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APRIL, 1890.

The
Canadian

HORTICULTURIST.

A JOURNAL DEVOTED TO FRUITS, FLOWERS, AND FORESTRY

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

* THE FRUIT GROWERS ASSOCIATION OF ONTARIO. *

Published at Toronto and Grimsby. Office Address—Grimsby, Ont.

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

Single Copy 10 cts.

FRUIT TREES

and Ornamental; Evergreens, Roses, Shrubs, Grapes, Hardy Plants, Pæonies, Small Fruits,

etc. New illustrated and descriptive priced CATALOGUE containing important information for planters.

ELLWANGER & BARRY, FREE

Largest and Most Complete F. St. Stock in the United States. Mount Hope Nurseries, ROCHESTER, N.Y.

WATER LILIES

RED and other colors very easily grown. Everybody can have lovely **BLUE** Lilies in their own garden the coming **WHITE** is deliciously fragrant, and the **YELLOW** adds brilliancy to a group. Directions for culture with each order.

FREE A large packet of splendid **POPPY SEED** sent with each of the first 100 orders.

Price for Strong Plants, by Express, **75 Cents each;** or set of four, **\$2.50,** cash with order.

ELMER E. SUMMEY,

Feb. 4t.

LA SALLE, N.Y.

Niagara Falls Nurseries.

THE VERY BEST VARIETIES OF

SMALL FRUIT PLANTS.

The headquarters of the "Raby Castle," the most profitable Red Currant.

A fine stock of Cut-leaved Silver Maples, Russian Mulberries, Ash and Norway Spruce, several times transplanted, at cheap rates.

Grape Vines, many varieties.

Soil, situation and cultivation not exceeded any where in Ontario. Deal direct and get your stock cheap and entirely reliable. Prices much the same as those advertised in earlier numbers of this periodical.

E. MORDEN, Niagara Falls South, Ont.
April 90.

A GRAND CHANCE

FOR A MAN WITH SMALL CAPITAL
TO ACQUIRE A

LARGE BEARING ORCHARD,

Address, **BOX 218,**

Mar. 1 f.

COLLINGWOOD, ONT.

Northern Grown Trees, etc.

PORT ELGIN NURSERY.

It will pay you to send for my Catalogue of Hardy Northern Grown Trees, Fruit and Ornamental, Shrubs, Small Fruits, Evergreens, Clematis, Roses, etc.

GOOD STOCK; TRUE TO NAME; CHEAP.

J. H. WISMER,

Feb. 3t.

Port Elgin, Co. Bruce, Ont.

GRAPE VINES, BERRY PLANTS, Fruit & Ornamental TREES, Etc.

Guaranteed choice, cheap and true to name. Send for Catalogue and Price Lists, Free to applicants.

Helderlèigh Farm Nurseries,

E. D. SMITH, Prop.

Feb. 3t.

WINONA, ONT.

THE NEW EARLY GRAPE

"The Cortland"

IS THE

EARLIEST GRAPE IN NORTH AMERICA.

It was the first on the market in Toronto last season of any Grape raised in Canada.

It is three to four weeks earlier than Concord Fruit, similar in appearance, quality and hardiness. Those anticipating planting Grapes should send for circular at once, and obtain particulars of this the only early Grape with so many good points, viz.: It is the earliest, the most prolific, the hardiest, a strong grower, and of fruit good quality, and in fact is the best early market and table Grape known, and will grow and mature its fruit where all others have failed.

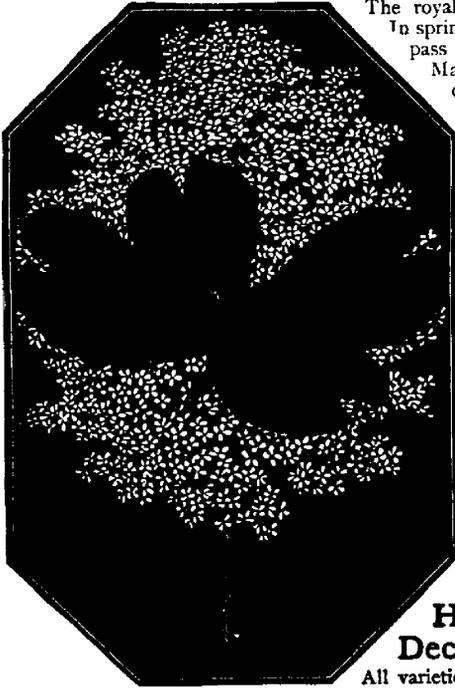
R. LAMBERT & SONS,

NURSEYMEN AND FLORISTS,
Box 359, WINDSOR, ONT.

Also propagators of the "Cortland" Grape. Feb. 3t.

Aussetzmen und Seedsmen.

FLOWERING CORNELS.



The royal family of deciduous Ornamental Trees. In spring they equal the finest Magnolias, and surpass in brilliant autumnal foliage the Scarlet Maple. A grand shade tree in summer and cheerful in winter by reason of its bright vermilion berries. Hardy and succeeds everywhere—North, South, East, West—and on all soils. Large enough to be effective upon the largest lawn and not too large for smallest dooryard. **Red Flowering**, each 50c.; doz. \$5.00, by mail; 3 to 4 ft., each \$1.00; doz., \$10.00, by express. **White Flowering**, each 25c.; doz. \$2.50, by mail; 3 to 4 ft., each 50c., doz. \$5.00, by express. One each, 2 ft., \$1.00; 2 each, \$1.75; 3 each, \$2.50. One each, 3 to 4 ft., \$1.50; 2 each, \$2.50; 3 each, \$3.50, all by express. **Weeping**, by express, each \$1.00. *Full description and a chromo-lithograph 10x14 inches, showing flowers of both, autumn foliage and berries, natural sizes and colors, habit of trees, etc., mailed for 5 cts.*

ROSES. Hybrid Perpetual, Ever-blooming, Moss, Climbing, etc., of best quality and at low prices.

Flowering Shrubs. A galaxy of choice varieties in mailing and express sizes.

Hardy Vines and Creepers, Deciduous & Evergreen Trees.

All varieties worthy of culture, from small to large.

Rhododendrons & Chrysanthemums. All the best old and new sorts, including Ada Spaulding.

Hardy Flowering Plants, including Pæonias, Phlox, etc. All the choice varieties known, from every part of the globe.

All are fully described and offered at almost half price, together with instructions for planting, culture and management, in **LOVETT'S GUIDE TO HORTICULTURE**, a book of ninety pages, profusely illustrated and elegantly printed. Mailed free; with colored plates 10c. Also all the good old and valuable new varieties, true to name and strictly first-class, of **ORCHARD AND SMALL FRUITS, NUT TREES, GARDEN ROOTS**, etc.

Trees and Plants to distant points by mail and express a specialty.

A copy of *Orchard and Garden* sent free to all who state where they saw this advt.

J. T. LOVETT CO., Little Silver, N. J.

Ap. 1t.

SEEDS **SIMMERS' SEED CATALOGUE**
FOR 1890

Will be sent **FREE** to all who write for it. It is a Handsome Book of 100 pp., with hundreds of illustrations, and tells all about the **BEST GARDEN, FARM and FLOWER Seeds, Plants and Bulbs.** *Valuable New Book on Gardening Topics.* It describes **Rare Novelties in VEGETABLES and FLOWERS** of real value, which cannot be excelled elsewhere. Send address on postal for the most complete Catalogue published to **J. A. SIMMERS, SEEDSMAN**

147, 149 & 151 King Street East, TORONTO, ONT.

Mar. 2t.

NEW STRAWBERRY "LADY RUSK"

The best berry for long distance shipments. Will not rot or melt down if packed dry. Headquarters for all leading varieties of Berry Plants and **GRAPE VINES** having 300 acres in cultivation. **Catalogue free.**
WM. STAHL, Quincy, Ill.

Jan. 4t.

Nurserymen and Seedsmen.

THE BEST SEEDS
are those put up by
D. M. FERRY & CO.
Who are the largest Seedsmen in the world.
D. M. FERRY & Co's
Illustrated, Descriptive and Priced
SEED ANNUAL
for 1890 will be mailed FREE to all applicants, and to last season's customers.
It is better than ever. Every person using Garden, Flower or Field Seeds should send for it. Address
D. M. FERRY & CO.
WINDSOR, ONT.

CONSERVATISM vs. THE RAGE FOR NOVELTIES.

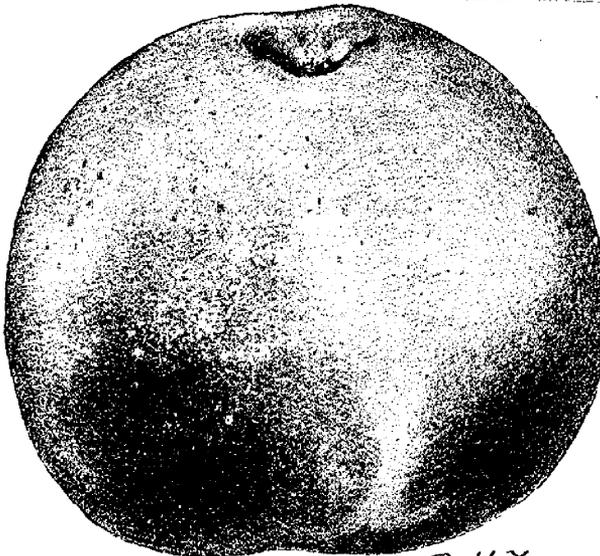
The Seed Annual for 1890, issued by D. M. Ferry & Co., of Detroit, Michigan, has reached our table. Its cover this year is especially artistic and attractive, and its contents, as usual, interesting and instructive. Ferry's seeds are thoroughly reliable, and always come true. The directions given in the Annual for the cultivation of both flowers and vegetables are so full and explicit that no one can fail of success who uses their seeds and follows the instructions.

D. M. Ferry & Co. are very conservative, both in offering new sorts and in their claims for them when offered; but they take pains to inform themselves as to the true character of all new varieties, so if some much lauded novelties are not found in the Annual, the probability is they have tested them and found them of no value.

A request sent to the firm at Detroit, Michigan, will bring you a copy of the Seed Annual for 1890 by return mail.

Jan. 4t.

A SHOEMAKER hung out a sign, and then wondered what passers-by found so amusing. His sign ran as follows: "Don't go elsewhere to be cheated. Walk in here."—*Pittsburg Post.*



Princess Louise,

THE NEW DESSERT APPLE.

Endorsed by the American Pomological Society; Western New York Horticultural Society; Ontario Fruit Growers' Association; granted a medal of excellency by the American Institute, New York city; recommended by the "Rural New Yorker," "American Agriculturist," "Toronto Globe," "Canadian Horticulturist," etc. First prize at Provincial exhibition and other shows as the best new Seedling. Exceeding Snow apple (from which it originated) in quality and keeping. Resembling Maiden's Blush in beauty. It will pay to top graft your old orchards and plant out new for market with this variety. Twenty scions or 6 one year trees by mail for \$1.00; or 3 trees, 5 to 7 feet, delivered at Express Office, for \$1.00; or 100 trees, 5 to 7 feet, delivered at Express or R. R., for \$20.00.

For scions or trees, send to

R. N. Y.

SMITH & KERMAN, Dominion Nurseries,

ST. CATHARINES, ONT.

Jan. 5t.



The Public Want Their seed fresh and true.

Would they not be most likely to obtain such by buying directly from the grower? I can buy seed at half what it costs me to raise it, but could not sleep sound should I warrant seed of this class. For the same reason I make special effort to procure seed stock directly from their originators. You will find in my new seed catalogue for 1890 (sent free) the usual extensive collection (with the prices of some kinds lower than last season) and the really new vegetables of good promise. You should be able to get from me, their introducer, good seed of Cory Corn, Miller Melon, Hubbard Squash, All Seasons and Deep Head Cabbages and many other valuable vegetables, which I have introduced.

JAMES J. H. GREGORY, Marblehead, Mass.

Jan. 4t.

Nurseriesmen.

NORTHERN IOWA.

For Hardest American & Russian Varieties of Fruit

Address, C. G. PATTEN,

Mar. 31.

CHAS. CITY, IOWA.

TO PLANTERS OF FRUIT.

If you want to get varieties adapted to your location and climate, and can depend upon as true to name and get them at reasonable prices, send direct to the Dominion Nurseries. You can save the commission of agents by dealing with the grower. You can have all kinds of small fruit plants delivered by mail and guaranteed to come in good order. Send for catalogue and price list at once to

**SMITH & KERMAN,
ST. CATHARINES, ONT.**

May.

STRAWBERRIES.

New varieties. Special offers. Sent by mail, post paid. Give No. with the order.

- No. 1.—4 Mrs. Cleveland, 6 Eureka, 4 Hatfield, 6 Dutter, 8 Gandy, 6 Logan.
- " 2.—6 Miami, 6 Louisa, 4 Clingo, 8 Warfield No. 2, 6 Morse's Early.
- " 3.—4 Mrs. Cleveland, 8 Hoffman, 4 Great American, 3 Logan, 8 Eureka.
- " 4.—4 Hatfield, 8 Gandy, 8 Haverland, 8 Cloud, 4 Prince of Berries.

I will send these 16 varieties, by Express, for \$3.00. Beat this if you can!

- No. 5.—12 Miami, 12 Hatfield, 12 Mrs. Cleveland, 6 Staymans No. 1, 12 Henderson, 12 Woodruff, 6 Morse's Prolific, 6 Great American, 10 Dutter, 10 Louisa, 12 Eureka.

I will send these eleven varieties—110 plants, berries of the largest size and quality of the best—by express for \$4.00, not prepaid.

Send for Circular. **JOHN LITTLE,** Granton, Ont.
Feb. 31.

**CLEARING SALE
OF**

NORWAY SPRUCE,

Austrian and Scotch Pine. Also Hardy Roses and Clematis, etc.

Send for Price List. **A. GILCHRIST,** West Toronto Junction.
Mar. 31.

GRAPES FOR THE FAMILY.

For \$1.00 enclosed, I will mail in early spring, 9 vines, three each of the three best varieties white grapes; or 9 vines, three each of the three best varieties red grapes; or nine vines, three each of the three best varieties black grapes; or 9 vines, one each of the nine varieties, and will mail on receipt of each order, my treatise on "Grape Culture" free, postage prepaid and safe arrival of vines in good condition guaranteed.

Mar. 21. **J. H. TRYON,** Willoughby, Ohio.



Do not place your orders for **FRUIT TREES, ORNAMENTALS, GRAPE VINES, SMALL FRUITS, Etc.,** until you send post card for my new illustrated **Free Catalogue for 1890,** containing important information and **Living Prices.** Plants by mail a specialty.

A. G. HULL, Central Nursery,
Mar. 21. ST. CATHARINES, ONT.

CANADA SHIPPING COMPANY

Beaver Line Steamships

SAILING WEEKLY BETWEEN

Montreal and Liverpool.

Comprising the following first-class, Clyde built, full powered iron steamships:

- " Lake Ontario," Capt. H. Campbell, 5,300 tons.
- " Lake Superior," " Wm. Stewart, 5,000 "
- " Lake Huron," " M.L. Traumar, 4,100 "
- " Lake Winnipeg," " P. D. Murray, 3,300 "
- " Lake Nepigon," " F. Carey, 2,300 "

The above vessels are of the highest class, and have been built expressly for the Canadian trade, and possess most approved facilities for carrying all kinds of perishable cargo—apples, butter and cheese. Perfect ventilation is secured by the use of "Utley's Side Ventilators" and "Blackmann's Exhaust Fan and Air Propeller," which ensures a constant current of fresh air below decks. Have superior accommodation for passengers. Through Bills of lading granted from any railroad point in Canada or Western States to any point in Great Britain, Ireland or Europe at lowest through rates. Special attention given to the handling of all perishable cargo.

For further particulars apply to **H. E. MURRAY,** General Manager, Custom House Square, Montreal.
Oct. 12.

Nurserymen and Seedsmen.

GRAPE VINES

Largest Stock in America.
NIAGARA
 and all old and new
 varieties. *Extra Quality.*
 Warranted true. Low-
 est rates. Introducers
 of the new *Black Vinye*

Also other **SMALL FRUITS**. Descriptive Catalogue Free. Send list for prices.

EATON. T. S. HUBBARD CO., FREDONIA, N.Y.



A GLORIOUS FLOWER

No engraving can do justice to the unique and peerless beauty of this **NEW CHRYSANTHEMUM**. Imagine plants completely studded with balls of flowers one foot in circumference, whose petals curve gracefully inward, and which in turn are dotted with a peculiar hairy-like growth, the whole resembling, more than anything else, masses of **SNOW-WHITE OSTRICH PLUMES**, and you then begin to form some idea of the beauty of this royal flower. Your garden will not be complete this season if it does not contain the "**OSTRICH PLUME CHRYSANTHEMUM**." (Plain and full instructions for culture with each order.)

PRICE.—For fine plants, certain to bloom, 40c. each, three plants for \$1; seven plants for \$2; twelve plants for \$3. Free by mail.

With every order for a single plant or more will be sent gratis our superb Catalogue of "**EVERYTHING FOR THE GARDEN**" (the price of which is 25 cents), on condition that you will say in what paper you saw this advertisement. Club orders for **THREE, SEVEN or TWELVE** plants can have the Catalogue sent, when desired, to the **SEPARATE ADDRESS** of each member comprising the club, provided always that the paper is named.

THE "OSTRICH PLUME" CHRYSANTHEMUM

(Mrs. Alpheus Hardy).

PETER HENDERSON & CO. NEW YORK

35 & 37
 CORTLANDT ST.

Mar. 31.

Miscellaneous.

BONE FERTILIZERS

DOMINION FERTILIZER AND CASING WORKS, Hamilton, Ont.

GENTLEMEN,—Picked 46 bushels of black currants season of 1888. Gave same bushels a dressing of your fertilizer, from which I picked 129 bushels this season; also used it on peach trees and grape vines with good results, and am pleased to place my order for more.

Niagara, Sept., 1889.

(Signed),

JAS. ROBINSON

DOMINION FERTILIZER AND CASING WORKS, Hamilton, Ont.

GENTLEMEN,—I have used your Grape Food on grape vines, also on pears and peaches, with good results. I have used your sure growth on garden vegetables. I therefore take great pleasure in adding my testimony to the success and profit which has attended the use of your fertilizers on the different crops that I have used them.

Niagara, Jan., 1890.

(Signed),

S. CALLORY.

Please send for Catalogue giving full information.

THE DOMINION FERTILIZER AND CASING WORKS,

255-257 James St. N., HAMILTON, ONT.

Jan. 6t.

(Please mention "Can. Horticulturist.")

QUICK IN THEIR ACTION.



TRADE MARK.

LASTING IN THEIR RESULTS.

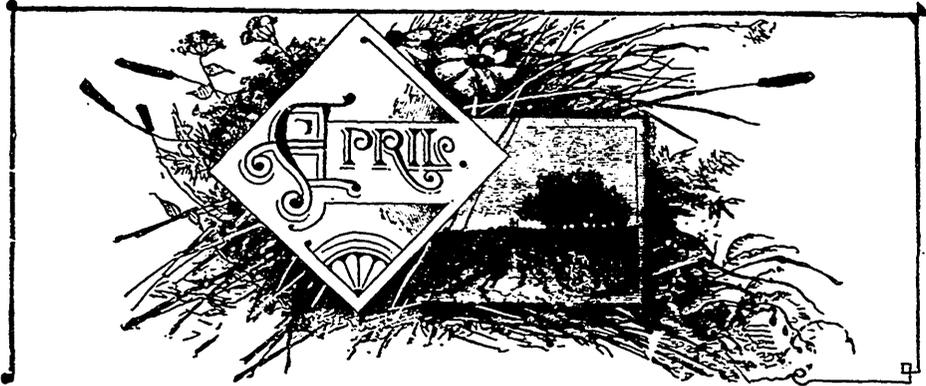


THE
Canadian Horticulturist.

VOL. XIII.

1890.

NO. 4.



HUBBARDSTON'S NONSUCH.



THOUGH by no means a new variety of apple, the Hubbardston is as yet much less known and cultivated in our orchards than its merits would warrant. It is one of our very best early winter varieties, being in season from October to January; thus coming in competition with the Ribston and the King, but excelling the latter in beauty of color, and the former in evenness of size and productiveness.

As a commercial apple for Ontario, the Hubbardston should rank high in those sections in which it has been found to succeed, but so few reports concerning it have been sent in, and so little has been said about it at our meetings, that we conclude it has been tried in very few places. Some samples were sent us from Beamsville, in Lincoln County, about a year ago, which were fine and beautifully colored, and the grower reported that he considered them to be his most valuable market apples. In our report for the year 1885, page 28, we find Mr. Wright, of Renfrew, speaking very highly of this apple for his retail trade among consumers in his county. He says: "We sell ten barrels of Hubbardston's Nonsuch to one of any other variety. For retailing the Nonsuch takes the lead."

Since Mr. Wright buys his supply of these apples from Prince Edward County, we infer that this variety thrives well in that region.

The Hubbardston originated in a town of Hubbardston, in Massachusetts, from whence, of course, it takes its name.

The tree is a fine vigorous grower, forms a handsome well branched head, and is quite productive.

The fruit is thus described by Mr. Downing, in his "Fruits and Fruit Trees of America."—Fruit large, roundish, oblong, much narrower toward the eye. Skin smooth, striped with splashes, and irregular broken stripes of pale and bright red, which nearly cover a yellowish ground. The calyx open and the stalk short, in a russeted hollow. Flesh yellow, juicy and tender, with an agreeable mingling of sweetness and acidity in its flavor. Very good to best. October to January.

NOTES FROM THE WESTERN NEW YORK HORTICULTURAL SOCIETY.—II.

BY A SPECIAL REPORTER.

THE paper by C. E. Hunn was interesting and instructive, giving a *résumé* of the work done by the New York State Farm in connection with the Strawberry, and giving an idea as to the arrangement of the test grounds, so that clay loam and gravelly soils will be in conjunction, and so be able to give the public a better knowledge of what varieties to plant on a special soil.

In planting for the purpose of comparative testing, they plant two rows, each row containing twelve plants, the rows being three feet apart; one is grown in the stool system, the other being allowed to mat to the width of two feet. Hr. Hunn says: "It is often said that the strawberry sells more by its appearance than from its quality, but I find a growing demand for berries of fine flavor, and buyers are asking what are your best flavored varieties, not, which one yields the most. This leads me to think that the public are slowly discovering that there are strawberries and strawberries.

"I should recommend the following as a good choice for market and kitchen garden:

"Market sorts include Hoffman, Haverland for early; Daisy, Burt, season medium; Bubach and Crawford, for late.

"Garden sorts include Bomba and Haverland, for early; Ivanhoe as medium; Farnsworth and Middlefield, as late."

Concerning the matter of growing seedling strawberries, Mr. Hunn presented some very interesting facts. "There were also fruited on the station grounds upward of 1,000 seedlings, a number being crosses, and out of the whole number only twenty were saved because of showing any indication of being better than the parent plants, but in the study of them I found many interesting facts as regards the variation in pollen bearing blossoms.

“ One would naturally suppose that a variety as vigorous, and well supplied with pollen, as the Sharpless, would be more potent to carry it, than one having the habit or Lenning White, but the contrary has been the result in this instance, and the contrast seems too sharp to be merely accidental. If this potency continues to hold good through other tests, it will be of great benefit and an aid in perfecting a very late pistillate variety of vigorous growth and fine flavor. As in the case of a variety called Johnston's Late, a very vigorous free flowering variety, with delicious flavor, but blooming too late to receive pollen from other varieties, and if we can be sure of a supply of pollen from a variety of weaker growth but potent to carry its pollen, it will be one step toward accomplishing our ends.

The following suggestions were offered by P. B. Crandall, of Tompkins County, as to the organization of fruit growers: “ Cannot fruit men benefit themselves as a class by copying somewhat from other industries? Fruit Growers' Institutes would be as beneficial to their interests, as Dairy Institutes have been to the dairymen. Experienced and successful fruit-growers and nurserymen in charge of such institutes could do much to secure health and productiveness in the orchard. A series of meetings in such localities as were favorable for fruit growing, would awaken an interest among farmers to a subject that heretofore received but little attention.

“ If spraying trees prevented the ravages of destructive insects, a united effort would approximate towards a final destruction of such insects, so as to at least prevent much harm. To pick fruit from overloaded trees while growing, so as not to over tax vigor, would not only diminish the number of bushels grown, but would double the value of each bushel harvested. Such meetings would awaken an interest in both large and small fruits, so that needed attention in care and cultivation would be given, and the result would be a great improvement in size and quality. In packing for market these two features should be the distinguishing marks, size being indicated by the number of apples or pears in a package; color, because showing degree of quality, and maturity should also be regarded, especially with any brand marked “ extra,” as a brand that would guarantee proper size, flavor and freedom from imperfection, would secure a market at the sellers own price, in almost unlimited quantities.

The greatest profit will be on the “ extra ” grade and to this grade, institutes would bring a large percentage of the best varieties of fruit. Lower grades will have a market value, probably as high as the usual general value, at present, for all the fruit.

The value of a brand is illustrated by the sale in the Philadelphia market, of the Niagara Grape; those bearing the brand of the Niagara Grape Co., in the same size baskets sold for twice the price of the same grape, without the brand. Purchasers knew that the brand meant that at

the bottom as well as the top of the basket every bunch was well ripened, and an ornament on any fruit plate or stand. Such would be the case with apples and pears, as soon as a brand was a guarantee of uniform excellence. If mature, well-ripened, palatable, wholesome fruit only was offered in our home as well as distance markets, it would so increase consumption that fruit growers could use their best efforts for years to supply the demand.

During the closing session, the following information as to the newest grapes was brought out from various members. Lady Washington is too late for this section as is also the Downing. While the Eldorado is not worthy of culture, the same seeming to be true of the Woodruff and Jefferson. The Prentiss was delicate and not suited for Vineyard purposes. The Pocklington had done well, as had the Mills. The Niagara was generally recommended, while the Empire State was not profitable. The Hayes was a dry bearer and weak grower. The Early Victor was well spoken of. The Diamond was satisfactory. Other varieties well recommended were Ulster, Vergennes, Wyoming and Green Mountain.

As to hardy peaches, *i. e.* such as were more exempt from injury by frost than others, it was stated that Early Rivers, Hills Chili, Rareripe and Hine's Surprise were nearly always sure to produce a crop of fruit.

THE DOMINION CONVENTION OF FRUIT-GROWERS.—II.

A CONFERENCE WITH CARRYING COMPANIES—COMPLAINTS MADE AND GOOD RESULTS EXPECTED.

THE attendance on the evening of the 19th was very large, consisting of fruit-growers, dairymen and representatives of the steamboat, railway and Express companies.

The subject of transportation was ably introduced by Mr. A. McD. Allan. He began by allowing that growers did not always pack their fruit properly, and that they often delayed gathering and packing for shipment until the fruit was altogether too ripe, and consequently would not carry well. A packer needs to be a scientific man, and know something about the varieties he is handling, and treat them accordingly. He referred to the great importance of a good clean neat package to ship in, because this was very helpful in the sale of the contents.

Next in importance, after the fruit was put up in proper shape for shipment, was prompt despatch on the part of the railway companies, both in the supply of cars and in speed of transit. Frequently shippers had to wait a very long time for cars, and then, when once the fruit was on the way, the most serious delays occurred on the road, all of which combined to ruin perishable goods and discourage shipments. Surely the companies could

provide a remedy for these ills, by a larger supply of cars and less delay in the case of trains carrying perishable goods. It would be a great advantage, for instance, if regular trains could be arranged to connect with steamships, and thus make the most direct connection between the shipper and the foreign markets.

A very serious damage also resulted from the shunting of cars—sometimes barrels were even broken open by careless shunting; but if not broken open, the fruit was often very badly bruised. This could be remedied by the use of buffers on the freight cars, as is done in England.

Great damage also resulted in the careless transfer of fruit from the cars to the steamships, and this could surely be avoided.

Accommodation on the steamships was a most important point. It is almost impossible to get our fruit to a foreign market in anything like the condition in which it is shipped. We want cool fresh air in the apartment in which it is kept. Too often the atmosphere about the fruit on shipboard is heated, and so tends to its rapid ripening and resultant decay. The apartment itself, too, should be fresh and clean, for fruit very quickly takes on a bad odor. On vessels which make a business of carrying cattle, it is almost impossible to separate the cattle and the fruit as to prevent damage to the latter. If we could have such accommodation as we require, we might encourage our growers to enlarge their orchards, and we would find that our summer and fall fruits were even more profitable than our winter fruits.

Bills of lading of carrying companies are of the most one-sided character imaginable. They must have been invented in the time of Noah. The poor shipper is at the disadvantage and has no remedy. A bill of lading, to be fair, should, for example, give us a guaranteed count. The railway company will give a count for ten barrels, why not give a count for a carload? Invariably we find a shortage where there is no count given except the shipper's, and in this way we have heavy losses.

The sealing of railway cars is defective. The little button can be easily broken, and a barrel of apples stolen during delays.

Lastly, the rates should be lowered. The rates on a barrel of flour are lower than on a barrel of apples. This should not be, for apples are a cleaner freight to handle than flour. This is an unfair discrimination against the fruit-grower.

Now, we want the carrying companies to meet us in regard to our difficulties under these and other heads, and, by their co-operation, help us to extend our trade, and thus benefit all parties concerned.

Mr. Watt, representing the Allan line of steamships, said there was one thing in which this convention resembled every other, and that was that each thought his own commodity the most important one in the world. In carrying fruit there are special difficulties. The goods are so very perish-

able. The business of carrying it is so shortlived ; you send forward nothing until autumn, and then expect us to put aside everything else for your fruit. Now we have to arrange our space to suit all classes of traffic. With regard to a guaranteed count, the steamship companies always give this, although the railway companies do not.

Mr. Thom, of the Beaver line, said that it had been stated that fruit was handled better by New York lines than by Montreal, but this was not the case. He had been at both ports on duty, and was in a position to prove what he said. In one point shippers were often neglectful, *viz.*: In sending carloads of fruit without notifying the steamship companies either of date of shipment or of the number of the car. This should always be done, either by letter or by telegram.

Representatives of the Thomson line, the Dominion line, the C.P.R. Co. and the Express companies were also heard from, and all seemed to desire to do their best to accommodate shippers. We hope, therefore, that, as a result of this conference, some practical result may accrue which shall encourage the more extended export of Canadian fruits.

LETTERS FROM RUSSIA.—III.

BY JAROSLAV NIEMETZ.

RUSSIAN AND ANSJUTIN'S APRICOTS.

THE Mennonites were German colonists of Russia who emigrated to America because they did not believe in military service ; they inhabited the southern Governments of Russia, *viz.*: Karsonskaja with the chief town Odessa, Ekaterinoslavskaja and Crimea, which last was the central colony. In all these governments, grapes, peaches and apricots grow wild, and on the south coast of Crimea even the almonds and figs will succeed. Although sometimes there is a heavy frost in the governments of Karsonskaja and Ekaterinoslavskaja, and the grape requires protection in winter time, yet these countries may be considered well adapted for the cultivation of grapes.

In the above-named governments the apricot grows in vineyards, gardens and fields, into a large tree, and yields abundantly. The fruit is sold in the gardens for twenty or thirty cents per poud (one poud equals 36 kilogrammes*). The fruit is used chiefly for eating fresh, and to some extent for preserving ; no other use is made of it, because we Russians are not so ingenious in preparing fruit dishes as you are in America.

There are many varieties in southern Russia, of which the following are the chief, (1) "Holland red cheek" (probably raised from pits of the Breda),

*1 Kilogramme=2.20 pounds.

a good large table kind, and (2) "Odessa," pale yellow, excellent, sweet and firm ; a suitable apricot for preserving.

It is to be inferred that it was chiefly these two kinds of apricots which the Mennonites brought with them into America, as they were generally cultivated in the places from which they emigrated ; and, therefore, that all American varieties of the Russian apricot have been raised from pits of the Holland and Odessa. The method of propagating them by pits is very popular in this country. The fruit of such trees is variable, but the trees themselves are more hardy than those propagated by grafting ; they are also more productive and long-lived, and the acclimation of them to the conditions of any country is easier. The success of the Russian apricots in North America can be explained in this way, though brought by the Mennonites from southern Russia, they are grown from pits. The difficulty of the acclimation of the apricot, the peach and the tender varieties of plums to cold climates, may be overcome both in north of Russia and in America by propagating by the seed and not by grafts.

No doubt it will at first produce fruit of poorer quality, but many among them will prove worthy of selecting for dissemination.

As I observed above, a seedling that has not been transplanted and whose tap root is entire, is the more hardy because it strikes deep below the reach of frost. The most northern point in Russia where the apricot succeeds, thanks to the labors of our experienced and eminent pomologist, Mr. F. Ansjutin, we must count Niegin, in Chernigovskajagov. His apricot originates in Crimea, and was raised from two pits brought away about the year 1840 by Mr. F. Ansjutin, who was at that time a young man. At first he tried propagating several foreign kinds by grafting. After these had all perished in the first cold winter, he noticed two seedling trees which were wholly uninjured by the cold, and after these had fruited he was so pleased with them that he raised a large plantation. I saw in his garden apricot trees like apple trees in growth, twenty-five years old ; they require no protection in winter ; also a plantation of seedlings which had been raised in quite an open exposure.

Frost is sometimes about twenty-eight degrees (Reau.) at Niegin ; the trees do not die even at that temperature, but it destroys the flower buds and consequently the fruit crop. Mr. F. Ansjutin raised, from two stocks, some varieties of which the four following are worthy of attention :—(1) Apricot, large white, early (like Nicholas) ; (2) Apricot, small white, late, sweeter than preceding ; (3) Apricot, yellow, large early ; (4) Apricot, yellow, small late. I sent you some scions and pits of these, the most hardy of all kinds. Next year Mr. Ansjutin promises to give me more of them for your respectable Society. Many American nurserymen's catalogues call these seedlings of the Mennonites "the Siberian Apricot," and some gardeners in their fancy actually suppose it originates in the Blue mountains of

eastern Siberia. These gardeners are in fault for inducing buyers to purchase by such ridiculous mis-statements. We should be very glad if not only the apricot, but the orange also would grow in Siberia ; but to our sorrow it is doubtful whether any fruit trees will grow there except Siberian crabs and small inedible wild pears.

I find that the name " Russlan " Apricot is not proper, because it would lead one to suppose that it will grow at Moscow or at St. Petersburg, which is not the case. A better name would be the Crimean Apricot, from the place where it originates.

BOHEMIAN QUEEN CHERRY.

The cherry pits which I sent you are taken from the fruit of the celebrated " Bohemian Queen," which I propagate on account of its excellent qualities and its hardiness. As a market variety it is unequalled. It is an abundant cropper and the fruit is of excellent flavor, larger and more fleshy than that of the Ostheim, which some years is dry and therefore poor.

It is more delicious than " Frauendorfer," or " Double Natt," and even the " Large Spanish " can only be compared with the Bohemian Queen in point of size, and not in productiveness or flavor.

In quality there are only two new kinds that can be compared with it, *viz.*: (1) Cerise D'Olivet, large, sweet and delicious, and (2) the well-known Empress Eugenie. The introduction of this cherry is the most important matter, because it can be propagated, like the Ostheim, from seeds or root suckers. Sixty per cent. of the seedlings are constant. It succeeds well in places where the ground remains moist until the month of May.



Fruits

WHAT I KNOW ABOUT FRUIT FARMING.



OUR years ago last November I bought a fruit and truck farm between St. Thomas and Lake Erie. The farm consisted of twenty-five acres beautifully situated, the buildings good, and several acres were planted out to small fruit. I may as well say, right here, that I never farmed or gardened a day in my life, previously.

I had been a newspaper man, and the hand work and constant worry had destroyed my health, and my physician ordered me forthwith to get as far out of town as possible and use a hoe as much as my strength would permit. It will be concluded from these circumstances that I have not got wealthy in the fruit business. This is correct. But a good many things have come under my observation, and being a man, who, in the parlance of the Press, has "a nose for news," there has not much connected with the business escaped my notice. There was a strawberry plantation of about two and a half acres on the farm. The crop, the next summer, was magnificent. The crop everywhere was the best within the memory of the oldest inhabitant. I sold a few early in the season at a fair price, but soon it went down, down until two and a half cents a box was reached with no sale. Coming home from St. Thomas one day with a load which I could not sell or give away, I gave my hired man orders to hitch up the team and plow the strawberry patch under, as I did not know of any other way to get rid of the berries. He did so, and the next year I bought berries for the use of my family and had to pay ten cents a quart for them. The two following years I set out small plantations, but the grubs or the frost destroyed them to such a degree that I had but few to market, but this coming summer I will have a fine plantation again, and the probabilities are that every body else will who is in the business. The "flush" year a man living about two miles from my place had a plantation of ten acres, which he sold at a small profit. He had opened up a connection all over the northwestern portion of the Province, and he knew where to ship his berries so as to get the best price for them. Then, besides, he was a "hustler." It is the "hustler" who succeeds in every business, especially in the fruit business. The two following years he cleared \$1,500 each year from his strawberries, while I had none to sell.

I have come to the conclusion that a man to be successful in fruit culture, must be first, a hustler; second, he must know how to sell a crop;

third, how to raise one, and lastly, when he possesses the three above qualifications he must raise a crop every year. A man not adapted to the business can make a better living running a peanut stand on the street of some city or selling patent medicine on the back concessions.

Though I have not made money at the business it has not been profitless. Four years of gaining health, four years of "communing with nature in her visible forms" must be counted when the balance is struck. I have found new companions in my fruits and flowers which speak in "various language" and unfold some of the mysteries of the Universe.

On some future occasion, with your permission, Mr. Editor, I will address a few lines to fruit growers (outside the Niagara District, and Mr. Pettit's jurisdiction) on the marketing of fruit.

St. Thomas.

FRANK HUNT

APPLES FOR EXPORT.*

CONSIGNEES—QUALITY TO SHIP—THE PACKAGE—UNIFORMITY
OF CONTENTS.

IN RESPONSE to your invitation, we beg to contribute the following remarks on the subject of Apples for Export.

In what follows we address growers only, believing that there need be no medium between them and the distributor to the *retail* trade.

We would urge on growers to select one or more reliable firms (according to the quantity of fruit exported) who are in touch with the retailers, and to send regularly to said firm or firms all the season through. The advantages are, that such consignments are not left to the mercy of the auctioneer, (sometimes competing *auctioneers*), the market gluts are largely avoided, and where growers pack practically the same each consignment, the brand becomes known within circles where—always supposing the fruit merits it—a demand for it more or less steady is created, and a good standing price secured.

The grower is also brought into immediate contact with the *distributor* of his goods, and is, therefore, sure to be advised of any defect therein, when a remedy can be applied and the defect guarded against in future. We think there are three headings under which we may arrange the few remarks we have to offer, *viz*: QUALITY, PACKING AND VARIETIES. And here permit us to remark that pressure on our time forbids any elaborate production and necessitates our confining ourselves to a few practical suggestions.

QUALITY. Whatever may be his wishes, the grower knows right well that he cannot grow fruit to order. Even with his best efforts to produce

* Paper from Wood, Ormerod & Co., Edinburgh, Scotland, read at Dominion Convention.

fine fruit, he finds that each season brings him a proportion which does not fall under that heading. This brings in the question, What shall I ship, and where?

The market prospects at home and abroad, as far as he can ascertain them, are before him and many considerations must influence his decision.

In shipping to Britain, however, the consideration of freight and charges, competition, and the small attention paid to second rate goods, should lead growers to be wary of shipping hither that class of apples. From all our experience during the last eighteen years, we can with confidence say, "If you wish to secure good results, ship only good reliable fruit, and where *choice* can be added, so much the better." Under this heading we may include condition, that is condition on arrival at destination, which, of course, is due to condition on leaving and packing (the latter we shall speak of later), this is all important. The choicest fruit out of condition, is of small value.

It is a point, moreover, on which few suggestions of value can be given, what will and what will not stand the journey, etc., being matters which experience only can teach, coupled with careful observation.

Here again direct communication from the distributor would be a great gain. We may remark, however, that neither very green fruit nor fruit almost ripe,—that is just ripe—should be packed. The former meets a bad market because of its appearance, the latter is almost sure to be bruised and "chippy" and also sells at a low price.

We now come to **PACKING**. It is not likely that the barrel can be improved upon as a package, though the barrel itself may. We hear of a ventilated barrel, recently invented in America, which, if all said of it is borne out in practical experience, bids fair to supercede the present close one. There is only one thing, perhaps, which may prove an objection. We refer, however, to its peculiar feature, fearing that the free passage of the air through it, may cause shrivelling of its contents when kept in it for any lengthy time, and as this point is more for the retailer to decide, it would not show till, say the next season, so that growers may find it useful not to ship *all* their early consignments in this new package—should it come into use—until they are satisfied as to this possible objection. Honesty of packing, that is the same quality throughout, cannot be too strongly urged. The grower who persistently, yea, occasionally transgresses this rule, will have cause to repent his folly. We observed a strong case in point only last month. The apples of a well-known shipper were badly topped. A high price was paid not only because of the top but because of the brand, which usually insured good packing. On finding out their condition below, the confidence of the buyer in that brand was thus rudely shaken, and he will not be inclined to bid for the next lot shown. This is only one case in many but it shows the necessity of *always* packing honestly; for confidence is a guarantee of price.

We know an English grower, who with every package sends a small printed ticket affixed which runs, "This fruit is packed as far as is practicable the same throughout," his name following; the result being tardy, perhaps, but sure, that wherever his goods are marketed, a good price is secured. Of course the packing bears out the label. Some of our Canadian friends may emulate this idea, though with a brand instead of label, and where due care is taken we believe whoever does, will not find it labor in vain.

(To be concluded.)

ORCHARD PLANTING.

WE are trying to grow too many varieties of apples in this Province. It may do very well for exhibition purposes, but not for profit. If we wish to make apple growing pay, we must confine ourselves to a few varieties, and these, such as will suit our climate the best, and that will ship the best, and bring the best price.

The clear skinned, hard, sound winter varieties are what are required for the foreign market. And we need never expect large or even fair prices, so long as we continue to send soft, spongy or fungus-marked fruit abroad. Very often we find an orchard with a little of everything in it, but not enough of any one variety to be worth while shipping. And the sooner apple growers find out their mistake the better. Those planting new orchards should avoid planting any of those varieties that will not stand handling well, or that are subject to the fungus scab. There is nothing which spoils the market value of an apple more than this.

I would strongly recommend to those living in northern districts the planting of seedlings for tap grafting. Some of our finest apples, and which bring the best prices, will not stand the climate of our northern counties. But by top grafting them on our native seedlings or on such hardy stocks as Talman Sweet, Tetofsky, Duchess or the common varieties of Crab, we can succeed in growing almost any variety we wish.

It is always in the trunk or crotches that a tree begins to fail first, and if we get a sound, hardy trunk, and graft into the limbs, we are sure to succeed in having a good tree. I have proved this from experience, and know whereof I speak.

The reason so many pear trees fail to grow in the northern counties is that nurserymen use quince stock to graft them on, and the quince will not stand the climate. If they would use some hardy seedling pears as stock instead of quince, the trees would be far better and much surer to succeed.

Craighurst, Ont.

G. C. CASTON.

THE STRAWBERRY LEAF BLIGHT.

OCASIONALLY we receive inquiries concerning the strawberry leaf blight, its cause and its remedy. According to a late bulletin of Cornell University, the scientific name is *Sphaerella Fragariæ*, or the Sphaerella of the strawberry. It has been spoken of as "spot disease," "sun scald," "strawberry rust," but Prof. Dudley thinks the name Leaf Blight most applicable. This blight first appears on the new leaves about

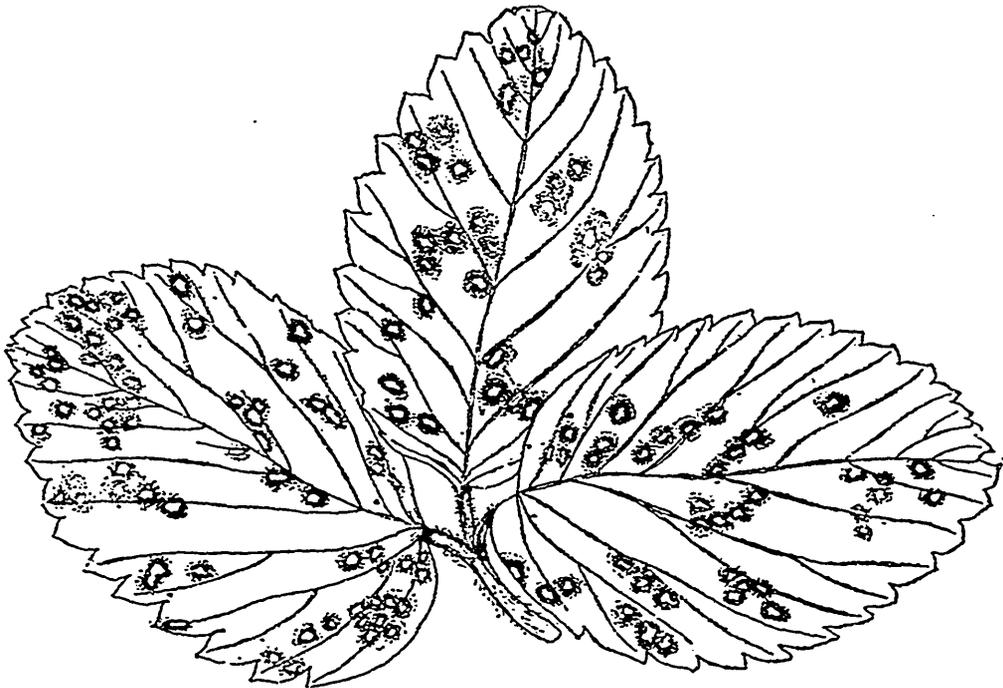


FIG. 30.—LEAF OF STRAWBERRY, MARKED BY *Sphaerella Fragaria*.

the time of the setting of the fruit, and if the weather of the succeeding months be dry and hot, it causes serious injury to the vitality of the plantation.

Our readers will recognize this disease from the illustration given above, and also when we describe the spot as at first brownish or red-purple, and when fully matured it has a circular centre, dead white, from one-eighth to one-quarter of an inch in diameter.

The red-purple color is the result of the growth of filaments of the vegetative portion Λ (or mycelium) of this fungus, pushing their way between the cells of the interior of the leaf, disorganizing their contents, and absorbing their fluids. Air spaces are thus formed in the centre of the spot, giving rise to the dead white appearance which results. In the accompanying cut

there is seen a transection of a strawberry leaf of which the portion on the left is healthy, and of its usual thickness, while that on the right shows the margin of a "spot," and this portion of the leaf is shrivelled to one-fifth its original thickness. At B is seen the reproductive portion of the fungus, known as Conidia. These Conidia are oblong, and very minute, and when they fall on a fresh leaf surface, where there is a little moisture, soon germinate, bore their way through the epidermis C, and give rise to fresh spots.

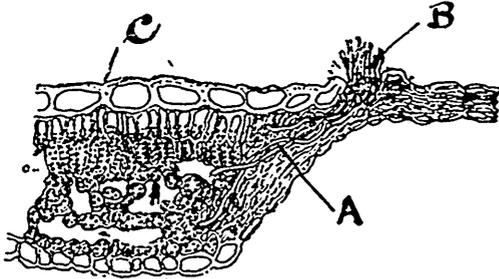


FIG. 32.

fresh spots.

In addition to this mode of propagation by Conidia, which are summer spores, and are short-lived, there are winter spores, grown in sacs, called asci. Each ascus, or sac, contains eight ascospores, and these are preserved

in the dead leaves through the winter, and mature in early spring.

The remedy for this fungus is twofold, (1) to use fungicides in summer, and (2) destruction of the old leaves in spring by burning over the strawberry patch. As a fungicide, Prof. Scribner recommends "three ounces of Carbonate of Copper dissolved in one quart of water, which should be diluted to twenty gallons." This should be spread on the plantation after the crop is gathered, every two weeks until September.

The Manchester and the Wilson are especially liable to this disease, while the Sharpless, for instance, is less troubled with it, as a general rule.

STRAWBERRIES—NEW AND OLD.

To write about new and old varieties is a large subject for a short paper. The names of the different strawberries that have been introduced in the last ten years would fill a very respectable sheet.

Till within a comparatively short period of time strawberries have had but a passing notice. They fought side by side with weeds and grass. At times varieties were very inferior in size; but now, under better culture and improved varieties, we see immense crops grown for business purposes, yielding millions of bushels to millions of people, proving that man can improve vegetable life to almost any desired point. But the time is coming and is at hand when every farmer shall raise small fruit sufficient for his own use. Strawberries are the first fruit of the season, and followed by rotation red and black raspberries, using early, medium and late varieties of each kind. With some grapes, the small fruits will cover at least a period of three months during the summer season.

The strawberry of long ago grew wild. They are naturally inhabitants of nearly all countries, and as much cultivation will improve ordinary farm crops, so also will it improve the strawberry.

Since the first seedling strawberry was introduced nearly fifty-six years ago, thousands of varieties have been grown. The next in importance after Hovey's was Wilson's strawberry. This berry has served its day and more profitable varieties have taken its place.

Three things should be kept in mind in planting, *viz.*: (1) whether for home use or pleasure; (2) for home market or shipping a long distance; and (3) the quality of the soil in each instance.

Many of the kinds now before the public have bad and good points combined. Under the above conditions there are many kinds desirable to cultivate when a special merit is required. It is impossible to combine all the good points in any one variety. You can get quantity in some varieties, in others quality. Again, some varieties can be shipped hundreds of miles, others need care to get them to the nearest market.

As in the past, so in the future. There are thousands of seedlings undergoing tests every year. Men are trying to approach as near as possible the perfect plant and berry.

Of the old varieties many are very desirable and adapt themselves to all localities, and also to much neglect, *viz.*: Crescent, Captain Jack, Cumberland and Manchester.

Others of recent date maintain their popularity wherever they have been planted, *viz.*: Bubach No. 5, Haverland, Warfield No. 2. These fertilized by Jessie will give results that will be satisfactory, and if properly cared for they are all large and productive.

I don't remember in any season heretofore so many new varieties offered as there is for the coming spring.

I might just name them and I may speak of them more fully by and by (I have no axe to grind): Mrs. Cleveland, some of Mr. Loudon's, Florence, Lady Rusk, Parker Earle, Stayman's No. 1 and the Great Pacific.

Granton, Ont., Jan. 11th, 1890.

JOHN LITTLE.

THE RELATION OF BEES TO FLOWERS AND FRUIT.—I.

THE relation that bees bear to flowers and fruit may appear to the fruit grower as of little importance, and scarcely worthy his consideration. Whatever his opinion may be, however, the fact remains that the wants of bees in all their genera and species are supplied by the floral world, and the insect world gives to the flowers in return that aid without which they must soon become extinct. To appreciate the relation-

ship we must know something of the structure of a flower. We do not know all; wiser heads than ours have failed to penetrate the mystery of their entire make-up. "When no man asks me what is Time," says St. Augustine, "I know it very well, but I do not know it when I am asked." One may say as much of a flower. Tennyson was of this mind when he wrote:—

" Flower in the crannied wall,
 I pluck you out of the crannies,
 Hold you here root and all in my hand,
 Little flower; but if I could understand
 What you are root and all, and all in all,
 I should know what God and man is."

Rousseau defines a flower thus, "The flower is the local and temporary part of the plant which procures the fecundation of the germ in or by means of which it is effected." Another botanist says, "A flower is that temporary apparatus, more or less complicated, by means of which fecundation is effected." Still another tells us, "The flower is an apparatus composed of two envelopes, the *calyx* and the *corolla*, and the *essential organs* proper to insure their reproduction." From all of which we learn that plants blossom in order that seed may be produced and perfected and the race perpetuated. It is from the "essential organs"—the stamens and pistil—of the flower that bees derive all that is needed for their own wants and the wants of their offspring. These carry the reproductive organs of the plant, its other parts being mainly protective and ornamental. If we take an ordinary flower and examine it, the first part brought under our notice is a kind of cup—the calyx. In most flowers this is green. Before the blossom opens this cup encloses the internal parts, then in process of development. It protects them in their tender condition from external injury. In time the calyx bursts and reveals the most conspicuous part of the flower, the corolla. The main function of the corolla is to attract insects. This it does by color and perfume. Within the corolla will be found the anthers, which bear the pollen or male principle of the plant. At the base of the petals and surrounded by them is situated the pistil or female organ of the plant, embracing the ovary or seed vessel, which contains the ovules or seed germs; these when fertilized and developed become the seed. In order that fertilization be effected and seed developed, it is necessary that the pollen grains come in immediate contact with the ovarian germs. As most plants are hermaphrodite and carry both anthers and pistil, one would think that self-fertilization would be assured in all such cases. So it would in many cases if the two genders were actively co-existent; but nature has a wonderful fertility of resources in making hermaphrodite flowers practically unisexular, by bringing the male and female organs to maturity at *different* periods. She employs other and most surprising devices in bringing about the same result, many of them found in the *form* of the flower. (On this subject Darwin's "Origin of

Species," Cheshire's "Scientific Beekeeping," and many other excellent works may be profitably consulted.) We are at present considering the work of bees as friends of the fruit-grower, and shall confine ourselves to their operations on his behalf. The trees and plants from which our fruit are taken bear bi-sexual flowers, and would be capable of self-fertilization if an all-wise Providence had not designed their flowers so that in-and-in breeding is prevented, and cross fertilization with all its advantages secured. The bee being made the complement of the flower is the chief agent employed in bringing this about. That this may be the more surely effected, her food (pollen and honey) is found over and in the flower. The nectar glands that secrete the honey usually lie around and in close proximity to the ovary. On alighting upon a flower to collect pollen or sip honey, her head, legs and body get liberally dusted with pollen. This she carries to the next flower visited, into which she thrusts her head; when, if the stigma be in a receptive condition, the pollen, borne from flowers previously visited, will be dislodged and adhere to the sticky stigmatic surface, where it remains and accomplishes the work of impregnation. In this she acts the part of a discriminating hybridist, for bees as a rule only visit one class of flowers while out on a foraging tour.

Owen Sound.

A. McNIGHT.

STAKING YOUNG TREES.

"JUST AS THE TWIG IS BENT, THE TREE'S INCLINED."

THE above heading may seem at first thought to be too insignificant under which to write an article for the public eye, but when we take into account the results of rightly training young trees, or the neglect of it, the topic becomes one of no little importance. When I pass an orchard of bearing trees, and see some leaning one way and some another, and many of them with a bias of fifteen or twenty degrees to the south-east from the force of the north-west winds, I come to the conclusion that they were poorly cared for when young, and allowed their own way of growing under adverse circumstances until too late to remedy their ill condition. Young trees like young minds must be rightly started in their course to prove profitable and present a shapely appearance, and this thought will have its importance in our minds, just in proportion as we are careful to note the results of right or wrong management. In point of profit, a one sided tree, leaning at an angle of forty-five degrees, cannot carry more than two-thirds as much fruit as a straight, well-balanced tree, without danger of breaking down entirely, or greatly increasing its deformity, and the chances are that the fruit will not grow so large, or ripen as evenly as on a straight tree upon which the sun's rays act in an even, unhindered freedom. In

point of taste and beauty, as well as of convenience, how much better an orchard of upright, well-ordered trees appears, compared to one in which some of the trees lean one way and some another; and when you drive a waggon for gathering, or a riding vehicle through your orchard, how much nearer to the trees you can get, and better you can work in gathering, and in other ways, if your trees stand perpendicularly instead of at inconvenient angles. If trees are trained straight and shapely the sap flows more freely, and they will make a thriftier growth in a given length of time, and the chances are that they will bear earlier and a greater quantity than if allowed to grow cramped and ill-shaped. I am confident, too, that a firmly staked tree, as soon as it is set out, has a better chance to recover the transplanting than one that is left to the caprice of the wind and the power of the sun's rays around its root, open as the ground will be by the waving of the tree in the wind. This is especially true in sandy land and its results apparent in a dry season, and many lose their young trees from this and kindred reasons, as from the loose, careless manner with which they are set out. All air should be excluded from the roots as the tree is set in the ground, the dirt firmly tread around, and if any loose litter of any kind can be piled around the roots to keep in moisture, all the better. While cultivating among my trees and bushes, I draw all hoed up weeds around the roots and they serve as a protection against the sun's rays. A coat of lime white-wash on the trees every spring is a protection against borers, and serves to keep a clean appearance to the bark of the tree. A good cedar stake, driven about six inches from the tree, with a leather loop around just below the lowest branches, with the ends fastened on the top of the stake by a three-inch nail, will well repay the trouble of doing, as to immediate effects, and the future life and usefulness of the tree will be greatly helped thereby.

Nepean, Ont.

L. FOOTE.

THE ONTARIO APPLE.

HAVING held the Ontario Apple in high esteem for several years, and recommended it to my friends with free distribution of scions, I was much pleased to note its rating in the January HORTICULTURIST, 39 in a possible 40, ahead of all the others named, including King, Gravenstein and Northern Spy. I shall be glad to see the Ontario Fruit Catalogue completed on that system; it will be a most valuable guide to planters. I would not mark Ontario so high for dessert, but my locality does not develop high quality. For thrift, productiveness and long keeping I have nothing equal to Ontario.

Yarmouth, N.S.

C. E. BROWN.

THE RASPBERRY.

IN the earlier days of fruit history in Canada, when the first settlers had to depend on the wild natives of the country, what a luxury it was to get the raspberry growing along the old snake fences. Nature, always provident and prolific, gave us then what we could not otherwise have obtained. But as time passed, the hard grass sod choked our wild friends, and the cattle browsed them down, so that they gradually retreated before the march of civilization. As these became scarcer the small fruit men came along and rescued some of the best plants, and improved them by high cultivation. Where nature left off skill began, and as has been the case with all other fruits, a gradual advance took place in the improvement of the raspberry, so that to-day we have varieties suited to every soil and climate. It is not right that anyone owning even a city lot should be without this lovely and delicious fruit, especially when it can be grown so easily.

It is advised that any number of plants, from two dozen upwards, should be obtained, either from a nurseryman or a neighbor, planted in a row from eighteen inches to two feet apart, the ground having been thoroughly well prepared by digging and manuring. The plants should be set in the autumn or early spring. No attempts should be made to grow fruit the first year, because if long canes are planted and fruit is produced, the suckers which should give the berries the following season will be weak and unproductive; therefore the plants should be cut to six inches in length above ground before planting. The raspberry delights in a moist, cool soil, not a wet, soggy one. To produce the proper conditions, drain well if the ground is at all wet, and mulch heavily with long barn-yard manure. The best variety to procure is the Cuthbert, it is a fine red berry of good size; the plant is fairly hardy, the fruit is firm and rich. From four to five canes should be grown to a hill, that is, from one plant. The row should be maintained as straight as possible; all suckers appearing outside the row should be treated as weeds and pulled up or cut off. The row itself may be allowed to thicken, but care should be had not to allow it to get too thick unless plants are required. It is best to have cedar stakes to tie the canes to; these should be two inches thick, driven firmly into the ground. The raspberry is a biennial perennial, that is the roots live on indefinitely, but the plant grows up one year, fruits the second and then dies. So that every year the old or bearing wood has to be cut out. This may be done after the fruit has been gathered, or where it is required to arrest the snow during winter, it may be removed the following spring. The Golden Queen is considered the hardiest and best white berry.

The red varieties will sell in almost any town or village for 15 cents a

quart, and the whites for about 20 cents*, if properly handled in neat packages, so that the berries are fresh and not crushed.

There is money in raspberry growing if the plants are properly cared for. Half an acre of raspberries will produce one-third more than the same area of strawberries, and as the price received for them is greater and they are much less costly to cultivate, there is plenty of money in them until the price falls. Try it.

Ottawa.

P. E. BUCKE.

THE BORDEAUX MIXTURE.

SO important has this Copper Solution become to fruit growers, that it is important to have the formula for its preparation of convenient access. A late Bulletin of Cornell University gives a modified formula, which is cheaper than the original one, more readily applied and less injurious to the young foliage. We, therefore, give our readers this new formula, hoping that our orchardists, who are troubled with the scab on apples and pears, will give it a thorough trial, and report to us the result.

- (1) Sulphate of copper, 6 lbs., dissolved in 4 gallons of hot water.
 (2) Lime, 4 lbs., " in 4 " cold water.

Mix the two solutions as above, and, when desired for use, dilute to 22 gallons with cold water.

PLUM GROWING IN MICHIGAN.

AT the recent meeting of the Michigan State Horticultural Society, Mr. Benton Gebhard, President of the Oceana Society, read a paper on the history of plum-growing in that county, and the varieties and modes of culture, in which he said there were plum trees in the country which were thirty and thirty-five years old and had produced twenty paying crops, and many more, twenty and twenty-four years old, which had yielded fifteen paying crops, in some cases six bushels to the trees, with trees still in full vigor. Mr. Gebhard instanced an orchard of sixty bearing trees from twelve to eighteen years old which had produced seven profitable crops in succession, and whose receipts for three years last past aggregated \$706. Mr. Gebhard said:—

“In starting a plum orchard the necessary thing to do is to procure old *terra-firma* on which to plant your trees. By this I mean a good, heavy, sandy loam, and still better if mixed with some clay, and not the white

*NOTE BY EDITOR.—In Western Ontario we do not get such prices as these, unless for the very earliest.

drifting sand among the pine stumps on our lake shore. Prepare the land just the same as you would for any other large orchard fruits for planting. Pulverize the soil thoroughly and keep it in a good state of fertility. Plant the trees from eighteen to twenty feet apart, and give them a good and thorough cultivation each season. In bearing orchards, plow the ground in the fall or spring each season, being careful not to break any large roots. Cultivate with a spring tooth cultivator or harrow, early in the season, as then is the time that plum growth is made. A bearing orchard requires more cultivation in a dry season, than a young one. As to suitable varieties for orchard planting, I would say that there are a great many varieties of plums grown in our section of country—perhaps fifty or more different varieties in all. Many of these varieties are in bearing for which the growers have no correct name, and quite a number of these unknown varieties are large, fine and beautiful plums to grow for market. To select a standard list for orchard planting I should choose the following varieties, named in the order of ripening:—Washington, Bradshaw, Duanc's Purple, Prince Engelbert, Union Purple, Lombard, Genii, Quackenbos, Purple Egg, Coe's Golden Drop, Reine Claude, Shropshire.

“Of new varieties the Genii and Shipper's Pride appear to be promising, both being medium to large, fruit a dark purple with heavy bloom, having excellent shipping qualities, and immensely productive. Also the Field for early and Stanton for late are prolific, and very promising new plums. The Japanese plums are also on trial, and have fruited some. The Botan seems to be the most promising. This is quite hardy, very early bearer, and seems to be productive, with the exception of wet or cold seasons. During those unfavorable seasons, the blossoms seems to blast, or else do not fertilize properly, as it does not bear much fruit in such seasons. The fruit is early; large and beautiful color, and of a fine flavor. There are also many other new varieties on trial which have not fruited as yet, such as Moore's Arctic, Naples, Marianna, Victoria, Hudson Egg, Niagara, etc.”





LINES ON THE FOXGLOVE.

SIR,—I see "Grandma Gowan" still contributes to your Journal, and now Grandma Manley sends a few lines. We belong to the past, and must ere long leave this cold, calculating generation to solve their evolution problems, and it may be, like the alchemists a few centuries ago, trying to find the "Elixir of Life." "History repeats itself."—M. W. MANLEY.

I know they are gathering the Foxglove's bell,
And the long fern leaves, by the sparkling well.

—MRS. HEMANS.

FRRIENDSHIPS when formed will always last,
If based on true esteem,
When lost to sight in memory's urn,
Their names are fresh and green.

The plants that bloomed in childhood's days,
Which in our homes had place,
We love to see their names restored
With super-added grace.

The Foxglove reared its stately form
In Devon's hedge-rows green,
Where various flowers of many a hue,
And Primroses were seen.

And tufts of violets white and blue,
With fragrance filled the air ;
The spicy woodbine climbed aloft
And hung its petals there.

And in the garden near the house,
The Foxglove still had place
Among the lilies and the rose,
Of Flora's royal race.

THE TUBEROUS BEGONIA.



BELIEVE this is destined to become in the very near future, an exceedingly popular flowering plant; as much so, I have no reason to doubt, as the universally grown Geranium. It is as free, and as continuous in blooming as the Geranium is, and with quite as much variety in color. For the benefit of those not yet acquainted with it, I may mention a few descriptive points. The colors are crimson, scarlet, magenta, pink, yellow, orange and white, and ranging through all intermediate shades.

In the many varieties there are many different forms of flowers, from single to the most double, from sky pendant bells, to the boldest, most open, and erect form. Some of these latter are very large and striking.

The plants are continuously in bloom, from the time they commence in May, or June, until late in the fall. I have as yet failed to get any bloom from them in the winter.

The stems ordinarily, even in the green house, die down on the approach of winter and part from the tuber. The tubers are very easily preserved. They can be buried in sand or earth, or put away in the pots in which they grew, in any place where it does not freeze. I notice some authorities give 50 F. as the lowest point to which the temperature should range in the place of storage. I have found that it does not matter should it fall far lower, so long as the freezing point is not reached.

I believe it is the practice of some, to plant the dry tubers of those intended for bedding directly into the open ground, where they are intended to bloom, for the summer. This is done in the latter part of May or beginning of June. I think however, it is better to start the tubers in pots before planting out. Some of the single varieties make first-class bedding plants.

Increase, or propagation, is effected either by cuttings or seed. Named, or particularly desirable varieties are reproduced from cuttings. This is rather a new method of increase as but few cuttings can be obtained from each plant. The cuttings make good blooming plants the first season, but frequently form no latent seeds, or eyes, from which to start again. Seed, although very small, germinates readily, but the young seedlings require constant attention. A few minutes, hot sun, will burn them up, or a little too much moisture, or shade, will damp them off. After leaves the size of a ten cent piece are acquired there is very little more trouble; but until that period is reached, closer attention is required than amateur cultivation can, in all cases, give. For those who do not desire to plant largely, it is better to purchase the dry tubers, or flowering plants of professional growers. These can be procured from almost any florist, at about

the same prices as are charged for other ordinary bedding, greenhouse or window plants. Any flower lover who has not yet tried the Tuberous Begonia should certainly do so, and will find it an easily managed, most satisfactory, and most beautiful flowering plant.

Inverkip, March 8th, 1890.

FRED. MITCHELL.

HOUSE PLANTS IN APRIL.

WHETHER in the greenhouse or the window-garden, plants that have done their best all winter are now being made ready for their season in the open air. While they remain within, the increasing heat requires that they have greater care in ventilation and in freeing them from insects. Plants that are taken out in summer, if wanted to bloom in pots next winter, should be kept in the pots; if turned out in the open ground, they cannot be satisfactorily potted again. It is much better to start with new plants from cuttings. Such plants may often be plunged in the border, in the pots, with good results. Pots that are set out should stand on a layer of coal-ashes to keep out worms. Such plants should be set in partial shade but never under the drip of trees. Roots of dahlias and cannas, and bulbs of tuberose and gladiolus, if laid in boxes of soil, exposed to the sun during the day, and taken in at night, may be appreciably forwarded, and ready to plant out.—*American Agriculturist.*

RULES FOR THE GARDEN.

“IX. Grow an abundance of flowers for cutting; the bees and butterflies are not entitled to all the spoils.”

“X. Keep on good terms with your neighbor; you may wish a large garden favor of him some day.”

“XI. Love a flower in advance, and plant something every year.”

“XII. Show me a well-ordered garden, and I will show you a genial home.”



The Canadian Horticulturist.

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

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

NOTES AND COMMENTS.

An apology is due our readers for the lateness of our March issue, which was due to the straying of some of the electrotypes which had been forwarded to the printers by mail. We hope to be more prompt in future.

MR. L. FOOTE, of Nepean, Ont., promises us a series of articles on practical horticulture, which are afterwards to be issued in pamphlet form. We believe such a series will be of special interest to a large number of our readers who are taking up this branch of industry.

THE MILLS GRAPE, an engraving of which appeared on page 102, vol. XI., will be among the plants distributed in 1891. Mr. W. H. Mills has very kindly donated a thousand of these valuable vines to our Society, but, as it is too late to put them on our list for this spring, it is necessary to hold them over for a year. Anyone, however, acting as agent in extending our membership may have one of these vines for each new subscriber for the year 1890, which he will send in during the month of April.

THE YELLOW TRANSPARENT APPLE is highly commended in the report of the Ohio State Horticultural Society, of 1889. It was pronounced by several members as the

best early apple, and superior to the Early Harvest. Have any of our readers given it a trial as a market apple?

THE HILBORN RASPBERRY is also highly recommended in the same report; Mr. F. R. Palmer claiming that it was better than the Ohio and best of all black raspberries.

THE WORDEN GRAPE is commended by the editor of the *Country Gentleman*. He thinks the reason it was not appreciated at first was because so many spurious plants were sold, which were really Concord; and this led many to believe they were one and the same; but now its value is beginning to be known among cultivators. A Chicago dealer is said to have sold 100 baskets of the Worden lately at 90 cents a basket, when Concords were selling at 30 cents.

STRAWBERRY GROWING is the title of a paper read before the Farmers' Institute at Centralia, Ill., by Mr. J. N. Kerr. He gives some very good pointers for growers; for instance, in regard to marking out for planting, he recommends the wheelbarrow as a most useful implement, and when used by a competent hand as being both rapid and accurate. Where exact distance between plants is desired, a nail, screw or other device is fixed in the rim of the wheel to

indicate the exact place for the dropper to place the plant and where the planter is to plant it. The varieties depended upon for main yield about Centralia are nearly altogether the Crescent and Warfield, the latter coming into pretty popular use only during the last year. Mr. Kerr reports this to be a very fine berry and very prolific, and he says the plant is a more vigorous grower than the Crescent. Other growers, however, say that it does not equal the latter in point of productiveness. He mulches his strawberry beds with wheat straw and uses from five to eight loads per acre, costing on an average \$15.00 per acre.

INK FOR ZINC LABELS.—*Popular Gardening* gives the following recipe: two parts verdigris, two parts sal-ammoniac, one part lampblack, and twenty parts of water; mix well, and keep in a bottle with a glass stopper. Shake before using, and write with a steel pen. Common writing ink, in which a little sulphate of copper has been dissolved, will also answer the purpose, but a quill should be used with the latter.

APPLE SCAB.—Prof. Goff says the best preventive yet known for this fungus is ammoniacal carbonate of copper; one oz. carbonate of copper dissolved in one quart of ammonia, diluted with ninety parts of water, sprayed upon the tree and fruit before the scab is too far advanced.

THE BOX FROM RUSSIA.—A large box, containing some 2,000 scions of fifty or sixty varieties of Russian apples and pears, has arrived from Mr. Niemetz, of Rovno. After some conference with Mr. Saunders and Mr. John Craig, the latter of whom is the horticulturist at the Central Experimental Farm, it has been decided to consign this valuable stock to the care of Mr. Craig, who will have them grafted and thoroughly tested at the various farms and supply us with the most valuable kinds, in quantity sufficient for distribution from time to time. A full list of these varieties will be found in another column, and for further details we refer our readers to the letters from Russia.

KIEFFER PEAR.—This variety is highly commended by some New York State grow-

ers as a profitable pear to grow for market. They claim that it is as easily grown as potatoes, and though it is of a miserable quality, yet its beautiful appearance commands for it a ready sale in the markets at the best prices. The report of the horticulturist of the New York State Agricultural Station for 1889, while acknowledging its many strong points, such as brilliant coloring, vigor of tree, earliness of bearing and freedom from injury to fruit by disease or insects, says it may become popular in the markets as a canning pear, but this is all that should be expected of it, as it seems unwise to place a pear of such qualities on sale as a dessert fruit.

THE LATE MR. CHARLES GIBB.

VERY sad news for the fruit growers of Canada is the announcement of the death of Mr. Charles Gibb, of Abbotsford, Quebec, on his way home from Ceylon. There is, perhaps, no man in Canada who has so freely and generously devoted himself and his wealth to the advancement of the science of pomology as Mr. Gibb, and his labors have won for him many an expression of grateful appreciation. We all feel that in him we have lost a dear personal friend, whose place can not be filled by another.

Mr. Gibb had gone to China and Japan to study the pomology of that country, and was on his way back when his death occurred at Cairo, in Egypt, on the 8th of March, at the early age of forty-five years. Particulars will follow shortly, when we hope to give him a more extended notice, illustrated, if possible, by a photo engraving.

YIELD OF THE GRAVENSTEIN.

MR. JOHN DONALDSON, in a paper recently read before the Nova Scotia O.A.C. graduates on the subject of Apple Culture in Nova Scotia, gives a very bright picture of the profits, such as we fear, will not often be realized. He says:—

“The Gravenstein tree in our county bears twenty-four or twenty-five barrels in

the bearing year, which will make twelve barrels per year, at the average price of two dollars per barrel—twenty-four dollars per tree—forty trees per acre, making the magnificent sum of \$960 per acre. This may sound to some like an ideal orchard: but I, myself, in my orchard, have taken sixteen barrels from one tree; yet, even dividing my former statement by one-half and allowing six barrels per tree, gives the fine sum of \$480 per acre, making five acres equal \$2,400. The average expense of raising and

packing apples ready for shipment would probably not exceed one dollar per barrel."

We protest against such extravagant figures going before the public. Neither the Gravenstein, nor any other variety, will average twelve barrels per annum for each tree; from two to three barrels is a much fairer average for most varieties, and \$100 per acre is nearer the true average income from a commercial apple orchard.

Question o' Drawer

THE DOMINION CONVENTION.

22. I am much interested in reading the press account of the Dominion Fruit Growers' Association, and would like to know how I can secure a complete report of the proceedings.—A. S. DICKSON, *Scaforth*.

A verbatim report of this Convention has been made, and our Association hopes to be able to secure a sufficient number of copies for all our members.

BURNING ASHES.

23. How should waste timber be burned so as to procure the best possible results in securing the ashes?—C. E. B.

This seems to be simply a matter of convenience. No doubt the best results would come from cutting and piling the brush and timber in low spots, protected from the wind, and then distribute the ashes afterward.

MIXING HELLEBORE WITH POTASSIUM SULPHIDE.

24. SIR,—In the November number, page 310, there is a remedy for gooseberry mildew, to be used by spraying. This suggests the question whether the white hellebore for the worm might be mixed with the solution without injury to either, to save time, or whether the potassium sulphide would of itself have any effect on the worm?—G. J. R.

Reply by Frank Shull, Chemist, *Experimental Farm*.

Regarding the effect of mixing potassium

sulphide with hellebore, I would say that as far as I am aware their action as a fungicide and insecticide respectively would not deteriorate by such a method of application.

SPRAYING APPLES AND PLUMS.

25. COULD you inform me where I could purchase a sprayer for spraying apple and plum trees; one that would do for spraying two or three hundred trees. Also, what amount of Paris green and water do you use, and do you consider spraying a success?—ED. McCOMBS, *North Ridge, Ont.*

The Beecher spraying pump, manufactured in London and advertised by J. F. Wilson, Chatham, for \$3.50, answers an excellent purpose so long as it is kept in good order. One ounce of Paris green is enough for twelve gallons of water. Spraying is certainly a success if rightly attended to, both for Codling moth and plum curculio, although much less certain in its results with the latter than with the former.

APPLES FOR NOVA SCOTIA.

26. SIR,—I duly received the numbers of THE HORTICULTURIST, and now enclose subscription. Hardy apples and small fruits do well here. I believe there are varieties of fruit not grown in this part of Nova Scotia that would be hardy here. I notice a statement in the October HORTICULTURIST that the Bessemianka pear endures a temperature of 40 degrees below

zero without injury. The coldest we have had in eight years was this winter, when it was 24 below.

Do you think that the Montreal Peach Apple would be hardy here? Would not the Simon's plum be as hardy here as at Collingwood, Ont.? Theory is good as a guide to practice, hence the best way to answer these questions is by trial. In the meantime your views on these questions in the next number of your valuable magazine would be interesting to your maritime subscribers.—SANFORD H. PURDY, *Greenville, Cumberland Co., Nova Scotia.*

No doubt the Montreal Peach would succeed with you, and also the Duchess and the Wealthy. Simon's plum is too new a fruit for us to make any statements about its hardiness.

PRUNING YOUNG TREES.

27. I WOULD like something said in your your next number about pruning young trees up to the age of six or eight years.—A. J. KELLY, *Talbotville, Ont.*

If one is desirous of having shapely apple trees, the earlier one can take them in hand the better. If left growing too long in the nursery rows they will be slender, and in most cases have a poorly formed head, for nurserymen have too much in hand to consider the symmetry of the tree, except at salable age. It is best, therefore, to buy trees at two or at most three years of age, when there will result little loss of root fibre. Then select three or four side branches as the basis of future operations and stop the growth of the leader, as in Fig.



FIG. 32.

35. During the first summer only two or three buds from each of these should be allowed to grow, so that by the end of the season the tree will appear somewhat as in Fig. 33. No precise rule can be given for this work; much must necessarily depend upon the taste and judgment of the operator. In general, something of the same process must be repeated with the new growth year after year until a symmetrical head is well developed, and, if done with judgment, little heavy pruning will ever need to be

resorted to. The great point to be aimed at is to avoid long limbs, bare of fruit spurs on the one hand, and too much crowding of branches on the other. The natural habits

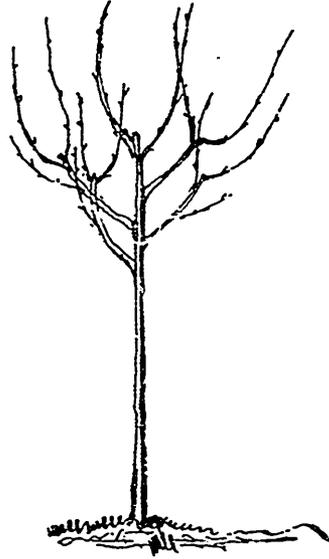


FIG. 33.

of the tree must also be studied and these tendencies favored; thus it would be manifestly wrong to try to make a Northern Spy and a Greening follow the same general form. The enquirer does not say what kind of trees he wishes to prune. We have treated only of the apple; the pear and the peach need a different treatment, and will be taken up at some future time if desirable.

PROPAGATING RASPBERRIES.

28. SIR,—How are those raspberries propagated by the tips? Are they fastened down after they have done fruiting? Will the canes produce fruit more than one year? —GEORGE HANNAFORD, *Percency, Ont.*

This question is pretty fully answered on page 49. The Shaffer (known botanically as *Rubus occidentalis*), which we distribute this spring, is a cap raspberry, and all of this class are propagated by tips. They will often take root of themselves in soft ground, but usually, on account of the swaying by the wind, very few plants can be got without attention. The best time to begin layering is about the close of fruiting season, or as soon as the tips reach the ground: for by

doing this early the side branches will often push out and may be also layered, and thus a large number of tip plants may be raised from one in a single season. The best time for planting these is in the spring, and it is not too late when the young plant has begun to grow. One of these tip plants is shown in Fig. 34. It is well furnished with fibrous



FIG. 34.

roots, which are easily dried out by the wind and sun, and consequently must be carefully guarded from exposure.

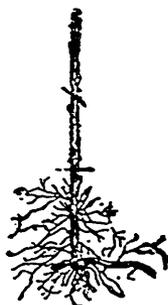


FIG. 35.

The other class of raspberry, which embraces varieties of *Rubus Idaeus*, the European garden raspberry, is entirely propagated by suckers, as represented in Fig. 35, and, where the ground is dug or ploughed about old plants, these will spring up in great abundance.

The old wood is useless

except as a handle in planting and afterwards may be cut close to the surface.

Canes do not produce fruit more than one year, and may be cut out either soon after fruiting or in the following spring. Considering the ease with which the bushes may be propagated, there is no occasion to purchase in large quantities, for when once a man has the varieties he can soon have as many as he wishes.

THE CUT WORMS.

29. In this vicinity our gardens suffer from the ravages of the cut worm, which is about

one inch long by about three-sixteenths in diameter and of a dirty grey color. Anything that comes up green in the shape of garden stuff seems to be the attraction and is sure to suffer more or less; therefore it is necessary to sow considerable more seed. Can you or some of the readers of the *HORTICULTURIST* tell us how this worm comes to exist, and what will drive it out of the garden?—W. I. OTT, *Oak Lawn, Carberry, Man.*

There are many species of cut worms, and from the description it would not be easy to identify the one which is troubling our Manitoba correspondent. It is not surprising that this enemy should be looked upon as somewhat mysterious in its origin, owing to its nocturnal habits. Like a thief, who steals while others sleep, so this destructive worm avoids the light of day and crawls under the surface of the soil to hide. The moth, too, secretes herself in the daytime in crevices of the bark, and is therefore little known. The destructive work of these worms is too well known to need description, as every gardener has had enough unpleasant experience in replanting cabbage, tomato and other plants owing to their ravages.

The cut worms nearly all belong to the genus *Agrotis*, of which there are many species, all more or less alike in the larval state, being smooth and naked, and mostly grey, brown or black in color; though the moths differ more or less in color, size and marks. Among these we briefly refer to three species,

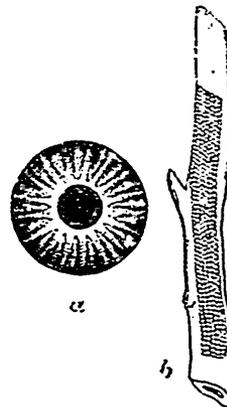


FIG. 36.

for the cuts of which we are indebted to the Entomological Society of Ontario.

1. The Variegated Cut Worm (*Agrotis Saucia*) often deposits its eggs on young twigs of the apple, cherry or peach, as is shown in Fig. 36, where also may be seen one of the eggs magnified.

2. The Greasy Cut Worm (*Agrotis Ypsilon*), Fig. 37, is of a dull brown color

inclining to black, and when full grown attains a length of one and a half inches. The fore wings of the moth are mostly brownish grey with hind wings almost white. This is one of the most common of cut worms, and is widely distributed, being found from Georgia and Texas on the south

or five of these would in two nights completely strip a four-year-old dwarf of every fruit and wood bud, and, if out in leaf, completely denude it of foliage.

Prof. Saunders, in his valuable work on "Insects Injurious to Fruits," recommends

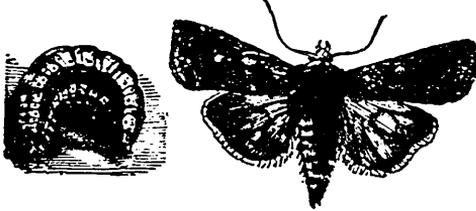


FIG. 37.

to Nova Scotia and Manitoba on the north. It is very destructive, scarcely any kind of garden produce escaping.

3. Cochran's Cut Worm (*A. Cochranii*) was discovered by Mr. Cochran, of Calumet, Ill., a species of climbing cut worm which ascends apple and pear trees and grape vines in the night time, eating off the buds, even leaving potatoes, peas and other garden stuff in their preference for fruit, buds and foliage. Mr. Cochran found them about midnight, well up the limbs of even tall young trees, but dwarf trees particularly suit their convenience. It is said that four

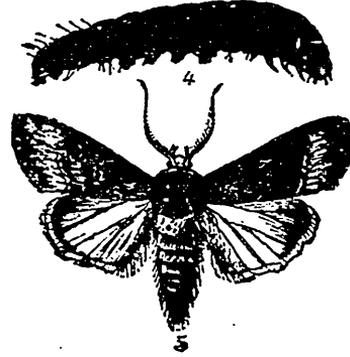


FIG. 38.

catching and killing as the surest way of destroying them, although sprinkling the plants with slaked lime, ashes, hellebore or Paris green water is helpful.

For the Climbing Cut Worms, bands of tin, clasping the tree in an inverted dish form, will be most effective; or a circular hole, with perpendicular sides, dug about the tree will prevent them from reaching the trunk.

Open Letters

UNUSUAL.

SIR,—From a plant of the Jessie strawberry which I have there was a runner allowed to root after July, which ripened two strawberries in October of the same year.—
J. P. COUCH, *North Toronto.*

SEEDLING PLUM.

I HAVE A Plum in my garden that has not been molested by the Black Knot. I have known it for the past eighteen years. It is a seedling, as it bears the same proud shoots from the roots. It is an excellent plum, about the size of the Lombard, and I think it a better plum. It is pale green. If you would like to try it, I would send you two or three slips in the spring, as I have some fine ones.—JOHN GIBBARD, *Napanee.*

COMPLIMENTARY.

SIR,—I take a pleasure in renewing my subscription to THE HORTICULTURIST. It has been so much improved in the last few years and contains so much practical information that I would be very sorry to be without it. I received the rose tree all right in the fall, and it is doing very well. The "Yellow Transparent" apple tree met with some misfortunes, but appears to be hardy and fairly vigorous on the north-west side of a clay hill.—J. R. D., *Almonte, Ont.*

SIR,—I consider your paper the best of its kind published, and would not be without it for five times its cost. Faithfully yours.
ROBERT NOKKIS, *Langley, B.C.*

SCIONS OF FRUIT TREES IMPORTED
FROM RUSSIA BY THE ONTARIO
FRUIT GROWERS ASSOCIATION,
SPRING OF 1890.

SIR,—I sent you a large box, 500 Kilogrammes in weight, with about 2,000 Scions, via Warsaw, Hamburg, Liverpool and per Beaver line to Montreal, to be forwarded to Grimsby.

You will find many of the same names, because I have collected them from various parties; but this will be interesting to you for more careful identification and nomenclature. You will no doubt find some among

them which are already disseminated in your country, only under other and incorrect Russian, or English names, but it is difficult for me to know which you have.

I selected everything which I thought would succeed in Canada, and hope you will be pleased. I have not yet received your box, for, as I wrote you, it was arrested at Bremen, on account of the two little grape vines which were in it. It has cost me a great deal of money, and now after all, I fear it will be lost. Yours very truly, JAROSLAV NIEMETZ, *Rovno Wolinia, Russia.*

NOTE BY EDITOR.—The list will be given in May number.

* Our Markets *

THE APPLE MARKET.

DURING the third week in March there were only about 4,000 barrels of apples exported from all the Atlantic ports to Great Britain. Although prices in Britain are high, they are also very high in our own markets, and consequently there is little reason for exporting. Toronto market quotes apples at from \$3.00 to \$4.00 per barrel; Buffalo, \$4.00; Montreal at \$4.00 to \$6.00; New York City, \$5.00. The stock in hand at Montreal is very low, the Trade Bulletin placing it at only 1,500 barrels, which quantity will soon be exhausted.

APPLE CULTURE IN NOVA SCOTIA.

MR. C. F. JUST, of London England, writing to the *Standard*, extols Nova Scotia as an apple growing country. He says:—“Thousands of acres have been planted for years past, and these are rapidly coming into bearing. The western section of the Province around the Bay of Fundy is the most favorable for apple culture, and there is plenty of room for young men, with say one thousand pounds, willing to learn. A

Nova Scotia orchard with one thousand trees was declared to me, by the Secretary of the Fruit Growers' Association, to be capable of a return, from the tenth to the fifteenth year, at the rate of two hundred pounds a year, and for thirty years thereafter at the rate of four hundred pounds a year, and all at the initial cost of six hundred pounds. The climate of Nova Scotia is excellent under the influence of the Gulf Steam, which washes its shores.

I was interested to find among the settlers several Englishmen who had tried orange growing in Florida, and had moved to Nova Scotia and grown apples, with profit to their health and their pockets. In fact I was assured that, taking a number of years, the profit from apple culture exceeded that from oranges, apart from the additional benefit of a good climate and of the institutions and laws dear to Englishmen under their own flag.

I could give additional details as to what is being done outside England in apple growing, but conclude that I have said enough in my remarks above to satisfy all as to the remunerative investment it affords if conducted on proper and intelligent lines.

✿ Our Book Table ✿

BOOKS:—*The Horticulturist's Rule Book.* A compendium of useful information for fruit growers, truck gardeners, florists and others. Completed to the close of the year 1889. By L. N. Bailey, Horticulturist at Cornell University, Ithaca, N.Y. Few books contain so much useful information in so little space.—*Transactions of the Indiana*

Horticulture! Society, for the year 1888, being the proceedings of the 28th annual session, held at Indianapolis; C. M. Hobbs, secretary.

JOURNALS:—*The Canadian Queen*, a fine illustrated ladies' magazine, devoted to fashion, art, literature, flowers, toilet, home decoration etc., published at Toronto, Ont.

For special offers write to *The Canadian Queen*, Toronto, Ont.

CATALOGUES:—R. Holtby Myers & Co's *Complete Catalogue of Canadian Newspapers and Periodicals*, Newspaper Advertising Agency, Toronto, Ont., Canada.—*Everything for the Garden*, Peter Henderson, 35 Cortlandt street, New York City, 1890. This is a beautiful and costly catalogue, and therefore only sent on receipt of 25c. in stamps, which amount however is deducted from the first order.—*Ellwanger & Barry's General Catalogue*, Mount Hope Nurseries, Rochester, N.Y. Fruit and ornamental trees, shrubs, roses, etc. This old and reliable firm celebrates the 50th anniversary of its

establishment.—*Roses, Plants, Seeds*, chrysanthemums, geraniums, dahlias etc., 1890. Webster Bros., Hamilton, *Little's Circular of New Strawberries*, choice small fruits a specialty, John Little, Granton, Ont., Canada. *Grapevines and Small Fruits*, T. S. Hubbard Co., Fredonia, N.Y.—*Cleveland Nursery Co.*, Lakewood, Ohio.—*Horticultural Supplies*, Johnson and Stokes, Seedsmen, 217 Market street, Philadelphia, Pa.—*Helderleigh Fruit Farms*, Catalogues and Price List of Plants and Trees, spring, 1890. E. D. Smith, proprietor, Winona, Ont.—*Descriptive Catalogue of America Grape Vines, Small Fruit Plants etc.* Geo. Joselyn, Fredonia, N.Y.—*T. C. Robinson's Catalogue of Small Fruits, Grapevines etc.*, Owen Sound, Ont.

THE SPRING OF 1890.

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SMITH & VANDUZER.

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And should be sent in at once, naming at the same time the choice of plant for testing; otherwise we cannot guarantee that any plant will be sent.

- | | |
|---|---|
| 1.—RUSSIAN APRICOT. | 2.—SIMON'S PLUM. |
| 3.—JOHN HOPPER'S ROSE | 4.—SHAFFER RASPBERRY (four tip plants). |
| 5.—WEALTHY APPLE. | 6.—BUBACH No. 5 STRAWBERRY (four plants). |
| 7.—RICHARDIA ALBA-MACULATA, or SPOTTED GALLA. | |

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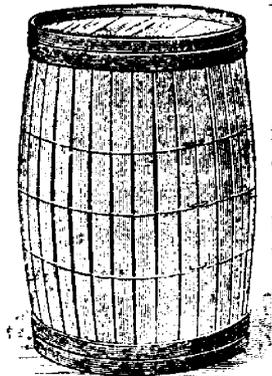
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