. Exp. Station.



FIG. 436—A BLACK WALNUT TREE.

BLACK WALNUT TREES FOR LUMBER—I.



LOW that the older plans of farming operations, too long persisted in in this province, are slowly but certainly giving way to more intelligent systems, the present appears to be a seasonable time to again draw the attention of land-owners to the advisability of tree planting, as one of the best means of increasing the productiveness of the soil, and thereby securing greater prosperity to the farming community in the near future, with a certainty of greater pecuniary reward at a more remote future.

During the past twenty years, when so many new ideas, methods and plans have been advanced solely in the interest of the owners and tillers of the soil, no other proposition has been received with so much approbation and with so few objections as that of the necessity and the desirability of tree planting, as a means towards public prosperity; and yet but little or nothing has been accomplished. The principal cause of this inactivity seems to be that the immediate pecuniary advantages to be derived from this source is obtainable

only in an indirect way, while the ultimate reward, which is admitted by thoughtful persons to be both large and certain, can be realized only after many years.

The subject of tree-planting having been so favorably received (in theory) by that portion of our people most directly interested—the land-owners—my purpose now is to advocate only one branch of it, the growing of black walnut trees, and to treat the subject as suggested by the Editor of this journal, as seen in the title of this paper.

Black walnut trees for lumber, implies the growing of these trees on a large scale and for commercial purposes. This may only be done by individual holders of large areas of land or by the collective efforts of the holders of ordinary farms, which is by far the larger area in this province.

The black walnut tree—*Juglans nigra*—is indigenous only to the south-western portion of this province, but can be successfully grown, not only anywhere in Ontario, but throughout the cultivated portion of Canada, and also in most of the northern countries of Europe.

Some of the reasons for advocating the growing of walnut trees—trees which are not indigenous to the larger portion of this province, in preference to many other beautiful varieties that are—may be thus summarized :

1. It is more easily propagated, and requires less care and attention to secure successful growth to maturity than most other long-lived trees.
2. It grows and matures best on land less valuable for agricultural purposes generally than most other varieties.
3. It is one of the most beautiful of trees, grows rapidly during its earlier existence, and contributes in many ways during its growth towards securing better results from the farm.
4. The lumber made from the matured tree commands the highest market prices.

It is proposed to treat these four propositions consecutively, but first it may be well to show why so many trees of this variety fail to grow after being transplanted.

If a walnut tree about one year old be carefully taken up from suitable soil, and, with its roots intact, some peculiarities in its development may be observed which may throw some light on its requirements. The portion above ground will be one straight rod from one to three feet in length, and from one-quarter to one-half inch in diameter at its base, and but little smaller at the top. The root, which is about the same length as the tree, consists of one long, straight tap-root having a few tiny rootlets radiating from it, resembling a carrot somewhat in its appearance, especially when it is noticed that the root is about double the size of the stem at the juncture of the two parts. Trees for transplanting are generally obtained from the nurseries when about four years old. At this age the tap-root, when grown in suitable soil, will be several feet in length. It is, therefore, found impracticable to preserve but a small portion of the root

when taking up such trees. The practice in digging is to cut the tap-root eight or ten inches below the surface, and to preserve as many as possible of the rootlets springing from this portion; the proportion of the roots saved rarely exceeding one-quarter of the whole. Now, if the rule which is often applied to deciduous trees to "reduce the top in proportion to the loss of roots," could be applied, the result might be different, but the peculiarity of the growth of this tree precludes its application in this case. It is seldom that more than an odd twig here and there can be taken off without destroying the tree. The source of vitality of such trees are thereby so much lowered that several years' growth is required to regain this loss. Indeed, such trees ten or twelve years old rarely attain the height and the healthy appearance of untransplanted trees of one-half that age.

(1) *Propagation and cultivation.* For whatever purpose walnut trees may be required, whether for shelter, for ornament, or for profit, it is a matter of the utmost importance that the nuts be planted where the trees are to grow. The method of planting may be of the most primitive kind. Holes three or four inches deep, of sufficient size to receive the nut, may be made with a pointed stick; force the nut to the bottom of the hole with the other end of the stick, which should be blunt; earth is then placed on the nut sufficient to fill the hole and well trod down. This is all that is absolutely necessary, yet much better results will undoubtedly be obtained if the soil is first put into a good mechanical state by thorough trenching to the depth of two feet or more.

The cultivation and attention required during the succeeding ten years depends upon the immediate purpose for which such trees are grown. If planted along division fences for shelter for vineyards, orchards, or growing crops, or for the protection of buildings from prevailing high winds, or for ornaments on the lawn, the trees in such cases being comparatively isolated, nothing remains to be done but to so protect them that nothing whatever may touch them for ten or twelve years, by which time they will be safe from all danger, except from mischievous or thoughtless persons who may break the branches, or otherwise injure the trees, in their efforts to obtain the nuts before they are ripe, and, therefore, of no value. In all these and similar cases, the trees will branch near the ground, and, therefore, better serve the several purposes for which they were planted.

Lindsay.

THOS. BEALL.

A SUCCESSFUL ENTERPRISE at Grimsby is the growing of tomatoes under glass. Two large greenhouses, 200 ft. long, have been erected for this work, and for two or three seasons past we have been shipping beautiful large tomatoes to the city markets, at from 30 to 50 cents a pound. Each tomato is carefully wrapped in tissue paper, on which is stamped the grower's name. The Garden and Forest notices these fruits as coming into the New York market.

* The Apiary. *

THE TWENTY-FOURTH ANNUAL MEETING OF THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.



Wintering.

R. G. R. PIERCE gave an able paper upon the above ; he advocated greater care and closer observation in bee-keeping. We had passed the period when any one could succeed in bee-keeping. As to wintering it was necessary to understand the conditions required, and consider not one, but all. The following facts should be considered :

1st. Bees winter in good conditions generally, if they have sufficient food and can take cleansing flights every three or four weeks.

2nd. They do well in very severe winters if the period of greatest cold is experienced in November and December and January, but if the coldest weather is in January and February and March, disease is almost sure to be indicated, unless the hives are well protected.

3rd. A severe winter following a season that gave no fall flow of honey, is usually fatal to the inhabitants of an unprotected hive

4th. A normal colony of bees hived in a large box or gum and allowed to keep all honey gathered, say to the amount of 60 or 80 pounds will live and keep healthy no matter how severe or how prolonged the winter may be. Instances are on record where bees have occupied such hives from ten to fifteen years.

5th. A colony of fair strength, as to number, will endure the severe cold of our winters, no matter how prolonged, until a part or all of the cluster have eaten the honey stored directly above ; if the cold continues after this there is danger ahead. By considering one or two of these propositions and ignoring others, one may assume any disturbing element to be the cause of winter losses, but to reach the true cause all facts and phenomena with which we are acquainted must be carefully considered. In northern climates all animals subject to man require virtually the same conditions to endure the cold, and these are quietude, a warm abode, and sufficient food of the proper kind to supply the nutritive functions of the body. Bees are no exception to the rule, though they are physically different from the vertebrae. They gather the food suited to their organism, and, when left to themselves, will store it in such a position as to be available at all times. They are enabled to enjoy a reasonable degree of warmth by their mode of living at the ceiling of their dwelling instead of on the floor, thus enjoying an atmosphere made temperate by heat evolved from the clustered colony.

In order to meet the requirements of a healthy bee hive, in outdoor wintering, I would briefly suggest the following: 1st, a sufficient quantity of honey to meet the demands of the colony until the bloom of the following spring. This honey store should be so distributed that the combs upon which the bees are clustered will contain honey enough to feed the colony during the cold weather, reserving the side stores for breeding in the spring. Never put empty comb in the centre of the hive after the honey season has closed. 2nd, the cover of the hive should be a solid board, sealed tight by the bees, and this covered to the depth of ten or twelve inches with some heat-retaining substance, in order that the top of the hive may be kept warm; protection to the other parts of the hive is also absolutely necessary, at least in the North-Western States. I have followed the discussion in "Gleanings" concerning sealed covers, with considerable interest, and am not surprised that success has not attended some of those who have tried them. The reason is quite plain to my mind. Too much emphasis has been placed on one part of the method, that is the sealed cover, ignoring to a great degree the deep covering above, a most essential adjunct. In some regions, as Central Ohio, Indiana, Pennsylvania, etc., the depth of covering indicated may not be necessary, but in colder climates the sealed cover will be a failure without it. Space does not permit of my explaining in full all the details of my method of wintering. In my work "The Winter Problem in Bee-keeping," I have stated these at length. Nor do I consider that all bee-keepers should understand what conditions are necessary and then provide for these in any manner convenient to his or her situation and surroundings. Since publishing "The Winter Problem," I have found by setting, that an empty space below the hive is a valuable adjunct in wintering out of doors, not to let the foul air settle at the bottom, as was first claimed, but for the following reasons: 1st. It is an absolute safeguard against the entrance of the hive becoming choked when covered with snow. 2nd. The bottom of the hive is, in winter, the coldest; this space lifts the cluster above the cold boards. 3rd. Bees are not apt to fly out on cold sunny days if the lower edge of the comb is three or more inches from the bottom board. The strength of the colony is thus conserved, and early breeding encouraged.

In conclusion let me say, that winter losses are not caused by poor honey, by fruit juice, by pollen, or by bacteria, it is simply a case of *protection* and *food*.

Brantford, Ont.

R. F. HOLTERMAN.

Manure for Pear Orchard.—Hitherto I have always used stable manure in my pear orchard. This year I submitted a good dressing of steamed bone and muriate of potash. The effect on the quality of certain varieties was quite marked: Rostiezer, Gifford, Bartlett, Bosc and Lawrence were greatly improved. The Tyson, Sheldon, Anjou and Winter Nelis were but slightly affected in respect to quality. The Anjou, however, whether for this or some other cause, keeps much better than ever before.—Gardening.



The Canadian Horticulturist

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

✻ Notes and Comments. ✻

APPLE EXPORTERS.—A meeting of apple exporters has recently been held in the Board of Trade Rooms, Toronto, for the purpose of organizing for a better system of conducting their business. Other countries are year by year becoming stronger in opposition to us, and to hold our own against them concerted action is necessary. One of the most important points is the fixing of a standard by which buyers and exporters may buy and ship, as is done in grain and flour. The government standard, in the opinion of Mr. Shuttleworth, as at present constituted, is too high.

THE NEW FRUIT GROWERS' ASSOCIATION IN QUEBEC.—The programme of the meeting of this Association was good. Some of the subjects discussed were: "Best Market Varieties of Apples," "Grape Culture," "Plum Culture in the North," "Notes on the Varieties of Plums grown on the Island of Montreal," "Will it pay to Continue Growing the Fameuse Apple," "Fruit Packages," "Orchard Culture," etc. We wish this new enterprise great success.

THE PAWPAW, or Custard, apple (*Asimina triloba*) the tree of which is found in the Niagara Peninsula, is spoken of in the Rural Canadian as worthy of experimentation. The fruit is four or five inches long, banana shape, and grows in small clusters. The flesh is golden-yellow, soft and pulpy when ripe; and in parts where it is abundant it is made into pawpaw butter and pawpaw fritters. It would probably succeed in a large section of Ontario, and in a considerable area of British Columbia. Who knows what the cultivator and the hybridist may do for this fruit?

NEW EARLY AND LATE VARIETIES OF STRAWBERRIES.—The Geneva Experiment Station gives, in Bulletin 64, the result of some experience with strawberries and strawberry crossing. Five early varieties are given, classed according to their yield, prior to June, 21st, 1893. Michel's Early stands first, one plant yielding in all 210 ounces, 176 of these prior to June 21st; Beder Wood yielded a total of 196 ounces, 64 of them prior to June 21st. Of six late varieties, ranked according to the yield after July 1st, Townsend's No. 2, a staminate variety, stands first. Its total yield was 288 ounces of fruit, 192 of them after that date. We note the progress of this work, believing that future experiments in this direction will result in the production of varieties of strawberries with such tendencies toward early and late bearing respectively, that the strawberry season will be much lengthened out, which is certainly a very desirable object.

IMPORTANCE TO CANADA OF HER FRUIT INDUSTRY.—Prof. C. C. James, Deputy-Minister of Agriculture of the Province of Ontario, gave the following statistics at the meeting of the Ontario Fruit Growers' Association at Peterboro': There were 7,000,000 bearing apple trees in Ontario, 2,000,000 grape vines, 700,000 plums, and 500,000 each of cherries, pears and peaches, and the value of the products of these trees was approximately placed at \$20,000,000; while the value of last year's wheat crop was \$15,000,000, and of the cheese product between \$9,000,000 and \$10,000,000. This estimate, at moderate prices, shows the importance of the fruit industry of Ontario. In view of these statistics, surely any money that may be spent in improving the prospects of the fruit growers should meet with public approval. Why should not the Dominion spend some money in introducing our fruits into foreign markets; and who will find fault if the Provincial Legislature makes a special grant for conducting experimental work in fruits, as is being proposed by a committee of our Association?

THE LIST OF PLANTS AND TREES distributed by the Fruit Growers' Association of Ontario from 1875 to 1893 inclusive; is published here, to show what has been done in experimental work up to the present time, and we hope soon to collect sufficient data to give a tabulated statement of the results.

- 1875—Swazie Pomme Grise apple.
- 1896—Glass seedling grape.
- 1877—Goodale pear.
- 1878—Burnet grape.
- 1879—Ontario apple.
- 1880—Saunders' new hybrid raspberry.
- 1881—Senasqua grape; Dempsey potato; Hydrangea paniculata; Wealthy apple.

1882—*Spirea prunifolia*; Lee's prolific black currant; three bulbs of *Gladioli*; Moore's Early grape.

1883—Rose peonia; Worden grape; Niagara raspberry.

1884—Canada Baldwin apple; *Deutzia crenata*; Prentiss grape; seed of pansy, mixed aster, and Drummond's phlox.

1885—Russian apple; Catalpa; Fay's prolific currant; double tulip; seeds of *Diadem pink*, striped petunia, *salpiglossis*.

1886—Ontario strawberry; Yellow Transparent; *Lucretia dewberry*; Early Victor grape; Marlboro' raspberry; seeds of *Gypsophila paniculata*, *Aquilegia caerulea*, and *Delphinium*, mixed colors.

1887—Vladimir cherry; dahlia; Hilborn raspberry; Niagara grape vine; single-flowered geranium.

1888—Storm King fuchsia; Golden Queen raspberry; Niagara grape vine; spring-flowering bulbs, viz., *Tuberose* (double *Excelsior Pearl*), dahlia (*Gaiety*, striped flower), *Napoleon gladiolus*; Jessie strawberry; *Doyenne Boussock pear*; *Abutilon* (double); *Ostheim cherry*.

1889—Niagara grape; *Vergennes grape*; *Princess Louise apple*; Paul Neyron rose; *Baron de Bonstettin rose*; Jessie strawberry.

1890—Russian apricot; Simon's plum; John Hopper rose; Shaffer raspberry; Wealthy apple; Bubach, No. 5 strawberry; *Richardia alba-maculata*.

1891—Golden White apple; Mill's grape vine; Williams' strawberry; *Triomphe de Vienne pear*; two cannas; *Gen. Jacqueminot rose*; two dahlias.

1892—Moore's Diamond grape; Idaho pear; Gypsy Girl, Round Borsdorfer, Blushed Calville, Silken Leaf, and Little Hat apples; *Ampelopsis Veitchii*; Louise Canning, and Mrs. Richard Elliot *chrysanthemum*; double English violets, *Napoleon* (blue) and *Princess Louise* (white).

1893—*Rosa rubifolia*; *Spiraea media rotundifolia*; *Picea pungens*; *Pinus ponderosa*; *Pseudotsuga Douglasii*; Seedling Black currant; Red Queen, Golden Reinette and Crimean apples.

For 1894—The Central Experimental Farm will send us *Caragana arborens*, *Acer gumala*, *Prunus punicea* (sand cherry); Seedling raspberries, etc., to which will be added some of the newer varieties of strawberries.

Preparing for a Lawn.—In order to have a good lawn quickly in a dry soil, the ground must be enriched and well plowed. To avoid weed seeds, this enriching had best be done with ground bone, sown on the furrow, at the rate of eight or ten pounds to the square rod. Along with this, either good wood ashes in about double the quantity, or muriate of potash in the same quantity, is necessary. It is worth taking considerable time and trouble, when preparing to seed, to get the ground level, or evenly graded, as depressions are not only unsightly, but as they collect water they are usually weedy spots. After plowing, harrow well, sow the seed, and "board down" the surface in the ordinary way in which gardens are smoothed for fine seeds. Then keep off the surface until the grass is large enough to be safely walked upon.—Vick's Magazine.

Question Drawer.

Sawdust as a Fertilizer.

611. SIR,—About four miles from me is a large heap of sawdust from four to fifteen years old, made chiefly from soft elm, basswood and hemlock logs. My garden of eight acres is strong clay, but not stubborn. Would it pay me to draw it that distance, and if so, what fruits would it help most? Has it any fertilizing properties?

R. PHIFFEN, *Parkhill.*

Sawdust is of little value as a fertilizer. It contains a little more nitrogen than straw, and less potash and phosphoric acid. This is well shown in the following comparative table from the Bussey Bulletin, which shows the per cent. of these elements in sawdust, straw, twigs, etc., in a manner most interesting to the horticulturist:

	Sawdust.	Straw.	Twigs with leaves.	Best autumn leaves
Per cent. of				
Potash,	0.10	0.50 to 1.00	0.88	0.10 to 0.50
Phosph. acid,	0.05	0.20 to 0.30	0.33	0.06 to 0.30
Nitrogen.	1.00	0.33	1.28 to 2.84	0.75

This analysis shows that sawdust has only one per cent. of nitrogen, only one-tenth of one per cent. of potash, and only one-fifth of one per cent. of phosphoric acid.

This old rotten sawdust, however, would have absorbed some additional fertility, and its mechanical action on the stiff land of our correspondent would no doubt make it well worthy of his attention. If worked in, it would render it looser in texture and more easily worked. Possibly the best use would be as a mulch on the surface among his strawberry plants, and around his plum and pear trees. It is excellent for this purpose, keeping the berries clean and the soil moist.

Marsh Mud.

612. SIR,—Are there any benefits to be derived from applying marsh mud to fruit trees, beyond the salt it contains, and if so, what?

E. McWATT, *Truro, N. S.*

The action of the salt is perhaps the least benefit to be derived from the marsh mud. It is rich in humus, which is valuable in several ways: first, in supplying nitrogen, which has accumulated in it from the various plants which have lived and died in it. The texture of heavy soils is made lighter and more porous by it; it retains moisture, and absorbs ammonia. Thus it is evidently of considerable value to certain soils. It is not suitable to wet, boggy soils.

Prof. Shutt has analyzed samples of marsh mud from various parts of the Maritime Provinces, and finds they consist largely of ground-up rock matter, clay and sand, shells and organic debris. They are inferior to swamp muck in

organic matter and nitrogen; most of them contain the elements of fertility, viz.: nitrogen, phosphoric acid and potash, but are inferior to swamp muck in organic matter and nitrogen. They need to be supplemented with stronger manures.

He says in his last report:—These muds have been largely used in the Maritime Provinces as a fertilizer, and good results as a rule have followed the first applications. It has been the experience of many, however, that the beneficial effects are not lasting, and that after a few years there is but little response from a repeated dressing when applied as the sole manure. This is not to be wondered at, since these muds are not complete fertilizers and cannot furnish all the plant food in the proportions required by farm crops. To a certain extent they supply the elements of fertility and also act on many soils as stimulants, but they must not be considered as concentrated manures, nor should they be used exclusively. As far as possible, they should be supplemented with more assimilable and stronger manures. Barnyard manure, superphosphate and wood ashes are probably the easiest to obtain and the cheapest for use with these muds.

Coal Ashes as a Fertilizer.

613. SIR,—Do coal ashes possess any fertilizing properties at all, or are they worthless for fruit trees?

E. E. McNUTT, *Truro, N. S.*

Coal ashes possess some value as a fertilizer, but it is very little. Their chief benefit is mechanical. When applied to the surface of the ground, they are an excellent mulch, and when worked in they render the heavy soils looser in texture, and, consequently, more porous to the beneficial action of the air. On light soils they have no value whatever except as a mulch.

Paris Green and Stock.

614. SIR,—Would it be injurious pasturing in an orchard where Bordeaux mixture and Paris green combined were used for spraying?

A. E. SHERRINGTON, *Walkerton.*

Formerly, in the application of these poisons, we had grave fears that the grass underneath the trees would be rendered poisonous to stock feeding upon it, and we carefully shut out all animals from the orchard until some heavy rains had washed the grass clean. Latterly, however, we have come to the conclusion that the amount of poison which reaches the grass is so infinitesimal in quantity that it could have no injurious effects upon the stock which is feeding upon it. Our horses have had free range of our orchards during the spraying season for the last two years, and no injurious effects have been apparent. We would be glad to hear from our correspondents whether any one has had a contrary experience.

Ammonia in Spraying Mixtures.

615. SIR,—I would like to ask some of our chemists what good is derived from the ammonia which is used in mixing ammoniacal carbonate of copper! Has it any fungicidal power?
JOHN HARKNESS, *Irena, Ont.*

Ammonia has no fungicidal power, and is quickly evaporated after being applied to the trees. The only object in using it is to dissolve the carbonate of copper in order that it may be easily mixed with the water. The use of ammoniacal carbonate of copper is, however, being superseded by the Bordeaux mixture in which the sulphate of copper is used, and ammonia is not necessary to make the solution.

An Evaporator.

616. SIR,—Would you kindly give me the name of some person to whom I could apply for the setting up of an evaporator which would be capable of evaporating 150 bushels of apples per day?
A. FUNNELL, *Trenton.*

We would refer our correspondent to Mr. R. J. Graham, of Belleville, who has had wide experience in handling evaporators. We know of no factory in Ontario where evaporators, such as our correspondent requires, are made. There are several American firms: The Trescott Manufacturing Co., Fairport, N. Y.; Tripp Bros., Sodus, N. Y.; and The American Manufacturing Co., Waynesboro', Pa.

Potash for Fruit Trees.

617. SIR,—Would it be advisable to apply potash to fruit trees, especially plums, before they come into bearing, or would the trees not be able to use it to advantage if applied before fruiting?
E. E. McNUTT, *Truro, N. S.*

Potash is useful to fruit trees at any stage of growth. It is one of the principle elements entering into the growth of the tree, and its effect upon the foliage and upon the general vigor of the orchard may be readily discerned. We have found it useful in applying it to pear trees in increasing their productiveness, as well as in increasing the size and excellence of the fruit. It is of more benefit on light soils than on heavy soils.

Salt as Manure.

618. SIR,—Is salt of any value as a fertilizer for fruit trees, and, if so, what quantity per tree?
A. SHERRINGTON, *Walkerton.*

Salt is sometimes useful, but is not itself a fertilizer. The beneficial effects sometimes apparent from its application to certain crops are due to the

mechanical action resultant from its presence in the soil. Salt aids in the decomposition of certain substances which are already present, thus rendering them the more readily assimilated. Great caution is necessary in the use of salt, because it is a check to vegetable growth, and, if used too freely, will destroy vegetation altogether. Prof. Storer says that instances are on record where more than three hundred pounds to the acre diminished the beet crop, and more than four hundred pounds diminished the yield of potatoes. Melons are said to be very easily destroyed by the use of salt. Mature plants, as cabbages, cauliflowers, celery and onions will endure an application of two or three hundred pounds per acre, and receive apparent benefit. Asparagus is particularly fitted to endure the application of salt, but whether its beneficial action is in any case worthy of the trouble and expense of application, appears to be still a debatable question.

Secondary Form of Downy Mildew.

619. SIR,—My grape vines cast their leaves last fall before the fruit was ripe; and later the grapes dropped so badly they were almost worthless. Some of them turned brown. The varieties most affected were Niagara and Rogers No. 4. Could you explain?
L. W. Grimsby.

Reply by Prof. John Craig, Ottawa.

This was probably the secondary form of downy mildew, which sometimes is not apparent on the fruit at first, but manifests itself late in the season by causing the foliage to drop as well as a large portion of the berries to turn brown and fall off. I have noticed this form of the disease on the Niagaras and on some of the Rogers varieties about Grimsby. Try late spraying with copper carbonate next year.

Wants a Fruit Farm.

620. SIR,—I am a single man, twenty one years of age. Could you tell me how best to spend my evenings to fit myself for fruit farming? I have been employed in gardening for three years past. I would like to locate about Digby, N. S. Can you tell me of any farms for sale in that locality. Are any parts of N. S. more suitable for cherry, plum and apple culture? Will such an investment pay? Is the supply of such fruit equal to the demand?

W. O. R., *Montreal.*

Your best plan would be to read up on fruit culture. The back volumes of our Journal would give you many important practical points. Thomas' American Fruit Culturist will give you much valuable information on fruit culture. Storer's Agriculture will post you on treatment of soils. Select out special books from our published lists and post yourself. Apple growing is less remunerative than formerly, but is still fairly profitable if you choose your

varieties well. Cherries and plums also are profitable, if well cared for. Mr. J. W. Biglow, Wolfville, N. S., to whom your letter was referred, writes:

"I can only say to the Montreal man to make no purchases here till he sees the country for himself, and pay no attention to land sharks. Digby is not considered the best fruit country. If he has means and staying power he cannot do better than invest in a fruit orchard in the Annapolis Valley. Ask him to write to our secretary, P. C. Parker, Berwick."

Distance For Dwarf Apples.

621. SIR,—How far apart should dwarf apple trees, grafted on crabs, be planted?
S. J. RUTHERFORD, *Gaspereau, N.S.*

It is difficult to give a general reply to this question without knowing the varieties, for they differ so much in habit. In Britain it is customary to plant dwarf standards on Doucin stock, ten feet apart; and dwarf bushes on Paradise stock, five or six feet apart. Much also depends upon pruning, by which they may be kept in almost any limit desired, if one has the time to attend to them. We have some dwarf Red Astrachans allowed to have their own way, except for ordinary thinning, and they need to be at least fifteen feet apart, with such treatment.

The Howell Pear.

622. SIR,—Is the Howell preferable as a dwarf or as a standard? Would you plant it in preference to the Duchess? At what distance would you plant dwarf pears so as to cultivate them easily, and also to drive a wagon between the rows?

W. V. HOPKINS, *Burlington.*

The Howell pear may be grown successfully, either as a dwarf or as a standard. The pear is a desirable one, and much more even in shape and the skin is cleaner than the Duchess. It takes on a fine yellow color when ripe, and, considering the number of Duchess which has been planted, it is possible that an orchard of dwarf Howell would be the more satisfactory of the two. Ten by ten is rather close. Some planters place dwarfs as near as ten feet each way, but, in order to drive down the rows, it would be better to place them ten feet apart in the rows, and the rows fifteen feet apart.

Bulbs after Flowering.

623. SIR,—What should be done with bulbs after flowering? Are the little bulblets that grow on the side of the old ones of any use?
E. E. L., *Hamilton.*

Will some florist answer?

Black Barbarossa Grape.

624. SIR,—Please tell me where I can obtain the Black Barbarossa grape, as I don't see it offered for sale by any grower. I would like to have your opinion as to its hardiness and adaptability to the Canadian climate; also how it acts under glass? I have just built ainery and would give it a place among others if its worth while.

Reply by Prof. L. H. Bailey, Cornell University.

Black Barbarossa is one of the Vinifera class, and is only adapted to cultivation under glass in the north. I do not know who handles it, but should write Ellwanger & Barry for it.

* Open Letters. *

Plums and other Fruits in Wellington.

SIR,—As I have not written to the HORTICULTURIST for a long time, I will now ask your indulgence for a few remarks anent the destruction of plums in this neighborhood (North Wellington) last winter. As there seems to be no report about it, so far as I can learn, I would say the damage done was extensive, about 75 per cent. being killed to the ground. The Lombards suffered most, and, were it not that the young unbearing trees shared the same fate as the bearing ones, I would blame its heavy-bearing propensity as the cause of its being more attacked than others. However, it must be remembered that it is more extensively grown here than any other variety. The following varieties were killed with me: Lombard, Yellow Gage, Jefferson, Niagara, Saratoga, Shipper's Pride, Glass' Seedling, General Hand, Washington and German Prune.

The following were uninjured: Pond's Seedling, Duane Purple, Smith's Orleans, and Damson. I might remark that I consider the Smith's Orleans the best all-round plum that I know of; it is hardy, a good bearer, of good quality to eat out of hand or to preserve, and large in size. I ought to say that some people attribute the death among our plums as being caused by the trees shedding their leaves the summer before, and had to go to the wall by weakened vitality. This view seems to have truth on its side, as the trees have lived through more severe winters than last one.

It is now about twelve years since a disease killed off a large number of our best plums. It happened in summer, when the trees were loaded with fruit. The leaves dropped off, and the plums rotted on the trees; likewise, a very disagreeable smell was emitted from the diseased sap. I for one looked in vain for a solution of the mystery from you wise men of the HORTICULTURIST, but they either had not heard of it, or did not take enough interest in the matter. It may be of use to those who may purchase plum trees, to know what sorts are most subject to black knot. The following kinds I have had for years without any sign of it, viz.: Pond's Seedling, Duane's Purple, Smith's Orleans, Yellow Gage, and Jefferson. The Lombard, Damson and Saratoga are so much subject to it, that they should never be planted.

I must not omit to state that the much lauded Pearl gooseberry turned out to be nothing more nor less than the Downing, with me and others. Mr. Smith may have made a mistake in digging up the Downing in place of the Pearl.

F. W. PORTER, *Mount Forest.*

NOTE.—Mr. Smith tells us that when the Pearl is allowed to overload, the berries are not larger than Downing, which they much resemble, but that it excels all its competitors in productiveness.

Fruit in Middlesex.

SIR,—1893 is now numbered with the past, but unlike most other years, it will be specially remembered by the Columbian Exposition, in which Canada, and especially Ontario, has made a very creditable display; and by the number of prizes taken by them, which show the very excellent quality of their exhibits.

There have not been as many apples shipped from this part as usual, for they have only been a very light crop. Few people will have enough to keep for their own use. Spraying fruit trees will be the order of things in future, in order to secure good fruit and free from worms, as they have been having things mostly their own way in the past. Pears were about an average crop, while plums were a better crop than for some time. But there were not many peaches, and cherries were not as plentiful as in some previous years. Small fruits of all kinds were a good crop, except blackberries, which, on account of the extreme dry weather, were a partial failure. I find the Erie too tender, unless it is laid down in the fall; Ancient Briton is the best that I have.

The plants that you sent to me did very well, and the strawberries will show what kind of fruit they yield this year. There are very few which take any interest in small fruits, except some odd bushes of currants and gooseberries, which are generally allowed to struggle along with grass and weeds, and are often stripped bare of leaves before the fruit is ripe.

J. M. WATERS, *Fernhill, Ont.*

Fruit in Simcoe.

SIR,—Of the grapes received from the Association, the Salem has done remarkably well. I had a good many of this variety until 1892, when they mildewed badly and the whole crop was lost. Last year, by applying four sprayings of the Bordeaux mixture, the mildew has been checked and they have produced a very fair crop of fine grapes. I consider the Brighton a good grape for this section. The berry is not so large as the Salem, but it produces good compact bunches weighing one and a half pounds. It sells well in our market. The Prentiss is a small white grape, with small bunches, but has a sweet and pleasant flavor and is a moderate bearer. The Moore's Early does not pay. The bunches are small, and few and far between. The Burnet is a fair cropper, but too late and too acid. The Agawam, like the Burnet, is too late for us. The Early Victor has a medium-sized bunch, small berries, sweet, pleasant flavor; but this year it has failed with us, on account of the black rot, notwithstanding that it was sprayed with the Bordeaux mixture twice.

I feel satisfied with the Bordeaux mixture for the mildew of the grape, and hope it will effect a cure for the scab on the pear. It did not do all I expected of it last year, but I shall apply it earlier next spring. I intend applying it before the trees bud out, and once before the blossoms appear, and will again apply it, with Paris green added, two or three times after the bloom has fallen.

I find that kerosene emulsion put on too strong will kill the leaves and young twigs, but it is certainly good for the destruction of the plant lice.

In my opinion, grape growing for market in this part of the country, and indeed in all the northern country, is a failure; for before we get our grapes ripened, you growers in the southern sections fill our markets so that they are glutted, and the prices too low to pay us for raising them.

CHARLES HICKLING, SR., *Barrie.*

Salt for Cabbage Worm.

SIR,—I have for the last six years grown cabbages in my garden. When worms appeared on the leaves, I sprinkled fine dry salt early in the morning when the dew was on, and I think it improves the cabbages. Three years ago I had cabbages weighing 30 pounds each.

J. F. LAVOIE, *Col-des-Neiges, P. Q.*

Fruit in Waterloo.

SIR.—The demand for our strawberries during the last three years has been greater than the supply, and therefore we intend increasing our plantation. Five years ago we first paid attention to small fruits and began with a dozen strawberry plants, the Sharpless, Crescent and Seneca Queen. Now I would like to know the names of three late varieties which would do well on light soil.

We planted four hundred Golden Queen raspberry plants in November, 1892; we fertilized the ground well, made the rows five feet apart, and set the plants two and a-half feet apart in the rows. The new canes of the Golden Queen had quite a show of blossoms in September and October. I pinched them back when they were four feet high.

I spur-pruned our currant bushes for the first time last fall. Our Brighton grapes have done well, and every one who has tasted them is delighted with them, preferring them to any other.

MISS ELLEN FEAR, *Elmira, Ont.*

Simon's Plum.

I purchased the peach plum (*Prunus Simoni*) after seeing its merits and colored plate in *HORTICULTURIST*. Since that time I have seen its faults also in print. That it has both there can be no doubt. I planted it in 1892, a straight whip stock, it branched out and last year was well set for fruit. Out of curiosity I left twelve plums on to ripen, if they would; eleven did ripen, and a magnificent looking fruit they are on the tree, but they fall off when just about ripe. The aroma is delightful. As for quality, I shared one of them among six, and all had enough! Afterwards I cut one up among nine men and each of them ate as much as they wanted! I preserved six, and opened and ate them; and here is where the merits come in, for each one that tasted it pronounced it excellent marmalade. The juice sets firm and resembles peach, plum and bitter almonds; the tree seems very hardy, is handsome looking, fruit worthless for eating raw, do not know how it would be as preserves or in pies, but for table sauce—well, I am longing for some more of it. I have good prospects ahead, for the tree is full of fruit buds now.

W. T. D.

Fruit Growing in Quebec.

SIR.—I take pleasure in reading the *CANADIAN HORTICULTURIST* and have gained very valuable information from it for the growing of fruit trees in the Province of Quebec. My son has already more than one thousand fruit trees and about three thousand plants of gooseberries, raspberries and blackberries, which are doing remarkably well. If it is of interest to you, he may send a small report to you next fall. In L'Islet plums grow wild, and cherries also of the sour kinds, but the latter are much attacked by the black knot.

HON. JUDGE CARON, *Quebec, Que.*

NOTE BY EDITOR.—It is our endeavor to make the *CANADIAN HORTICULTURIST* of interest not only in the Province of Ontario, but also to all fruit-growing districts of Canada. Any report, therefore, of practical work in the Province of Quebec, or any other part of Canada, will be gladly received for this journal.

Seeds of Ginseng.

SIR.—I notice in the February *CANADIAN HORTICULTURIST*, Mr. Origen Martin, Webster's Corners, B. C., asks for the address of some one who would supply him with seeds of Ginseng. The plant grows here and in many other parts of Canada where there are hardwood forests; but the roots have been so much collected for druggists, that it is difficult now to find specimens. I obtained some good seeds, together with printed instructions on sowing and cultivating the plant, from Mr. George Stanton, Summit Station, N. Y., who makes a business of cultivating it.

J. FLETCHER, *Ottawa.*

Organization of a Pomological Society for the Province of Quebec.

SIR,—During the past year a movement has been taking place among prominent fruit growers of the Province, which has had for its object the formation of a Horticultural Society which should be truly provincial in character. The efforts of these workers have been successful, so far as obtaining a grant from the local Legislature; and a meeting was called at Abbotsford, on February 8th, for the purpose of electing officers for the current year and the discussion of subjects pertaining to fruit culture.

The committee who have the arrangement of the programme in hand are J. M. Fisk, Abbotsford; R. W. Shepherd, Jr., Como; R. Hamilton, Grenville, and W. W. Dunlop, Montreal.

It is the intention of the promoters of the Society to organize after the same general plan as that adopted by the Fruit Growers' Association of Ontario, dividing the Province into a certain number of fruit districts, and having a representative from each on the Board of Directors.

J. C.

Destroying Black Knot.

SIR,—Seeing an article in the HORTICULTURIST last spring on destroying black knot with coal oil, I determined to try its effects on two cherry trees, Early Richmond variety, four years planted, that had each year previously shown lots of bloom, but ripened few or no cherries. Having had to cut away a great many branches, owing to their being infected with black knot, I was about sick of them and was getting careless about the trees, but was anxious to see the result of experiment. I took fresh kerosene and sprayed it well into the parts infected. Later on, I saw the knot was certainly not increasing, so gave them another dose. In due time the cherries ripened and the black knot looked sick. I gave them another dose in November; at New Years, the scar is on the trees, but no signs of black knot around. Those trees have made a very vigorous growth and are about as full of fruit-buds as they can hold.

W. T. D.

Memoranda, 1893.

Russian Apricot.—Color orange, crimson on sunny side. Flesh deep orange, parting cleanly from stone; juicy on one side and crisp on the other when ripe enough to fall from the tree. Ripened from 13th to 20th August about ten dozen fruits, many having previously fallen off from curculio stings. Would make an excellent preserve. (Name lost).

Abundance Plum.—Color bright crimson, yellowish on small portion of under side. Very juicy and sweet, but skin and close round the stone acid. Size rather larger than Orleans. The earliest plum I have grown, falling from the tree from ripeness on 20th August, when Washingtons growing close by were not ripe till 6th September.

Prunus Simoni.—Much as described in nurserymen's catalogues. Fell from tree from ripeness 26th August. Flesh crisp.

A. G. H., Boyne, Halton County.

Horticulture in South Africa.

SIR,—In reading an interesting account of the fruit exhibits at the World Fair, Chicago, and observing your name, I write you for some information. I have been for ten years studying fruit-growing and sun-drying of fruit. This is an isolated part of the world, but has a splendid climate, and, were it not for the destructive hail-storms, we would always have fruit in abundance. Quinces grow to perfection; peaches like weeds, thousands lie rotting on the ground every year in almost every garden. I would be thank-

ful if you would give me information how to preserve fruit by the new method of processed water. Also any printed matter on fruit culture with which you can supply me, will be received with pleasure. I would also like information on the best way of sun-drying of fruits, and also of sulphuring fruits which have been sun-dried, as I prefer this latter to evaporated fruit. I would like to know how best to cultivate and prune fruit trees and vines. All information, whether by letter or in books, will be gladly received. Do you know a good method of preserving onions; what varieties are best? I cannot get seed to do well here. I am giving close attention to onion culture, but cannot succeed with them.

T. RHODES, *Kokstad, Griqualand East, South Africa.*

SIR,—I see by a late number of the HORTICULTURIST that spent hops are of little value. In "Henderson's Gardening for Profit," he says he considers them of double the value, load for load, of stable manure.

G.

* Our Book Table. *

BOOKS.

"THE STRIKE AT STARENS" is a prize story from Indiana, published by the American Humane Society. It is a sequel to "Black Beauty," and is intended to point out some of the mistaken ideas held by men about the relationship between them and the lower animals. The author of the book thinks that man should rule over the lower animals in the same spirit that God rules over us, and the book shows what would follow if the support and assistance given us by the lower animals and birds should be withdrawn, and they should go on a strike.

AUTOBIOGRAPHICAL SKETCHES AND PERSONAL RECOLLECTIONS, by George T. Angell, President of the American Humane Education Society, 19 Milk St., Boston. All publications of this Society are made at a very low rate, and full information concerning them may be had from Dr. Angell.

ANNUAL REPORT OF THE NEBRASKA STATE HORTICULTURAL SOCIETY for the year 1893, containing the proceedings of the Summer Meeting held at Nebraska city, June, 1892, and of the Annual Meeting held at Lincoln, January, 1893. Frederick W. Taylor, Secretary.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY for the year 1893, being the proceedings of the Thirty-eighth Annual Meeting held at Springfield, December, 1893. Henry M. Dunlap, Secretary, Savoy, Ill.

REPORTS.

REPORT OF CHEMIST, Frank P. Shutt, M.A., 1893. Central Experimental Farm, Ottawa.

"MINNESOTA HORTICULTURIST." The Annual Report in form of a Monthly Magazine. Edited by A. W. Latham, Secretary, Minneapolis, Minn.

CATALOGUES.

BRUCE'S CATALOGUE of Seeds for 1894. John A. Bruce & Co., Seed Merchants, Hamilton, Ont. Established 1850. CATALOGUE OF AMERICAN Seeds for 1894. D. Landreth & Sons, 21 and 23 S. Sixth St., Philadelphia, Pa. STRAWBERRY CATALOGUE, Wholesale Price List, 1894; Cleveland Nursery, Rio Vista, Virginia. CRAWFORD'S CATALOGUE of Strawberries; M. Crawford, Cuyahoga Falls, Ohio. FREEMAN'S FERTILIZERS for 1894; W. A. Freeman, Hamilton, Ont. VILMORIN, ANDRIEUX & CIE., Marchands, Grainers, 4 Quai de la Megesserie, Paris. Catalogue General de Graines, Fraisiers, Oignons a Fleurs, etc. A. G. HULL & Sons Catalogue of Trees, Plants and Vines. Nurseries, St. Catharines, Ont. E. W. REID, Bridgeport, O.; introducers of the famous Timbrell Strawberry. LOVETT'S GUIDE TO FRUIT CULTURE, Spring 1894. J. T. Lovett, Little Silver, N. J. Contains numerous novelties, several colored plates, full of illustrations; free on application. BURPEE'S FARM ANNUAL, 1894. W. Altee Burpee & Co., Philadelphia, Pa. Colored plates, numerous illustrations. WEBSTER BROS.' Book of Canadian Plants for Canadian People, 1894. Hamilton, Ont.

❖ Novelties. ❖

Under this head we simply record the names of some of the recent introductions, together with points of merit claimed for them by the introducers, without any endorsement whatever of their claims.

The MARY and the HENRY WARD BEECHER strawberries are being introduced by J. T. Lovett Co., of Little Silver, N.J. The former is pistillate, prolific; berries very large, conical, blunt apex, deep crimson, high quality. The latter a perfect blossom, enormously productive, a cross between Sharpless and Champion; berry not as large as Mary, but high quality, indeed an ideal berry in this latter point.

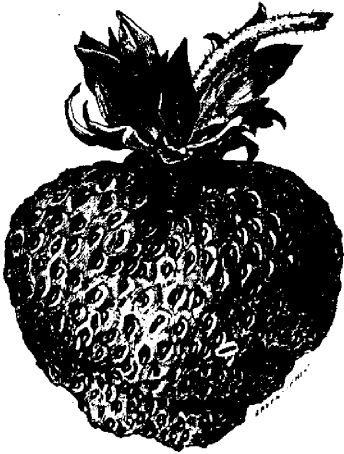


FIG. 437—HENRY WARD BEECHER.

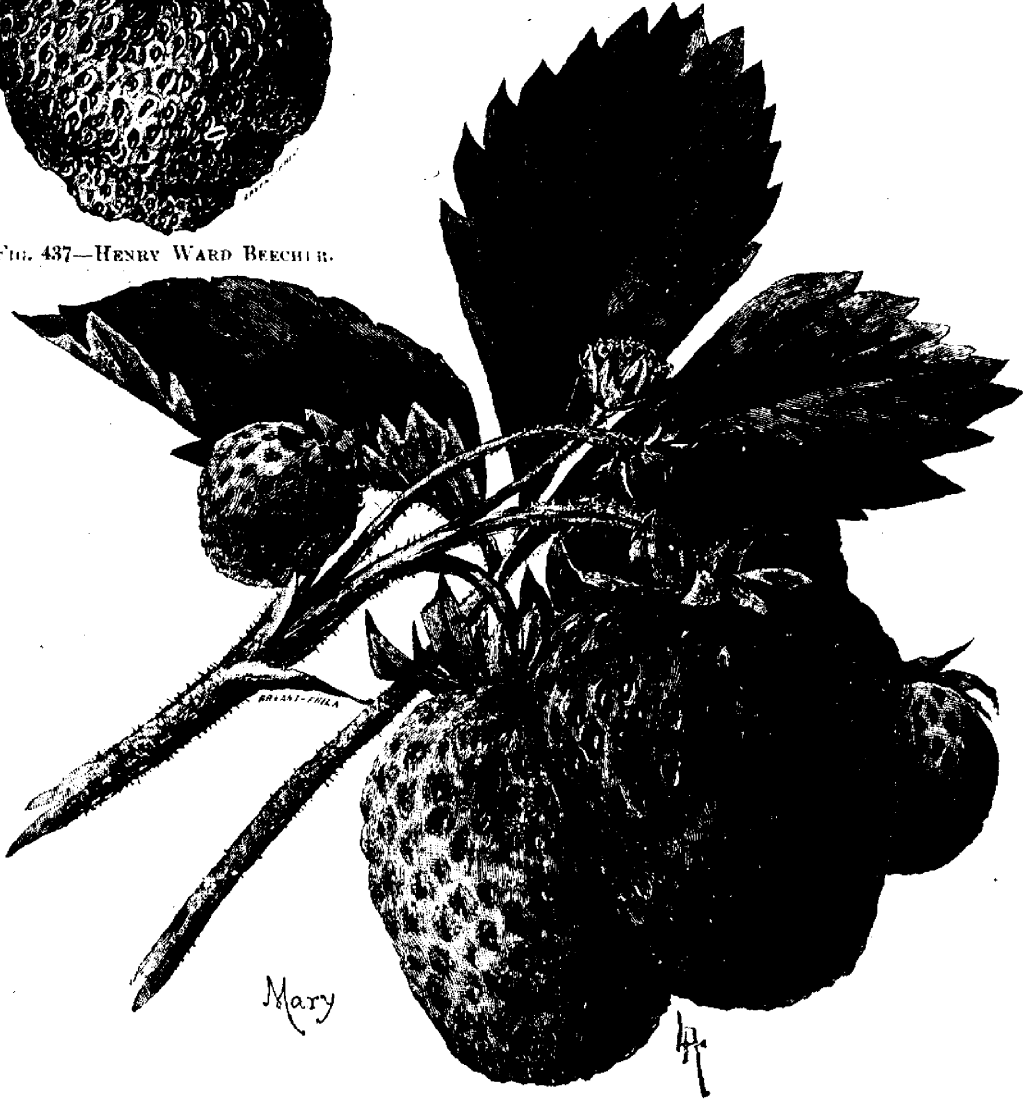


FIG. 438—MARY STRAWBERRY.