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FIG. 2566. MOORE'S DIAMOND.

THE CANADIAN HORTICULTURIST

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DIAMOND.

(MOORE'S DIAMOND.)



FEW years ago the Niagara grape was introduced with such a flourish of trumpets that several other excellent white grapes of merit, introduced about the same time, were quite obscured for a season. Among these was the Diamond, a grape now coming to its deserved level by reason of its merit. We have purposely shortened the name from Moore's Diamond, by which term it has been generally known, in accordance with our general rule of abbreviating as much as possible the names of varieties. We have for example Moore's Early and Moore's Diamond; is it not better to call the former Moore and the latter Diamond?

Our frontispiece shows a bunch of this grape grown in our experimental plot at Maplehurst in 1901, which is but an average sample. Perhaps the bunches were unusually fine that season, but if it continues to yield such fine and attractive bunches, and to ripen a week in advance of Concord and Niagara, it will command the market for white grapes for that week.

That Diamond is growing in value and is also a suitable variety for the colder sections, is evidenced by its being double starred for Quebec, Ontario, Maine, Massachusetts, New York and Michigan as a desirable variety for planting.

Its origin was at Brighton, N. Y. in 1873, by Mr. Jacob Moore, from seed of Concord, fertilized with Iona; just one year after the Niagara was originated at Lockport.

The vine is vigorous and productive, with foliage much like that of one of its parents, the Concord. The bunch is large, this one measuring $5\frac{1}{2} \times 3\frac{1}{2}$ inches, compact and shouldered. At the Michigan station, where weights are taken instead of measurements, Diamond is put down as 4 ounces and the Concord a trifle over 5 ounces, a good way of showing comparative size.

The berry is about three quarters of an inch in diameter, and adheres firmly to the stem. It is greenish white in color, yellowing slightly at maturity, pulp tender. Quality, good for desert, superior to the Concord. The Michigan station gives it 8 for quality,

the Concord 6 and the Delaware (the highest) 10. In season it is about a week in advance of the Concord.

In order to have the opinion of others, as well as our own, both for and against this grape we add the following :

"Vine vigorous and quite productive. Valuable for home use, and grown to quite an extent for market in some grape sections." Mich. Bull. 187.

"The best out door white grape we have" Judge Miller, Ohio.

"The most attractive and earliest white grape cultivated South," P. J. Berckmans, Augusta, Florida.

"Unproductive in my vineyard," G. W. Campbell, Ohio.

"Earlier than Niagara, and on that account brings a higher price, but it does not produce half the quantity," M. Pettit, Winona, Ont.

"It has a large white grape not quite as large as the Niagara, heavily shouldered or sometimes double shouldered. The flavor is juicy, sweet and of good quality. It ripens

one week ahead of the Niagara. The wood is strong and vigorous and has a good tough foliage. I consider the Niagara and Moore's Diamond the only two profitable whitegrapes to grow for commercial purposes. The only drawback is that it does not throw out enough tendril to hold it to the wires." F. G. Stewart, Homer, Ont.

"I have fruited the Diamond for the past five years. I find its season about with Worden. It is a heavy cropper, the bunch is fine and shouldered; the vine vigorous and the foliage healthy. I consider it very valuable." Geo. X. Walker, St. Catharines.

"I think there are two strains of this grape, one almost worthless and the other one is the very best of grapes." W. H. Bunting, St Catharines, Ont.

"I have fruited the Diamond here and it does remarkably well. The vines are very healthy and vigorous. It bears very well and ripens a little earlier than other white grapes. I consider it a very good variety." G. C. Caston, Craighurst, Ont.

NOTES ON CURRANTS.

BY A. W. PEART, FREEMAN, ONT.

CURRANTS do not like a light sandy soil nor a heavy clay; a rich, porous, damp but not wet one, seems to suit them. Until last year the margin of profit in growing them was narrow, so much so that many plantations were pulled up. The re-action appears, however, to have set in, and we may look for higher prices during the next few years.

In the red varieties the Wilder, a new one, the Cherry, Red Victoria and the North Star take the lead here; in white, the White Grape and White Imperial; and in black the

Collin's Prolific, Saunders and Naples stand first in the order mentioned. Both the North Star and Collin's Prolific are late varieties. Black Currants are desirable, inasmuch as they are practically immune from all troubles, while the red and white varieties are easy victims to the currant worm unless promptly destroyed with Paris green, of which one pound to 250 gallons of water will suffice. This fruit is a voracious feeder, but quickly responds to careful cultivation and liberal manuring.

NOTES AND COMMENTS.

Science and Practice will be more closely related during the 20th Century in consequence of the labors of such men as Lawes and Gilbert, whose names have become familiar to all careful students. Their work has made the 19th Century famous for exceedingly useful agricultural experiments, and has set in operation experiment station work in many countries. Hitherto the great mass of the people, and especially the farmers and fruit growers, have known little of the underlying principles of their practice, because such knowledge has been locked up in books and largely confined to the halls of the great Universities for the benefit of students of the liberal Arts. Education had been monopolized by the professions; and the lords of the soil, kept in ignorance, lacked that self respect that was due to their noble occupation, and did not attain that success which was due to their industry.

Now all is changed. The professor goes to meet the farmers, and submits himself to their cross questioning: he puts his chemistry, physiology and botany into common terms and applies the principles to the every day duties of the farm. As a result we shall have intelligent cultivation of the soil, and failure and discouragement will be the exception in our fair Dominion.

Night Shelter would appear to have an influence on vegetable production, if we may judge from results attained by A. Petit, of France, in 1901. Various mats and screens were stretched a certain distance above the plants at night, and a record kept as compared with certain other plants not so treated. In case of cabbage and lettuce sheltered from March to May a very considerable increase in yield was noted; while straw-

berries with night shelter from October 15th, grew more vigorously, were about eight days earlier, and the crop was sensibly heavier than where not sheltered.

To make plants bloom in the window garden Mr. Barton advises using small pots. Most people, he told the farmers at Grange Hall, Grantham, used pots too large and in consequence the plants produced stalks and leaves instead of flowers. Another mistake, often made, was in getting the black soil from the woods for flowering plants. This is not the best potting soil. Better get a strong clay loam, such as you would sow to wheat; take a turf from that and let it rot in a pile for one year. Then, if necessary, it could be enriched with cow manure, and made porous with sharp sand.

Trees for home and school grounds, according to Mr. W. C. McCalla at the same meeting, may be well selected from the native varieties. He had collected a herbarium of these trees, and found at least twenty species which grew in the Niagara district, that could not be found elsewhere. Mr. L. Woolverton advocated the cultivation of taste in tree planting about the farmer's house. Trees and shrubs should be grouped about the entrance to give an air of mystery to the approach, and in front of fences, barns and other objectionable features, so as to hide them from view. He advocated an open lawn in front of the house as the very best setting for it.

Boys and girls who live in the country should study those things that will best fit them for their life work. "The professions," said Mr. Duncan Anderson, "are overcrowded, but there is plenty of room on the



FIG. 2267. VALLEY OF THE SAUGUEN RIVER.

farm for our best talent. One thousand dollars in a city is soon used up in house rent, vegetable and fruit bills, and many other things which the farmer has without buying and which he often forgets to count. Besides, in a public position a man is only engaged while young and strong, but as soon as he reaches the declining days of life and loses his position, he cannot easily secure another."

Civic Improvement.—Owing to the enterprise of our esteemed experimenter at Walkerton, Mr. A. E. Sherrington, a fine Horticultural Society has been organized at this town.

The first public meeting was held in the Opera House on March 13th, when the Mayor occupied the chair and the Walkerton orchestra provided delightful music. The speakers of the evening were Mr. T. H. Race, of Mitchell, and Mr. L. Woolverton, of Grimsby. The former gave a most delightful and inspiring address upon the influence of flowers upon the life and charac-

ter, and the latter spoke on landscape art as applied to home and school grounds. The interest was most intense from first to last, and the Society hopes to stir up the town to special work in civic improvement.

At the close of the meeting a practical turn was given to the work of this Society by a proposal that lady directors should be added, to whom especially should be committed the planning of work for the improvement of the town. A beautiful bend in the Saugeen river, near the town, was mentioned as already provided by nature with most attractive features, only needing a certain amount of care in the laying out and planting to make it a most attractive feature.

The school grounds had already been decorated, but much work remains to be done for improvement of the streets and other portions of the town. Walkerton is already a beautiful place, nestling as it does among the hills, with its parts diversified by the Saugeen river, and the ladies, every-



FIG. 2268. A MEETING OF GARDENERS AND FRUIT GROWERS AT OUR WALKERTON FRUIT STATION.

where the champions of civic improvement, will have here a fine scope for their ingenuity.

Lawn Grass.—At the Walkerton Horticultural meeting much emphasis was given by the writer to the importance of a beautiful stretch of lawn about the home. It should be open in the front of the house, and not cut up by gravel roads, nor spoiled by flower beds or shrubs which are in place along the borders; the lawn should afford a place where the young people may enjoy a game of tennis or croquet, and where the children may join in a romp or game of ball. When speaking on the same subject to the Brampton people, Mr. A. Gilchrist, of West Toronto Junction, who was also one of the speakers, suggested a good mixture for sowing such a lawn; his formula which he had tried and found most satisfactory even on unfavorable soil, is made as follows: Kentucky blue grass, 10 lbs.; Red Top, 1 lb.; Vernal, $\frac{1}{4}$ lb.; White Clover, $\frac{1}{4}$ lb. He advised trying bone dust as a fertilizer, sowing about twenty pounds of it to every 1000 square feet of surface.

Fertility of Orchard Soil is one of the important problems in Ontario, where the humus and the elements of plant food have been to such a large extent extracted by grain crops. Fortunately perhaps for the soil in our province, wheat raising is no longer profitable, and our farmers are being compelled to give attention to hoed crops, or to stock raising, both of which tend to restore its fertility.

Mr. Duncan Anderson, in his addresses at Bartonville and Grantham emphasized the great superiority of barn manures over commercial fertilizers, not because they contained any more potash, phosphoric acid and nitrogen for the same money invested, but because of the humus they furnished, with-

out which it would appear that these elements cannot well be taken up by the plant.

Prof. Ladd of North Dakota station, has been making special investigations along this line and finds that as humus decreases in soils they become less productive, less retentive of moisture, and inferior in physical quality, while on the other hand it was found that an increase in the percentage of humus was accompanied by an increase in the percentage of phosphoric acid and also with a greater productivity of the soil. As the humus increases it seems to cause portions of the phosphoric acid, till then existing in an insoluble form, to become transformed into a soluble form, and thus, presumably, to become more readily available as plant food. The same is true as regards the potash, lime and other soil constituents. A decided increase of humus and nitrogen may be secured in orchard land by growing such leguminous crops as peas or clover, which are nitrogen accumulators.

The writer had signal success in a mixed orchard of pear, plum and apple trees, which were not growing well and producing very little fruit and that of inferior size. Crimson clover was sown in August, and the following spring a light dressing of ashes, about fifty bushels, and about fifty lbs. of bone dust, to the acre were sown, and the whole ploughed under. The ground was then cultivated until about August 1st, when the same treatment was pursued again. As a result the trees became quite thrifty, and bore generous crops of very highly colored fruit, seeming to prove that this treatment was almost ideal. The soil was a clay loam.

Gold and Wickson Plums. Both these much lauded varieties are condemned by Prof. Waugh of Burlington, Vt., in his last report, for the commercial orchard. The former he says is uncertain in bearing, and gives only light crops of small and second rate fruit. It

ripens unevenly and drops early from the tree. The Wickson is a beautiful fruit of beautiful color, good texture and moderate size; but the quality is not high, and the tree is of poor form and slow coming into bearing. We hope he undervalues this latter, for owing to the high recommendations accompanying its introduction, the writer was induced to plant largely of it; and no doubt many others have done the same. Of the Japan plums it seems that Abundance and Burbank are still the leading varieties for profit.

Lime Sulphur and Salt Again.—Mr. G. E. Fisher, who is most hopeful of the effectiveness of this wash both against scale and fungus, draws our attention to the following which appeared in a recent issue of the *American Agriculturist*:

A pioneer and enthusiast in the use of the lime, salt and sulphur wash as a remedy for San Jose scale is N. G. Creely, of Burlington county, N. J. In the early spring of 1901 he sprayed a twelve acre peach orchard of large three-year old trees that were badly incrustated with scale. The result was almost magical. Not only was the scale all killed, so far as a rigid inspection could determine, but the trees were uninjured, and making instead a phenomenal growth of leaf and wood. Notwithstanding the wet, rainy spring, the wash remained on the trees all summer and was plainly apparent at picking time. The spraying was interrupted by rains, but was continued as soon as trees were dry, and neither that applied before nor after the rain was washed off. The trees are now strong, healthy and remarkably clean.

The material is so inexpensive that it can be used freely. Mr. Creely uses a large force pump having 185 pounds pressure and can throw a solid stream seventy-five feet high. Vermorel and other fine nozzles are discarded and a straight one used that has an opening of about $\frac{1}{4}$ inch diameter. The stream is broken into a spray by putting the thumb against it, although he expects to use a metal cap for this purpose in the future.

It is applied in late winter or spring on dormant trees, and used in excess until it drips off the branches and runs down the trunk. There is no danger to the tree from using an excess. The whole tree is incased in coat of thick wash. Mr. Creely says that many peach trees in his vicinity have been injured by using petroleum, and the results have not been entirely successful, but this wash is harmless, effective against the scale and is cheap. He expects to spray the orchard again this spring, although confident that about all the scale is dead from last winter's application. He

will also use it extensively on apples and pears. For apples he intends to add eight ounces paris green and four pounds copper sulphate to the 150 gallons, thus making a perfect spray against insects and fungous diseases as well as scale. He thinks one spraying with this compound may do the whole business. He believes that where the wash has failed in the east it is because it was used when cold, or was not properly compounded. His success has inspired others, and other large orchards will be sprayed this spring.

Orchard Institute Meetings.—Much credit is due our new secretary, Mr. G. C. Creelman, for arranging a series of fruit growers' meetings in the most important fruit growing sections of the province. The meetings are being held in the afternoons, first in a public hall at 1.30 p.m., adjourning to an orchard at 3.30, when practical demonstrations are given in pruning, grafting and other orchard work. These meetings will no doubt result in a better spirit of co-operation among growers so as secure the very best terms both in buying and selling their produce.

The Ben Davis seems to be the most popular commercial apple in the New England States. Prof. Waugh of Vermont has been securing reports showing the number of bearing trees and the number of young trees of Baldwin, Greening, Spy and Ben Davis. He finds that the planting of Baldwins and Greenings is considerably reduced in the recent plantings; the Northern Spy is holding its own, and perhaps gaining a little in Northern New England; while the Ben Davis outnumbers them all in the recent orchard plantings of nearly every state.

Co-Operative Cold Storage.—A number of large fruit-growers in the vicinity of St. Catharines, having realized the advantage and necessity of uniting together in some way, in order to prevent the great waste that was prevalent in seasons of full crops of fruit and to secure better and cheaper transportation facilities, formed, about three years ago, what is known as the St.

Catharines Cold Storage and Forwarding Co., Limited. This company has a capital stock of \$10,000 in shares of \$10 each, which is largely held by local fruit-growers in varying amounts.

During the summer of 1899 a complete cold storage warehouse was erected adjacent to the Grand Trunk R. R. tracks. This warehouse consists of a concrete building 36 x 60 feet, three stories in height, with walls of concrete twelve inches thick, thoroughly insulated on the inside with a number of dead air spaces separated by double thicknesses of matched lumber with insulating paper between.

The second or main floor, which is on a level with the floor of the ordinary freight car, contains three cold chambers of a capacity of about two carloads of fruit each, with a large receiving room and corridor leading into the cold rooms. The lower floor is similarly divided, except that the machinery room takes the place of the receiving room on the upper floor. The third floor is used for general storage.

The entire warehouse is fitted with the most approved machinery for the production of a temperature ranging from 33 to 40 degrees, as may be required, by means of compressed ammonia, which is forced through a six-ton ammonia compressor and subsequently allowed to expand in a series of coils, thus producing intense cold. By means of a powerful exhaust fan the air of the various rooms is so passed between these coils over which a constant brine spray is playing. This spray acts as a purifier of the air on its way, and it is returned to the rooms pure, dry and cold.

The air in the entire building makes a complete circuit in a very short time, when the machinery is in operation, and the results have so far been very satisfactory.

This company was one of the first to be in a position to take advantage of the liberal provision made in the Act passed by the Ontario Legislature, with a view of fostering

this new industry amongst the dairymen and fruit-growers of the province.

The cost of the building and plant complete was about \$6,000. The annual running expenses including power, attendance, insurance, taxes, etc., is about \$1,500. This amount is raised partly by two methods, viz.: 1. A regular charge is made for storing perishable products in the rooms as per the following schedule, baskets 2 cents per week, 5 cents per month; bushels 5 cents per week, 10 cents per month; cases of eggs, oranges or lemons, or barrels of apples, 10 cents per month, three months 25 cents, and other commodities in proportion. In some cases a regular rental for a room or a portion of a room is arranged for. 2. A small shipping charge is made against all fruit shipped through the company, which undertakes to attend to all the details of procuring cars and forwarding the consignments, as well as furnishing ice (from their own icehouse) for such refrigerator cars as may be required during the season.

This system has given great satisfaction to the growers and shippers of the district and it is expected to assume large proportions in the near future. In 1900 about 200 carloads of fruit were sent out; owing to the fruit failure last season the output was only about 100 carloads.

So far the company has been carefully making its way and has been studying the problem of handling and storing perishable products in the most satisfactory manner and the results are most encouraging.

The enterprise of the gentlemen who have taken hold of this industry in such a practical way is deserving of the success which seems assured.

The president and secretary-treasurer of the company are Messrs. W. H. Bunting and Albert Pay, of St. Catharines.

The fruit-growers of Clinton are forming a company for the shipment of fruit in this way, and no doubt such companies will be formed in many parts of Ontario.



FIG. 2269. TREE PROTECTORS AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

The Tree Protectors.—By some oversight the cut representing the tree protectors used at the Central Experimental Farm, Ottawa, was omitted from the February number, page 58. They were made of elm, and applied in the autumn. They were very satisfactory in preventing sun scald and injury from mice. The cost was \$6.00 per 1,000.

Fruit Harvesting, Storing, Marketing is the title of a new book by Prof. F. A. Waugh, of Burlington, Vermont, which will very much interest those who are turning their attention to fruit culture, for we know of no other book covering the same ground. We are inclined to go further than the professor in some particulars; for example he leaves it as a matter of preference whether in harvesting apples they be packed at once, piled on the ground or taken to a packing shed. Now, in our opinion, the second plan is never advisable, for in such a heap exposed to sun and heat, the fruit will ripen rapidly. A cold storage house where the apples could remain until wanted, is ideal. Apples should not be rushed upon the market too fast, and this would avoid such an evil. But if one has not such a storehouse, then there is only one thing next

best, and that is to pack and ship as fast as picked, and let somebody else have the advantage of storing the fruit before it is over-ripe.

We would go further also in the matter of grading. He makes the terms Select, First Grade and Second Grade entirely relative, having no reference to absolute qualities. We would make First Grade to have an absolute meaning and include only apples practically free from worm holes, scales or any other blemishes, and $2\frac{1}{2}$ inches in diameter or upwards; excepting that for such dessert varieties as Fameuse,

Swazie and Jonathan, $2\frac{1}{4}$ inches should be the minimum diameter.

Grading by machinery is not commended by Prof. Waugh. Now, we do not see how it is possible to secure uniformity of size without a machine, and uniformity of size is of first importance.

There is a promise of a great apple crop this autumn, and storage should at once be considered, if the best results are desired. Nor can we too early secure the sale of our fruit in such a season.

A Useful Garden Barrow.—The accompanying illustration, which is taken from American Agriculturist, shows a good way

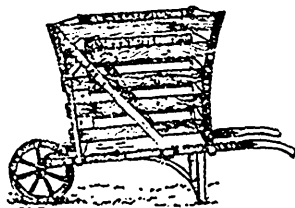


FIG. 2270.

of enlarging a common wheelbarrow's usefulness. For carting away light rubbish, vines, weeds, straw, dead tomato and egg plants, etc., it is just the thing. The attachment is simply a light rack frame fastened to the barrow in any convenient and simple manner.

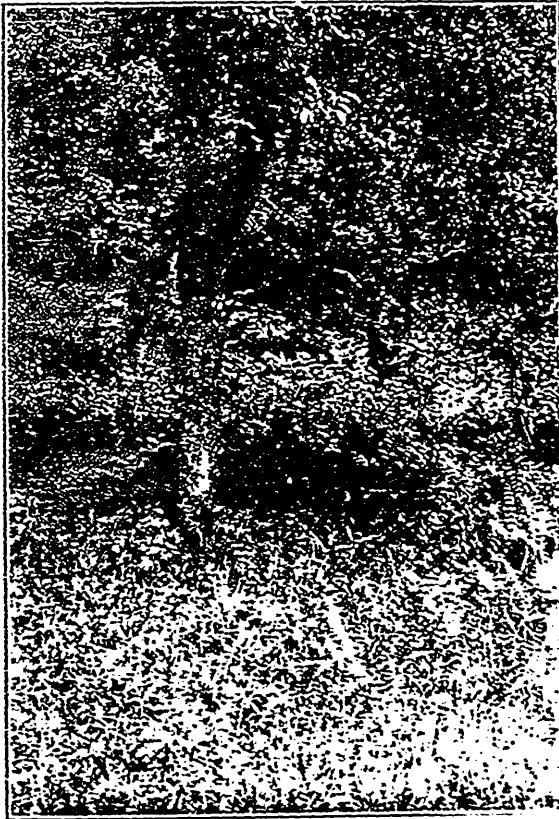


FIG. 2271. COVER CROP IN ORCHARD.

Cover Crops. Prof. F. A. Waugh, of Burlington, Vt., sends us a note on this head as follows: Speaking of cover crops, one must remember that they differ in value the same as anything else. Here is a photograph of an orchard, for instance, with a remarkably heavy and luxuriant cover crop; and yet those apples have not borne anything but lichens and yellow leaves for ten years. This cover crop consists of ferns, "brakes," sedges and rank wild grasses, and has not been turned under since the trees were set, probably. This orchard, cover crop and all presents as fine an example of what not to do as one often sees.

Native Shrubs and Climbers. In his address at Brampton, Mr. A. Gilchrist, of

West Toronto Junction, said it was unnecessary to go to great expense in buying exotic shrubs for our school grounds when we have so many desirable natives that will bear transplanting and that will be equally effective from a landscape gardener's point of view. For example the following is a list:

Native Shrubs.

Sweet Fern.	Purple-flowered Raspberry.
Dwarf Shadbush.	Maple-leaved Viburnum.
Chokeberry.	Round-leaved Dogwood.
Native Apple.	Ceanothus New Jersey Tea.
Common Elder.	Common Meadow Sweet.
Red Osier.	Scarlet-fruited Thorn.
Witch-Hazel.	Red-berried Elder.
American Holly.	Cockspur Thorn.
Sassafras.	Mountain Apple.
Silky Cornel.	Snowball Guelder Rose.
Leatherwood.	Shadbush Juneberry.
Shepherdia.	Alternate leaved Dogwood.
Snowberry.	

Native Creepers.

Virginia Creeper.	Bittersweet.
Honeysuckle.	Virgin's-POWER.
Native Grape.	Canadian Mornsted.
Ground-nut.	Wild Bean.
Smilax.	Cat-Brier.

Native Trees for School Grounds. Mr. Gilchrist also gave a list of native trees which are desirable, and we publish them here because soon Arbor Day will return and the boys and girls will want to know what they are to do. What could be a better lesson than to go to the woods and seek to identify and bring back one of each of the following list to plant on the school grounds?

Pin Oak.	Black Walnut.
Swamp Hickory.	Slippery Elm.
American Aspen.	Tulip Tree.
Hornbeam.	Chestnut.
White Birch.	Shell Bark Hickory.
Swamp White Oak.	Corky White Elm.
Basswood.	Balsam Poplar (Balm of Gilead.)
Beech.	Paper or Carole Birch.
White Elm.	Chestnut Oak.
Sugar Maple.	Pignut Hickory.
Red Oak.	Mountain Maple.
Bitternut.	White Pine.
Mossy Cup White Oak.	White Spruce.
Black Ash.	Balsam Fir.
Buttonwood.	Hemlock Spruce.
Silver Maple.	Black Spruce.
White Ash.	Red Pine.
Red Maple.	Larch or Tamarac.
White Oak.	

MEN WHO HAVE SUCCEEDED.

HENRY DALE, FLORIST, BRAMPTON.



FIG. 2272. MR. HENRY DALE.

FOR the inspiration of our young men who have in our fair Canada so many avenues open before them, but who so often lack that ambition which leads them to seek after advancement, we have undertaken to write a few sketches of men who have succeeded.

Of the long list of such worthy men, we may well speak with pride of Mr. Henry Dale of Brampton, who began at the very bottom and rose to the top of the ladder of success.

Some years ago he came from England to

Brampton with his father, Mr. Edward Dale. At first the lad was apprenticed to a shoemaker, but this was not to his mind, and he persuaded his father to start a small truck garden for Brampton market. Then, about 1870, he induced him to buy a small greenhouse, which they operated in partnership, utilizing the experience which the latter had gained in England as a market gardener. In this greenhouse, which was only twenty-five feet long, and was heated with the old fashioned flues, they grew vegetables and pot plants; it is still standing and may be seen in our engraving, just next the Dale home.

From the very first the demand for their roses exceeded the supply, and enlargements were necessary. After two or three years, two houses were added, fifty feet long, for spring stock and bedding plants, in which they also planted some Marechal Neil and Lamarque roses. On these they budded Sunset and Pearl, and took the bloom in boxes to Toronto, selling it to Mr.

Fleming, who was so long a prominent florist on Yonge Street.

In about 1880 Mr. Edward Dale gave the cut flower business up to his son Henry, who had always been the life of it; rose and carnation houses were added from time to time, indeed, of late almost every year, until now about seven acres of ground are under glass.

The greenhouses require 30 boilers of fifteen horse power each for heating them, and have automatic machinery for furnishing the coal so as to economize the labor as much as possible.



FIG. 2473. THE DAM GRIESBOFS.

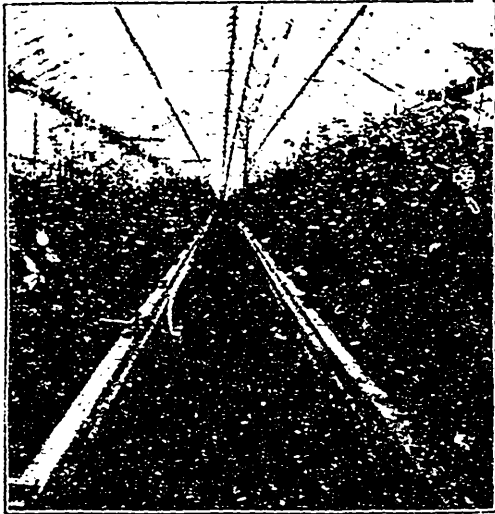


FIG. 2274. IN THE DALE GREENHOUSES.
View in Rose House, showing new style of benches.

Six of these rose houses are 840 feet long, and contain about three acres of roses. These are cut morning and evening, through the winter, but in April and May during the height of the season, from 6000 to 10,000 blooms are cut daily and shipped away wholesale to the large cities of Canada and the United States, at prices varying from \$5.00 to \$30.00 a hundred.

The death of Mr. Henry Dale, which occurred in July, 1900, at the age of forty, was a shock to his large circle of friends, whose sympathy evidenced itself in a wealth of floral emblems from the many societies of which he was a member, and from his many personal friends.

A Visit to the Greenhouses—Happening to be in Brampton on the 7th of March, we were received most cordially by Mr. T. W. Duggan, the manager, and conducted through these extensive greenhouses. "Already," he said, "we have the leading business in America in the cut flower trade. We have now 3,000,000 square feet under glass, and intend to add 100,000 more this spring;

indeed we have doubled the amount of glass since Mr. Dale's death."

Will you not over do the thing and produce more cut flowers than you can sell to a profit?

"No," said Mr. Edward Dale, the foreman, "it is not likely, because we are only building what we are forced to do to supply the demand. We must build or some one else will have to grow flowers to satisfy the growing trade."

Do you grow many varieties of roses?

"No," said Mr. Duggan, "about six or eight varieties are all that will pay to grow for the cut flower trade, and of these the chief are the Bride and the Brides-maid. Next to these the new rose, J. Pierpont Morgan, which you see is a free bloomer, and a perfect flower. Next would come the Sunset; and then the Meteor, Pearl and American Beauty."

Are not these benches lower than usual?

"Yes," said Mr. Duggan, "these are quite a new style, but vastly better than high ones. You see they are of brick and built over tiles which secure perfect drainage, and also perfect circulation of warm air."



FIG. 2275. IN THE DALE GREENHOUSES.
A view in one of the Carration Houses.

What soil do you use?

"The soil," said Mr. Edward Dale, "is made from the old turf off a clay loam meadow. We cut it six inches deep, and pile it over winter, then in spring mix it with a little manure, and fill up the benches. The old earth we take out every year and put it back on the meadow."

How often do you water?

"About twice a week, oftener if necessary, using the hose. This, we are using to-day, is manure water, which we apply about once in three weeks."

What are your chief insect enemies?

"The green fly and red spider. The latter we kill with constant sprays of water, and the former we kill with fumes of nicotine."

Do you propagate the roses by budding?

"No, we find grafting easier. One man does it all. We splice graft them while in these small pots, using no grafting wax, simply tying with a string, then we place them for a few days under cover where the air is very moist. This season we have grafted about 35,000, and about 98 per cent. have grown."

What are the commercial varieties of the Carnation?

"The best," said Mr. Edward Dale, "are Glacier (white), Marquis (pink), Roosevelt (crimson) and Crane (scarlet). These of course we replant every year, and we set about 100,000 plants. We set the young plants out of doors for the summer, and put them on benches in September, by which time they are good and stout."

What is your method of ventilation?

"It is automatic. These boxes enclose a thermostat, a delicately adjusted instrument, which regulates the water pressure, and can be arranged to open the sash at any desired degree of temperature."

We came away quite thankful for the kind attention we had received and quite impressed with the possibilities of life. Brampton is a interesting old town, with intelligent and progressive inhabitants, but with no special advantages for the location of such a greenhouse; yet with nothing but sheer ambition and business devotion, Mr. Henry Dale has worked up the leading cut flower trade of North America.



FIG. 2276. IN THE DALE GREENHOUSES.
A view in the Violet House.

THE SAN JOSE SCALE.



At a meeting of the Niagara Peninsula Fruit Growers' Association held in St. Catharines, on the 8th of March, representatives were present from many parts of this extensive fruit district. A report of the San Jose Scale committee was presented by Mr. W. J. McCalla which was as follows:

Notwithstanding the efforts that have been put forth during the past year looking to the destruction of this pest, the Scale is still with us and in increasing numbers. So much so that those whose orchards are infested, are becoming greatly alarmed at its progress, and the resulting damage; while those whose orchards are not known to be infested are waking up to the great danger which menaces them.

Your committee regret that they have not had an opportunity to personally visit and thoroughly examine many of the orchards in which Scale exists, but by diligent inquiry, and by observations which they have been able to make, have arrived at the following

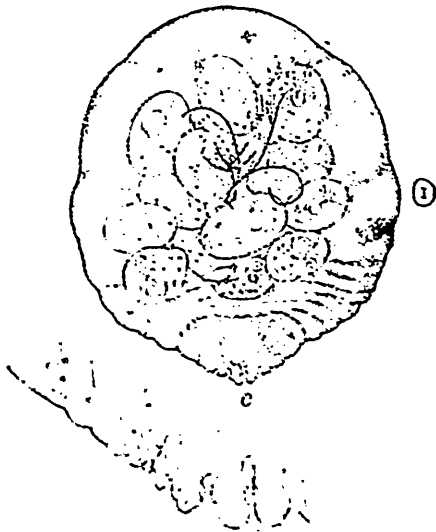


FIG. 2277. FEMALE SCALE. (HIGHLY MAGNIFIED.)

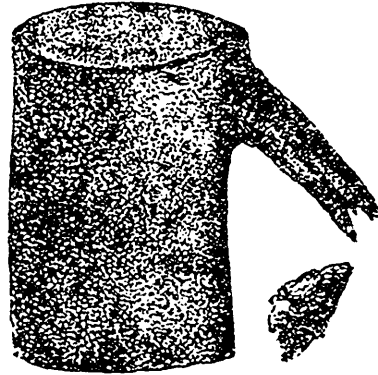


FIG. 2278. CUTTING INFESTED.

conclusions, and beg to submit them for your consideration.

1. That in view of the serious danger resulting from this insect, it is the duty of this association to urge upon its members and the public generally the necessity of making every effort wherever scale is located, to induce those interested to co-operate with the inspector and his assistants in their work, in order that a full and complete inspection may be instituted in all such orchards with a view to control and if possible eradicate this insect.

To this end it is very necessary that as a preliminary operation, all infested trees and orchards, if not already attended to, be at once thoroughly pruned and cleared of all surplus and unnecessary branches and loose bark, or anything which might prevent the spraying material reaching all the scale.

2. That the materials and methods which from past experience and the most reliable information, give promise of the best results, are the following:

(a). For all trees, except peaches and cherries, crude petroleum, a 20 or 25 per cent solution in combination with water. For peach trees, whale oil soap, 2 1/2 lbs. to the gallon of water. In the case of the crude oil, care should be taken to cover the tree but once, and in order that an undue quantity of oil be not used a very fine nozzle should be employed.

(b). That a combination of whale oil soap and crude petroleum in the proportion of one pound of soap to the gallon of water, with a 25 per cent solution of crude oil added, has proved very satisfactory in destroying the scale.

(c). That the lime, sulphur and salt treatment, which is in general use in California,

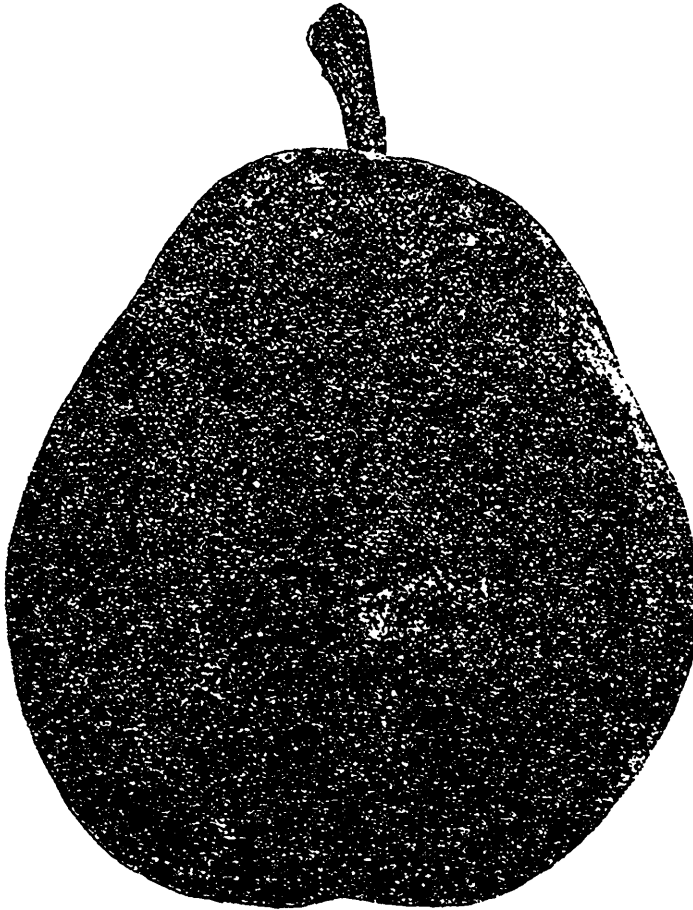


FIG. 2271. EXPORT PEARS - THE DU CHESN.

while tried in this country in as yet but a very limited way, has nevertheless given evidence that it may prove very useful here, and it is suggested that this treatment be given a more extended trial during the coming spring and summer.

(d). That where peach trees are badly encrusted, it is the opinion of your committee that the best and most satisfactory way of

dealing with them is to destroy them at once by fire.

(e). That inasmuch as great danger of the further spread of the scale may result from nursery stock which might be infested, it is hoped that the law in respect to fumigating all such trees and plants be rigidly enforced.

3. That this association urge upon the Department of Agriculture the desirability of supplying a few suitable combination pumps in certain localities where scale exists, where the properties are small and where no suitable pumps are in the hands of the owners, and if possible at least six of these pumps be furnished in time for this season's work, and that they be placed in such sections as the inspector shall deem most expedient. It would also seem necessary to employ competent men to operate these pumps, whose services should be paid for by those desirous of availing themselves of their assistance.

4. That the amendment to the San Jose Scale Act, as amended and introduced by the Minister of Agriculture, receive the hearty approval of this association, and it is recommended that the various municipalities of this district take steps to put it into force.

5. That this association again put on record their appreciation of the efforts put forth by the Minister of Agriculture of this Province in assisting and furnishing material for treatment on such liberal terms, and for the great interest taken in this matter ever since the discovery of Scale in this country.

We moreover believe that these have resulted in confining the Scale largely to those sections in which it was originally located.

It is hoped with the knowledge gained and with a more thorough and complete use of

the proposed methods of treatment, that the coming season may see some very tangible results in reducing the infestation of Scale in all localities where it may have obtained a foothold.

"Will crude petroleum kill the cherry aphid?" asked one who had lost his whole crop by it. The inspector said, "Yes, if applied early enough."

"When is that?"

Just before the leaf buds open. The young lice hatch out in advance of the leaves, and may be seen with the microscope to be quite lively at that time. That is the time to kill them with crude petroleum, or with kerosene emulsion. "With the former," said Mr. Fisher, "don't hold the nozzle in one place till it drips; just apply a thin mist, and you will do the trees no harm, while you will destroy the aphid."

Cherry Aphid.—Mr. D. J. MacKinnon at the same meeting asked if the cherry tree would bear treatment with crude petroleum for aphid. Mr. G. E. Fisher said they should receive a very light application. The ordinary vermorel nozzle has too large an opening, but with a smaller opening, about the 40th of an inch in diameter, it would be possible to treat all kinds of trees with crude petroleum, before the leaves were opened, without evil effects.

Seasonable Work.—People have queer ideas, continued the inspector. They waste their time spraying out of season. This is the time to prepare your trees, and get ready. The trunks must be scraped; the trees must be closely pruned; the pumps

and nozzles be put in order, and all other work got out of the way so that about May 1st, when the buds are nearly ready to open, nothing will be in the way of doing thorough work.

* * * * *



FIG. 2250. EXPORT PEARS—ANJOU.

PEARS FOR EXPORT.

Pear growing for export was the subject of a most practical address at the same meeting by Mr. D. J. MacKinnon, of Grimsby. A few years ago, he said, I purchased a worn-out farm, of which the lower part was not planted. The soil of this part consisted of a black clay loam from 12 inches to 2 feet in

depth, and the subsoil was a quick sand, almost always saturated with water. This I prepared for my commercial pear orchard by a complete drainage system. Through the lowest part I ran a drain five feet deep to the lake, and into this I ran side drains 60 feet apart, so fitted as to empty vertically and never clog.

Varieties.—Being satisfied that pears in cold storage would carry safely to the

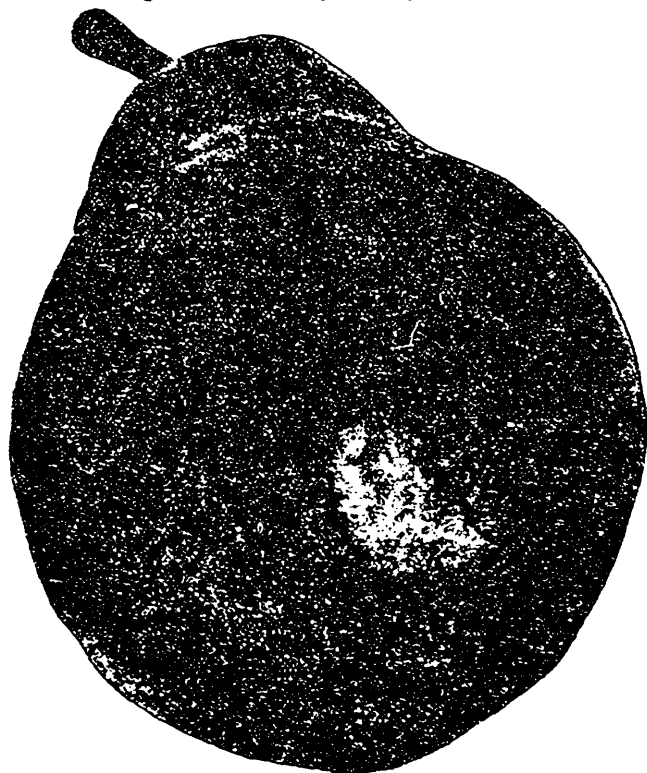


FIG. 2251. EXPORT PEARS—BARTLETT.

British market, I next planted 2,700 trees. I planted too many varieties.

"What varieties would you plant now?" someone asked.

"I would plant Duchess, Louise, Bartlett, Anjou, Kieffer and Hardy."

"I would add Howell to the list," said the writer, "and Bose."

"Well, my Bose trees are not good grow-

ers, and that is the fault I find with that variety."

"Top graft them on some good grower, and they would do better," was the response.

"What is the Hardy like?" asked a grower.

"It is a beautiful, smooth, even sized variety, of excellent quality, of about the same season as Duchess: the tree is vigorous and never blights."

"What distance apart did you plant?"

"Well, for the most part the rows are twenty feet apart, and the trees ten feet apart in the rows, every other a dwarf. I wish now they were all about 16 x 16, and the dwarfs by themselves."

Tillage.—I gave the pear orchard clean tillage at first; but later I tried rape, crimson clover and cow peas, and they all seemed to fail on stiff clay, without a special manuring. Clean tillage I found induced pear blight, so I sowed clover, and since have not applied barn manure to my pear orchard, and indeed the soil has not seemed to require it, for I have had beautiful large, high colored fruit, and excellent growth of wood on the trees. Crimson clover has done well with me; I sowed it in July, and cut it in the following June, disked the ground, and it reseeded itself. I ploughed the ground in July, a week or two after it was cut, and it came up a thick heavy crop, too deep rooted to be scalded by the hot sun.

* * * * *

Fruit Growers' Institutes.—Mr. L. Woolverton addressed the meeting in the absence of Secretary Creelman, on the advantages

of the affiliation of all local Fruit Growers' Associations with the Provincial Society, so as to work in greater harmony. The plan of work would be somewhat like that of the Farmers' Institutes, and meetings would be held during March and April over the whole country, and be addressed by a fruit expert. The membership fee would be 25 cents. Mr. W. H. Bunting also spoke on the same subject, viewing the scheme with much favor, and he moved the following resolution which was unanimously passed, viz.:

Resolved that this association learns with pleasure that the Department of Agriculture has taken steps through the Secretary of the Ontario Fruit Growers' Association, Mr. G. C. Creelman, towards organizing throughout the Province in the various agricultural district, Fruit Growers' Associations which will affiliate with the Provincial Association, and will be a channel through which the fruit growers of this Province may act in unison on matters which may arise in which concerted action may be advisable and necessary.

* * * * *

ORIGIN OF THE AMERICAN GRAPE.

Dr. Jessop, M.P.P., of St. Catharines, gave an address on the origin of the American grape, which was very instructive. It dealt with the origin and history of the *Catawba*, that first great American grape, still one of the leading varieties in cultivation, found wild in North Carolina in 1802; the *Isabella*, introduced from South Carolina into New York State in 1816 by Mrs. Isabella Gibbs; the *Diana*, a seedling of *Catawba*, exhibited at Boston in 1843 by Mrs. Diana Crehore, the originator; the *Concord*, a seedling introduced by Mr. E. W. Bull, of

Concord, Mass., about the year 1850; and the *Clinton*, now widely used in Europe as a stock on which to graft other varieties because of its immunity from the dreadful phylloxera.

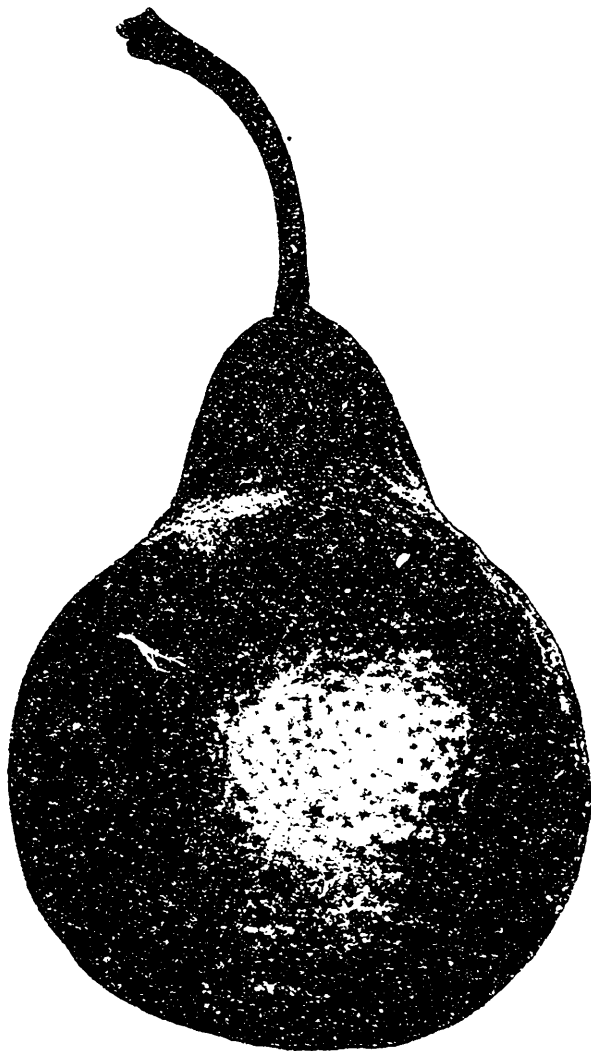


FIG. 2282. EXPORT PEARS—THE BOSC.

THE FRUIT GROWERS OF PRINCE EDWARD ISLAND IN PARLIAMENT.

FATHER BURKE THE NEW PRESIDENT.

IF any note more than another ran through the recent annual meeting of the Fruit Growers' Association of this province, that note was hopefulness. There is great hope in the fruit industry all over the Federation, and Prince Edward Island is especially hopeful. She knows now unmistakably that she can grow excellent apples, plums, cherries and even pears; all the small fruits and berries she likes; there is no serious pests menacing her orchards; no dishonest packers within the borders; she is nearer the great British Market than the rest of Canada, and her sons are awakening to the great things that are for them in fruit-growing. The governments, too are recognizing the value of the work the association is doing, and we are disposed, both Federal and Provincial, to act more generously with it in future. We are agog, then, with expectation.

Briefly, we might say that the usual range of association matter was traversed at Charlottetown, on the 11th. President Bayfield's address narrated the steps taken during the year and pointed out the new year's duties; the papers by J. S. Clark and Richard Burke, Fruit Inspector, on "Apple Growing Generally" and "Cranberry Culture" and the numerous able addresses, by Judge Fitzgerald, F. L. Hazard, K. C., Professor Macmillan, John Newson, John Robertson, J. H. Gill, J. Guard and, John Johnston, on some phase or other of Horticulture, gave the meeting all it could well consider. And I had pleasure in interpreting the message of good will and God-speed confided to me by the Association of Ontario, which was joyfully received and

heartily reciprocated. I also, attempted to convey a few of my impressions on your splendid organization, your meeting, your men, and what you transacted at Cobourg. An interchange of experience does much good.

The work of the Annual Meeting is synthesized, in its resolutions. We were anxious

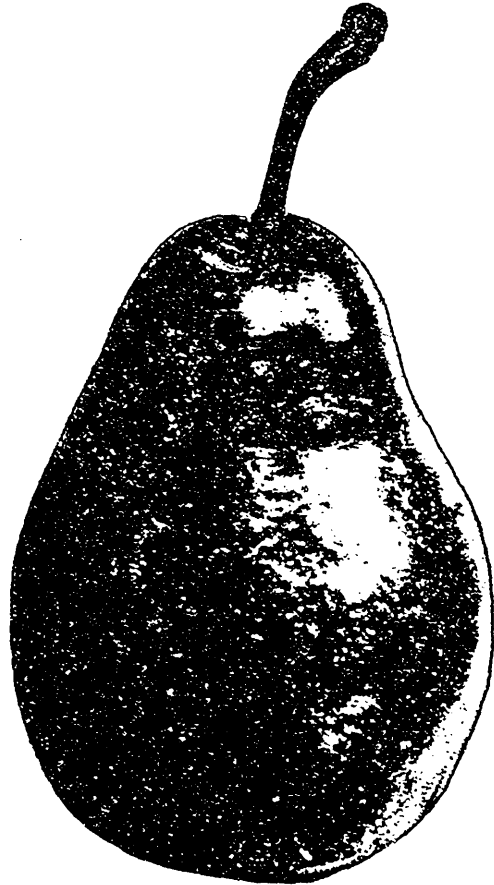


FIG. 2283. EXPORT PEARS—THE LOUISE.
(Page 141.)

to help on the general demand for better transportation, cheaper carriage, more honest packing, and a proper appreciation of the possibilities of this fruit interest of Canada. There has been so much reported on those subjects that it would not be well to load your columns with anything of what was said here. These resolutions were forwarded to the right quarter:

Moved by Mr. John Newson, seconded by Rev. R. E. Burke,—

Whereas great dissatisfaction prevails all over Canada, owing to the exorbitant rates charged by railways in the carriage of fruits in barrels or otherwise; and whereas the matter has without any good result been repeatedly brought to the notice of such railway corporations, by resolution and delegation.

Therefore resolved, as a means to the proper adjustment of this important matter, Parliament be and is hereby requested to name a competent and representative railway commission for the equitable regulation of the transportation question.

Rev. A. E. Burke, moved the following, seconded by Mr. J. H. Gill,—

Whereas it is vital to the fruit exporters of this province to have a properly equipped steamer leave Charlottetown for England at a regular period in the late summer and autumn months at least;

And whereas great inconvenience and loss have occurred in the past owing to this great want;

Resolved therefore that the government be requested to secure in time and properly advertise the sailing of some well equipped ocean liner, so that the fruit-growers of this country may take advantage of well ventilated holds to transfer their apples to the markets of Great Britain.

F. L. Haszard, K. C., moved, seconded by A. A. Moore, that the Federal Government be requested to appoint a competent person to travel throughout the province and give instruction in orchard planting,

cultivation, grafting, pruning and generally in all the operations of orcharding.

Judge Fitzgerald, as supplementary to his remarks on the necessity of beautifying the province and particularly attending to school grounds, moved, seconded by D. P. Irving, M. L. A., that the Department of Education be requested to address a circular letter to the several school districts, asking that a special effort be made this spring to have Arbor Day observed by the planting of shade trees about the school houses.

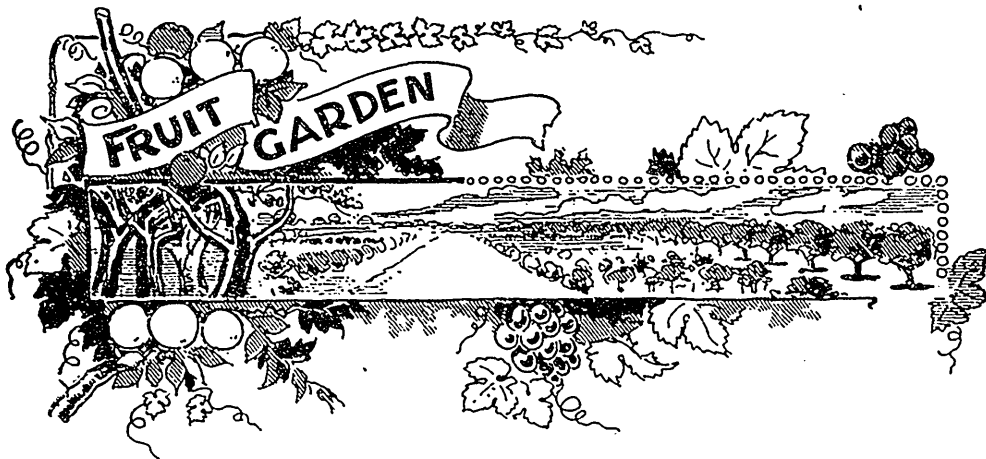
A number of other minor resolutions were gained and the usual vote of thanks, condolence, etc., passed. The sympathy of the meeting was extended to the late president, H. A. Stewart, of Hamilton, since dead. Mr. Stewart was a true friend of Horticulture and his devoted services to the Fruit Growers' Association of Prince Edward Island, will be long remembered.

The elections resulted in favor of Rev. A. E. Burke, for president, J. Johnston, vice-president and Albert E. Dewar, secretary. The Board of Directors contains a few new names; William Wells, Alberta; James Ramsay, Hamilton, and John A. Annett, Manitoba, having never before served.

The question of bringing the Fruit Growers' Association into closer touch with the Institute system, was mooted, but no action taken. Professor Macmillan expressed his desire of doing all he could to forward the association's work. The new officers will certainly prosecute a vigorous and enlightened policy in the interest of Horticulture, and with the assistance of the Federal and Provincial Department of Agriculture, can easily make 1902 a banner year in Prince Edward Island, may we move forward together all along the line.

A. E. BURKE.

Alberton, P. E. I.



THE QUARTER ACRE STRAWBERRY PATCH.

BY T. C. ROBINSON, OWEN SOUND.

HOW CAN A STRAWBERRY CROP BE SUCCESSFULLY PRODUCED ON A SMALL SCALE ?

THIS is a burning question. Our cities and large towns are well supplied with berries, particularly in the Western Peninsula of Ontario, and the business of supplying them is well done, if not overdone, by large growers in the Oakville and Niagara districts. But there are many villages and small inland towns that are very poorly supplied, and the price is consequently high. Such markets offer the largest profits to the small grower, and many a family with only a large garden and small means might be greatly assisted in the battle of life by raising one or two thousand quarts. Hitherto such parties have been hindered not only by lack of familiarity with the best methods of culture, but by the first cost of the plants. Many, doubtless, would be glad to try it if they could know how easily the strawberry can be raised, how well certain varieties will bear with very little manure, and especially if they knew of some way of applying "com-

mon sense and elbow grease" so as to reduce the preliminary outlay.

Besides this class there is the multitude who, finding the price of berries so high in districts remote from the great fruit-growing districts, would like to grow an abundant supply for family use. It is to these classes that the following plan may be of special interest.

First Then as to Soil.—Any good garden soil will raise good strawberries. A good clay loam will perhaps raise the largest crop, but the fruit will not be early, the soil will require more labor to keep it nice and loose, and it must be free from standing water at all seasons, except just after a shower. A good gravelly loam will often give remarkable results both as to amount of crop and size and quality of fruit. Probably the best soil for the purpose is a well-drained loam containing sand and clay in about equal quantities. But even the lightest and poorest sand or gravel that ever grew corn or white

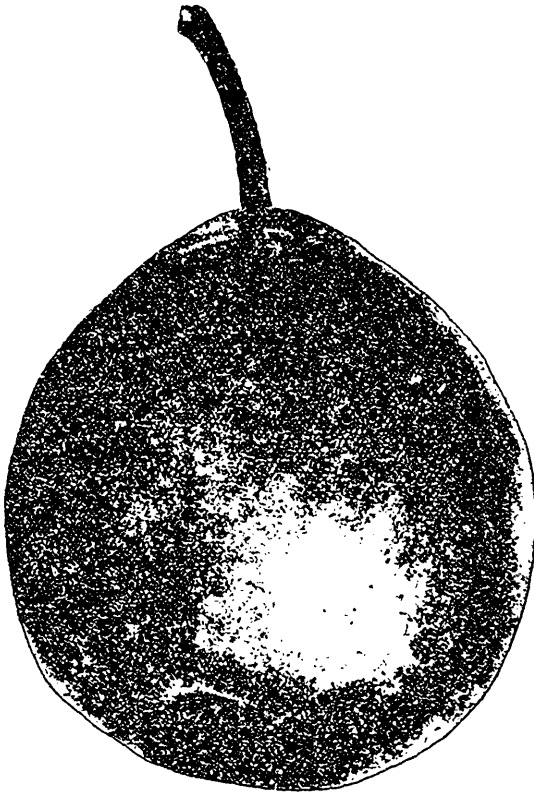


FIG. 2284. EXPORT PEARS—THE HOWELL.
(Page 141.)

beans, will not refuse to grow strawberries enough to please the horticulturist, if he chooses suitable varieties and gives them fair treatment. As a rule, the lighter the soil the earlier the crop. Earliness is also favored by a slope of the land towards the south or southeast. Heavy land inclining towards the north will give the largest and latest fruit.

Manure.—With the land comes the question of manure. A land of natural fertility is generally preferable—almost new land or land broken up from pasture or a clover crop a couple of years previously. But pasture land is unsafe the year it is broken up, and sometimes the next year, because it is apt to be infested by the dreaded “White Grub,” which loves to feed on the roots of

the strawberry plants. As a rule, the richer the land the more profitable the crop. You cannot easily insult the strawberry with manure. Fifty loads to the acre would just suit some varieties, while others will not refuse a crop with none at all. It is strawberry wisdom to give just what you can afford. Let us suppose you apply five loads to the quarter acre.

Now if the soil is selected, but the manure has not been applied, **don't plough it under.** Strawberry roots feed near the surface, and the essence of the manure may go down, but will not come up. So plough the land first. Then put on the manure. If it is well rotted, all the better. If it is even quite fresh, still it will do. It will do if it is well worked in. The fresher it is, the more it must be harrowed in, or it will scorch the roots. Get the disk-harrow on it first, especially if there is much straw in the manure.

Then let the common harrow, or better still, the spring tooth harrow, run up and down, cross-wise, and angle-wise, again and again; then, if any straw stuff shows, get a good heavy roller driven over it, then cut into it all over with the disk-harrow once more, smooth it with the back of the common harrow, roll it finally and send the team home. A good half-day's work of a good team thus **fining** the land will be a fine investment. If the manure was well rotted, you had better plant immediately; but if it was rather fresh, give it a week or ten days to part with its inflammation to the gentle poultice of the soil. Have the land all ready for planting about 20th April if situated in the warmer parts of Ontario, or by 1st of May in the colder districts.

Planting.—Now for planting. The most convenient way to arrange the row will be to use a marker. A sort of sleigh-runner arrangement that any man can make in an hour or two will be convenient. One cross piece of thin batten or siding, 12 feet long,

with little "sleigh-runner" pieces nailed underneath, 3 feet apart—each runner 16 or 18 inches long—the whole pulled by a couple of 10 foot handle pieces united by a cross piece at the outer end and well braced to the long cross piece will make five marks a yard apart; and by letting the outside runner go in the last mark every trip across the patch will mark out four more rows. But the long cross piece must be thin enough to bend readily, or else when you pass over some slight elevation or hollow in the land you will find one or more of the "runners" riding in the air instead of marking. Now when your patch has all been marked for the rows, it is well to go over it again cross-wise and mark where each plant is to stand in the row. If you have lots of plants or plenty of money to buy them, you can secure an immense crop by setting the plants every foot or fifteen inches, and you can increase the crop still further by setting out the rows in pairs only a foot apart with paths two feet wide between each couple of rows and the next. By keeping the runners off and the ground free from weeds and then "mulching"—that is covering ground with straw or waste hay, or, better still, with a two inch coating of half rotted manure in September, the loose strawy parts to be drawn up over the plants in November, when pretty well washed out by the late fall rains you will have ensured the largest crop of the finest berries, so far as one season's human efforts can do it with the means at command.

But a quarter acre patch set out by this method would require about seven thousand plants, which, if to be purchased, would entail far too much expense for most people. I propose to show how it can be done with only

about one sixth of that number—and well done—and the time spent in planting will also be far less, but it will take more time later on. To this end I advise setting the plants over three feet apart in the row. Take the same 3 ft. marker and run it across the rows. Do not run it "square" across, but diagonally at an angle of about sixty degrees. Then when a plant is set at every point where the marks cross, the plants should stand slightly over forty inches apart, and each plant will be exactly opposite the middle of the space between the nearest two plants in the next row, and so on; that is, every plant will be just about 40 inches from the nearest plant in every direction.

This will make it possible to save nearly all hoeing for nearly half the summer by running the cultivator across the rows as well as lengthwise. I recommend the common hoe as about the best tool for planting by this method. Let it be one with a large blade. The common happy-go-lucky style of spade-planting will not do when the plants are so far apart. You want every plant to live, and with fair treatment they may. Strike with the side of your hoe in

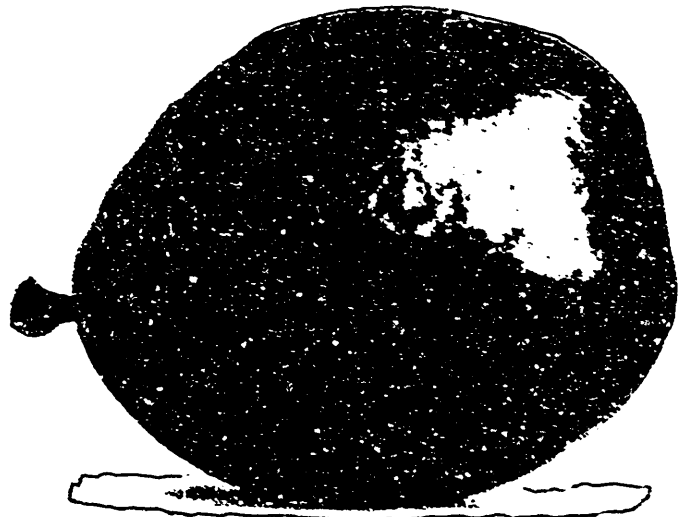


FIG. 225. EMERT PEARS.—THE KIDNEY.
Page 141.

the middle of the mark, and scoop out the earth as deep as the length of the roots that are to go in. Make only twenty or thirty holes before you plant, if you are doing the work alone, keeping the roots of the plants meanwhile in wet moss or moist earth, but not in water lest they rot. Give each plant a jerk, to spread out the roots as you put it in the hole; lean it against the side next the mark, and set it so it will stand nearly an inch deeper than it stood originally, to allow for the settling of the soil; but be careful not to cover the crown—that is the top of the thick stem from which all the leaves spring. Now scrape with your foot about half the soil that was hoed out back in on

the roots so as to cover them well up to the stem, and then step in the hole. Do not be afraid to lean your whole weight on the soil just over the roots. It is life to the plant to firm it well.

Now if the soil is rather dry, and the day hot, this is the point to apply half-a-cupful of water, and let it soak away before filling up. But in early planting, the plants are so nearly dormant, and the soil so moist that that no watering will be needed. Just scrape in the rest of the soil with your foot and go on, but be sure to leave it as loose as possible on the surface. Now you will find it has taken only a little over one thousand plants to set out your quarter acre.

OUR FRUIT INTERESTS DISCUSSED.

THE FRUIT MARKS ACT.

WHEN a man does wrong in any of his public dealings he never does it because he loves to do it but because his neighbor is permitted to do it. When he packs his apples for market he does not put the large ones at each end of the barrel and his culls in the centre because of any natural inclination to cheat or deceive, but because his neighbor is allowed to do it, and he cannot afford to let his neighbor have an advantage over him. Now that the Fruit Marks Act has been introduced and is being enforced, the farmer or fruit grower is hard to find who does not approve of it and hail it as one of the best things that the Fruit Growers Association has yet done for the general public. I meet with many farmers and in speaking of the Act they all admit that it is a good thing,

and that we will soon have honest packing if it is properly enforced.

Mr. Elmer Lick will bear out the gist of this testimony, I think so far as this County is concerned. Mr. Lick visited this County in institute work, and I never saw a greater interest taken of the farmers generally in what a speaker had to say than they did in Mr. Licks talks in connection with the Fruit Marks Act, and the handling and shipping of apples generally. On the working of this new measure and the result that it is aiming at, Mr. Lick could speak with authority and he found the farmers willing and anxious to hear him. No fruit representative ever did better work, work that left an impression, and calculated to lead to good results than Mr. Lick did through this district this year. The Fruit Marks Act is all right, and it is

already evident that the public are going to accept it as a good thing.

Mr. W. N. Hutt did an equally good work in another line which must lead to good results through this western section of the province. It is in fact greatly to be deplored that there are very few new apple orchards being planted, and very little care given to the old ones through many sections of the west now-a-days. I think I see in the Fruit Marks Act, and the object lessons which Mr. Hutt is giving in pruning and grafting, a fair promise of a revival in apple culture. I happened to have charge of the Institute meetings in one or two localities here when Mr. Hutt was in the Country, and was told that it would be time wasted to start him talking about pruning apple trees. I took the risk, however, and the result was most gratifying. Mr. Hutt's object lessons in

pruning are still being talked about, and if they could be supplemented in a number of localities not reached, I know the results must be good. Mr. Creelman I believe, has in view a scheme that will meet this suggestion, as soon as he can secure a sufficient staff of practical demonstrations to meet the requirements of the several districts yet untouched. He cannot get his scheme into operation too soon, and he cannot get any man who will do it fuller justice than Mr. Hutt. If all the other apple growing districts of Ontario have been as well served as this one has been this year by Mr. Lick and Mr. Hutt, we may look for an early and general revival in the interest taken in apple growing throughout our magnificent province.


T. H. RACE.

Mitchell.

SOME INSECT ENEMIES AND HOW TO FIGHT THEM.*

BY PROF. W. LOCHHEAD, O. A. C., GUELPH.

THE PLUM-TWIG GALL-MITE.

 ON Feb. 27th, I received from Mr. Geo. E. Fisher, Freeman, Ont., a package of plum twigs which had peculiar rings of small, gall-like growths at the base of nearly all the buds. Mr. Fisher stated in the letter of transmittal that the twigs were obtained from an orchard near Queenston, and that the orchard was suffering from the injuries sustained.

On cutting open one of the galls, I saw at once that the interior (often with more than one cavity), was filled with a large

number of minute white mites, which at this season are dormant. Under the microscope they were seen to be elongate-oval, four-legged, and provided with whip-like appendages at the tail end. Unacquainted with this particular form of mite, I applied to Dr. Howard, of Washington, for information, who informed me that the mite was the Plum-Twig Gall-mite of Europe, *Eriophyes (Phytoptus) pilicoptes*, and that it had probably been intro-

*Notes from the Biological Department of the Ontario Agricultural College.

duced from Europe on plum stock. It appears that this Gall-Mite is now quite widely distributed over the north-eastern part of the United States.

Prof. Slingerland, of Cornell University, described the work of this same mite in the December number of the Canadian Entomologist for 1895. His specimens came from a plum orchard in Pennsylvania.

So far as I am aware, the life-history of the mite is not well known. It appears, however, to migrate early in the spring from the gall to found new galls. This fact suggests two lines of treatment: 1st, to spray with kerosene emulsion or whale-oil soap solution, when the mites are leaving their winter quarters; and 2nd, to prune heavily in early spring, cutting away as many of the gall infested twigs as possible, and burning these immediately. It is doubtful if the first treatment could be carried out with any degree of success, for the mites are so minute (about 1-180 inch long), that few orchardmen could observe the migration. Besides, we are not quite certain as to the exact date or time of migration.

The pruning treatment seems then to be the only practicable one, and if the method be carefully followed for one or two seasons it will have a decidedly beneficial effect.

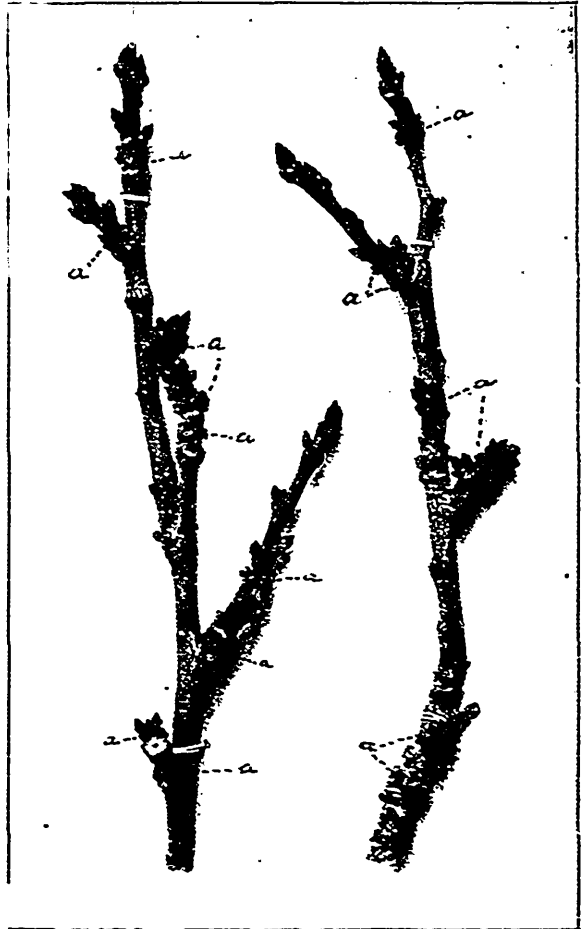


FIG. 2250. PLUM-TWIG GALL MITE.
Two Plum Twigs affected by Plum-Twig Gall-Mite.
The galls are small and are arranged in circles at the base of the buds.

APRIL.

The pretty herpatias hid in the brake,
Are calling the alder and cat-kins to wake.
Miss Dogwood is dressed as a beautiful bride,
And seeks in the shadows her blushes to hide.
The many blue violets rustle and glow,
All wrapped in their flanne, stuck under the snow.
Thy feet, welcome April, I hear on the hills,
And thy laugh in the sound of each gurgling rill.
The old brown is turning to emerald hue,
And the meads and the woodlands are clad in the new.

I joy in thy brightness, I drink of thy light,
Kiss the hem of thy garment all bordered with white.
With a smile on thy lips, and a tear in thine eye,
Thou art come tickle April, so lovely and shy!
All birds are thy orchestra, glad in thy wake,
The prince of the forest, the mountain, the lake!
The earth owns thy power on land and on sea—
Oh, welcome sweet April, thou child of the tree!
The ice king recedes when thy step draws a near,
And the tulip and crocus cry, lo, spring is here!



SEASONABLE NOTES FOR APRIL.

THE unusually fine weather experienced here in this section of Ontario during the early part of March, makes it somewhat difficult at this date—March 12th—to outline very closely what operations may be necessary or adaptable for the month of April amongst the plants and flowers. With the mercury registering about 52° at midnight, 70° in the shade at mid-day, and the pleasant warbling of robins and greybirds greeting one on every side, to say nothing of reports of sowings of sweet peas, etc., having already been made in the open ground, it is difficult to realize that we are yet three weeks and more from the beginning of April, or yet clear of winter weather. It is spring seasons such as this that tempts those who have tender or half hardy plants to expose them somewhat too abruptly from their warm winter quarters to the uncertain weather conditions that often follow these seductive spells of summer in early spring. The transfer of plants from their winter quarters to out door life always requires the exercise of care and discretion, much more in seasons such as the present one when spring promises to be unusually early.

A word or two of timely warning may prevent the loss of some favorite plants. I am aware from my own past experience that reminders of this kind are necessary at this season of the year, when we are perhaps too eager in anticipating the delights of summer in the garden, by undue haste in exposing tender or half hardy plants to uncertain weather conditions outside.

THE GREENHOUSE.

Bedding Plants.—The latest struck cuttings of these should now be potted off, so as to become established in the pots prior to being hardened off outside later on.

As a rule carnations, geraniums, mignonette, early sown asters and other comparatively hardy plants can be transferred to a cold frame outside. A sash as well as other protective material should, however, always be in readiness to cover them up with in cold weather. Coleus, heliotrope, lobelia and the more tender varieties are safest in the greenhouse until all danger of frost is past. It is always wise to shade plants for a few hours in the hottest part of the day for perhaps a week until the growth has become hardened to the more exposed position that

a sash and frame gives, especially if the plants have been kept in a very close greenhouse. The little dwarf growing bedding plants known as alternanthera are often very difficult to secure cuttings from for propagation purposes. A good warm (not rank) hot bed is the best place to put stock plants of alternanthera in to secure rapid growth. Plunge the pots or boxes into earth or ashes up to the rim and keep them close except on sunny days. Young plants as well as stock plants can be made to move rapidly by this treatment. Heliotrope, coleus and achyranthes can be treated in the same way, but these last mentioned require more air than the alternantheras do, on bright days, and perhaps a little shade on very hot days.

Cannas.—Roots of these plants should be brought from underneath the benches or from the warm cellars where they have been wintered in. If the clumps are large it will be best to divide them up into clumps having from two to four good strong eyes. This can be done by simply breaking away the one section from the other with the hands. The use of the knife in this operation should be avoided if possible. Pot the small clumps up into fairly light soil and water thoroughly once. Very little water will be required afterwards until the plants have become well established. Cannas treated in this way can be brought on early and give immediate results when planted out. The pots of these can be stood down on the walks to start them, if the situation is not too dark, and care is taken that they do not get too much water. The possibilities of the canna as a summer decorative plant are only commencing to be realized. The recent introductions of dwarf growing, large flowering plants will assist greatly in advancing their present popularity. It is quite possible, taking the coleus as an example in this respect, that we may see as great an advancement in cannas in regard to decorative foliage during the next decade as there has been with coleus, when compared

with the first introductions of the "East Indian Nettle," as coleus where at first commonly termed. Imagine a canna of dwarf habit than the Charles Henderson (three feet), a spike of flowers equal to the flowers of the Burbank Canna, and foliage that will vie with the beautiful markings and rich coloring of a pandanus veitchii, or of a spotted diffenbachia, or with the deep rich shadings of a maranta; and you will have an imaginary glimpse of what I predict will be a near approach to the ideal canna of the future. But this is prediction and not seasonable notes on the culture of the canna.

The foliage of the canna, especially when young, is very tender, and on that account requires care on first taking the plants out of doors. Late in May or early in June is about the best time to expose them outside.

Shading.—Plants will require careful shading and an increased supply of water as the heat of the sun increases. Water and syringe the plants early in the day. Close ventilators early in the afternoon. Give increased ventilation as required.

The Herbaceous Border.—About the end of April or early in May is the best time to attend to herbaceous plants in the flower garden. Any dividing or transplanting of

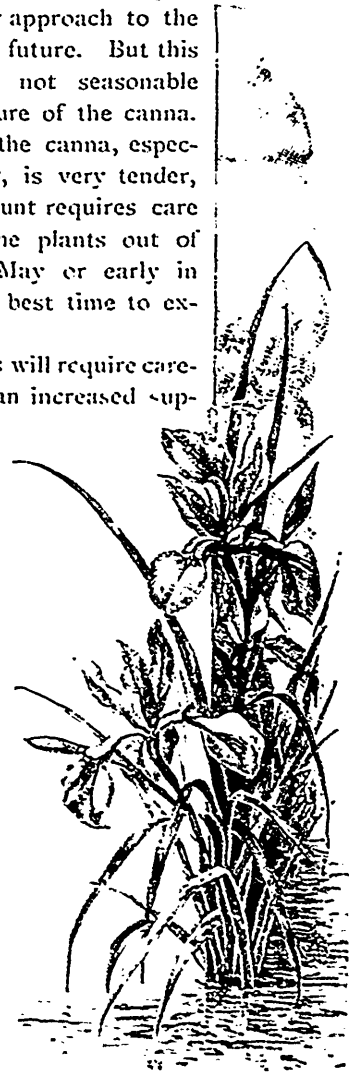


FIG. 2257. IRIS.

the early flowering perennials should be done as early as possible. The pretty little pink and white flowering phlox *subulata*, or moss phlox as it is sometimes called, should be divided and transplanted very early. A better time to do this, however, is early in September, so unless the growth has got very straggling this can be left over until early fall.

Both the herbaceous and tree pæonies should be transplanted early if done at all. Dielytras and clumps of German Iris should be divided early. All of the plants just mentioned will, however, grow and thrive and produce their flowers in abundance for three or four years, without being divided. After that period transplanting is beneficial, as larger flowers, higher colored and more luxuriant foliage can be obtained than by leaving them in dense matted clumps for too long a time.

Herbaceous spireas (*Spirea auruncus* and *S. filipendula fl. plena*) can also be transplanted early. About the first week in May will be early enough for most of the later flowering perennials. A good general rule to work on at this season of the year in regard to transplanting perennials is to divide and transplant them when the young growth is about an inch high. Exact dates for a week or so cannot be given as the best time for these operations, as situations and seasons vary so much, but about the end of April and early in May is about the right time in this section of Ontario.

Best Twelve Herbaceous Plants.—I am often asked what I consider are the best twelve varieties of herbaceous perennials. The following twelve species, many of which can be had in several varieties, will be found to be hardy, easy of culture, and will come into flower in succession from early spring until late autumn. This latter feature, viz., successive flowering period, I consider one of the main points to be thought of when planting a border, or even a few plants of herbaceous perennials. Hardiness, and an



FIG. 2288. PÆONY.

adaptability to grow readily in almost any soil, is another point that has been taken into consideration in making up this selection, as well as their suitability for cut flower purposes. They are given here in about the order that they will come into flower. I have also given the average height of the plants, a point lost sight of sometimes and one that causes dissatisfaction oftentimes later on.

1. *Iberis sempervirens*, 6 inches.
2. *Dielytra spectabilis*, 2 feet.
3. *Iris Germanica*, 18 inches (in variety.)
4. Herbaceous Pæony, 2 ft. (in variety.)
5. *Gaillardia grandiflora*, 18 inches.
6. *Campanula persicifolia alba*.
7. *Aquilegia*, 2 feet (in variety.)
8. *Hemerocallis flara*, 2 feet.
9. *Phlox paniculata*, 2 to 3 feet, (in variety.)
10. *Pyrethrum hybrida*, 18 inches.
11. *Achillea*, The Pearl, 2 feet.
12. *Rudbeckia lanceolata*, 5 feet.

This will be found to be a good list of twelve iron-clad border plants, many of



FIG. 2289. COREOPSIS.

which can be had in great variety, especially the iris, paeony, aquilegia and phlox. I would very much like to have added the delphinium, coreopsis, and one of the thalictrums and the beautiful little gypsophilla paniculata so useful for cut flowers, but I

could not see my way clear to omit any of the foregoing list. The thalictrums are most useful for cutting for bouquet green, but succeed best in a shaded position, such as on the north side of a fence or building.

Hardy Roses.—These should be pruned as early as possible, if not already done. Prune closely, leaving from 4 to 6 inches of last years growth below where the shoots are pruned off. Any planting of these, or of hardy shrubs or trees should be done at once. Fork over the rose beds after pruning the bushes. A little fertilizer, such as bone meal, very rotten stable manure, forked in around rose bushes or flowering shrubs will help them materially.

Annuals.—These can be sown outside now. A small frame made of boards and placed in a warm position with a few inches of good soil will be a good place to sow most annuals in. They are easier cared for in the early stages of growth treated in this way than if sown in the open border. Mignonette and nasturtium, and perhaps stocks are best sown in pots or in the place they are to grow in, as they do not transplant very easily.

Hamilton.

W. HUNT.

PLANT EXPOSURE.

All the windows of a house can be utilized for plant growing, provided we are careful in our selection, and adapt the plants to the window it is to grow in.

If I were asked to give a list of plants adapted to the several exposures, the list would be something like this: For eastern windows—fuchsias, begonias, callas, Chinese primroses, primula obconica, azaleas, plumbago, stevias, lobelias, and all kinds of bulbous plants. For southern windows—geraniums, roses, chrysanthemums, carna-

tions, lantanas, oxalis, oleanders, abutilons, hibiscus, marguerites, and most of the plants having richly colored foliage. For western windows—bright leaved plants, and a few more 'accommodating' plants like the geranium, provided the effect of too strong sunshine is modified somewhat. For northern windows—ferns, araucarias, English ivies, palms, aspidistra, ficuses and seliganellas, Roman hyacinths, primula obconica and Chinese primroses will often bloom well in sunless windows.—*Amateur Florist.*

SOME ATTRACTIVE CACTI—III.

BY J. H. CALLANDER, WOODSTOCK.

FIG. 2290. *CEREUS PERUVIANUS MONSTROSUS*.

FROM the present appearances it would seem that Cacti are coming into more favor with the general flower-loving public. There is scarcely a floral magazine that is not running a series of articles on these wonderful plants, and this shows that the people are enquiring about the genus. There is a fascination in collecting anything that is hard to get, and every enthusiast tries to get something rarer than his neighbor has. This is the case with stamp and coin collectors, and it is the same with collectors of Cacti. There is this advantage that the

“Cactus Crank” has, his specimens are always rewarding him with splendid bloom, and yearly growing in value. The field also is unlimited in extent, the known varieties running into the thousands, and abundance of room open for hybridizing and grafting to produce new varieties and effects. As these facts become known the Cactus becomes more popular, and that seems to be what is happening now.

In this article only a few sorts will be touched on. From March onward the Cacti begin to send out their flower buds, and new growth after their winter's rest, and those fortunate enough to possess some good ones will be watching the process with expectant interest.

In the first photo is shown a good picture of the *Cereus Peruvianus monstrosus*, described in the December Horticulturist. This fine plant was grown in London for a number of years before it came into possession of the present owner, and is a valuable

FIG. 2291. *P. C. HOEPENSTETTI*.



FIG. 2292. MAM. NIVEA CRISTATA.

specimen. In a small photo is shown a specimen of *Pilocereus Hoppenstedli*, one of the O'd Man style of Cacti. Some authorities class this family with the *Cereus*, but the characteristic hairy spines would seem to entitle them to their own distinctive name. They are found in mountainous parts of Mexico, and will stand long drought. A very porous soil, with a good deal of lime mixed in, seems to suit them well, and when making growth they enjoy

plenty of water poured over them. Indeed a good scrubbing with soap and water is not only good for them but gives them a better appearance.

The third engraving shows an extremely rare and fine specimen of the *Mamillaria* family. It is *M. nivea cristata*, a cristated form of a pretty species called *M. nivea*. This plant is the finest of the kind the writer has ever seen, and was lately sold to Dean Innes, of London, whose fine collection it now ornaments. It was exhibited at the Pan American with McDonell's exhibit from Mexico, where it was admired and coveted by many Cacti collectors. The natural form of the plant is round, like a coxcomb in shape, and must have taken from 50 to 75 years to reach its present proportions.

These plants are very rarely found, and bring high prices, one very large specimen at the Pan American being held at \$150. It was almost as large as a tub, but was not all cristate, most of it being the natural form of *M. nivea*, with three cristates in cluster. Dean Innes' plant, as a specimen of cristate form alone is much finer.

In our next Cacti talk we will try and show some good grafted Cacti.

Woodstock, Ont. J. H. CALLANDER.

HUMUS.

Soil well supplied with humus is in the best possible condition to generate these influences. Humus keeps the ground from becoming compact, makes it loose, allowing a free circulation of air. Then vegetable decomposition creates heat, and its spongy nature increases the capacity of soil for holding water. While plants need water and must have it, they will not thrive on too wet land. Good drainage adds very materially

to the fertile condition of the soil because it aids decomposition of elements of plant food. It stimulates a deeper root growth, and in doing so it increases the supply drawn from the subsoil. Drainage, manuring, rotation and tillage are practices essential to the supply and maintenance of soil fertility.—*W. S. Tompkins before N. B. Farmers' Institute.*



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

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PERSONALS.

CONTRIBUTED BY THE SECRETARY, MR. G. C. CREELMAN.

MR. W. N. Hutt, of South End, attended orchard demonstration meetings at Collingwood, Creemore, Stayner and Thornbury during the third week of March. He reports great enthusiasm and much interest taken in the work. At each place an afternoon meeting was held in an orchard with a practical demonstration in pruning and grafting. Many farmers declared, after seeing Mr. Hutt demonstrate, that, had they known the principles of pruning themselves, it might have saved them thousands of dollars in their orchards. Such practical work as this by competent men should tend to do away with the transient

tree pruners who, as a rule, know as much about orchard management as a blacksmith does about watch making.

At the meeting of the Orillia Horticultural Society Mr. Hutt made a special plea for nature study in the schools. He appealed to the parents, saying that the children are always interested in anything pertaining to the field or forest and, if they had teachers competent to guide them, there is hardly any limit to the knowledge they would gain, knowledge of a nature that would be a benefit to them in after years. "As a rule," said Mr. Hutt, "children know more about nature in regard to the habits of birds and

insects than their parents do, as they are more observant of such things and more interested in them.

Lawn Making.—Mr. Hutt, at one of the horticultural meetings recently attended, gave the following instructions in reference to the making of a good lawn :—

“In the making of a lawn the point of fundamental importance to be observed is the preparation of the soil. The ground should be graded to a perfect level, but the subsoil not brought to the surface. The ground should be cultivated thoroughly until all weeds have been killed. The seed should be sown very thickly and evenly, and the ground well rolled afterwards. The best seed for a lawn is a mixture of equal parts by weight of Kentucky Blue grass, Red Top and Detch clover. This should be sown at the rate of fifty pounds to the acre if a fine velvety lawn is required. He would not recommend the buying of ready mixed seed, as it generally contains the seeds of many obnoxious weeds. The lawn should be allowed to grow the first year, so that the roots may gain strength and headway, and in the second year it should be cut as often as possible.”

Mr. A. Gilchrist, of Toronto Junction, and Mrs. E. M. Torrance, of Chateauguay Basin, Que., were the delegates this year to the horticultural societies in the east.

Writing from Napanee, the secretary says: “This is probably the strongest and most efficient deputation that has yet visited Napanee. Many beautiful plants were shown at the meeting by the different members of the society. It is proposed that a plot in the town be secured and kept beautiful during the coming summer by the members of the society.”

Dr. C. J. S. Bethune, London, the veteran

entomologist, was persuaded this year to help with the lecture work in connection with the Horticultural societies, and of course he gave splendid satisfaction, and, as far as we have learned, every meeting attended by him was most successful. He was accompanied by Mrs. A. Gilchrist, of Toronto Junction, who is a practical florist and was able to answer all questions in reference to the growing of herbs, trees and shrubs.

At Woodstock Mrs. E. M. Torrance is reported as having captivated the audience. She advocated the growing of shrubs and perennials on all lawns, as in that way only a succession of bloom can be secured at a reasonable expense. Annuals should be used only to fill up and to supply an occasional dash of color. She spoke strongly against planting in rows, or splitting up a stretch of lawn with flower beds. Grouping is far more effective, and it is following nature's plan, which is the aim of gardeners now who have an eye to the beautiful. Among the shrubs that Mrs. Torrance mentioned as growing well in this climate were syringas, lilacs of all varieties, magnolia stellata (a shrub little known here, but which is easily grown and blooms very early), spireas, roses *rosa rugosa* (which comes in a variety of shades), japonicas and others. In selecting shrubs it would be well to have some in which flowers are succeeded by berries, as in that way bits of color would be insured for a long time, often far into the winter. She also gave a list of well known perennials, such as the bleeding heart (which, by the way, may be grown in the house), the perennial pea, rudbeckia, German iris, etc., which are free flowers and easily cultivated. These, as well as shrubs, should be grouped, not planted in rows.

QUESTION DRAWER.

Apple Aphid.

1278. SIR,—Enclosed please find cuttings from apple trees containing sample of insects on apple bark, also peach wood showing puncture of bark. Please give us information on these insects. The apple insect is a new discovery here. *a.* What injury does it do to the apple tree? *b.* What is the remedy, when applied? *c.* Formula for application? This information will be thankfully received. The appearance is like a flea, my glass shows it about as large. The indication of the bark would seem to be the eating into the cambium and following it round the limb. Your reply will very much favor, yours truly, W. C. WEBSTER.

The minute, oval shining objects seen by Mr. Webster in the scars on his apple and pear twigs are the eggs of the green apple aphid, or louse. The lice hatch from the eggs about the same time the foliage appears and suck the juices from the leaves, causing them to curl. Frequently the tender tips of the shoots are killed, and the young fruit is so checked in its growth that it never ripens. The lice multiply rapidly, and often much harm is done; but if a thorough spraying is made immediately after they hatch from the eggs, i. e., as the buds are opening, very beneficial results will be gained. The standard applications are: 1. Whale-oil soap (1 lb. to 2 gallons of hot water); 2. Kerosene emulsion (1 part emulsion, 12 parts water); 3. Tobacco solution (1 lb. to 6 gallons of water); 4. Tobacco and whale-oil soap solution. Paris green applications are of no value.

The punctures on the pear trees are made by the tree-cricket, which does so much damage to raspberry canes.

The little clusters of eggs on the specimens sent belong to the Fall canker-worm.

Some of the scars on the twigs may have been caused by the Buffalo tree-hopper

about which I wrote a few notes in last year's Canadian Horticulturist. The best treatment is to remove and burn all affected twigs during the pruning season, as the eggs will then be destroyed.

The Lime Washes.

1279. SIR,—I am somewhat puzzled about the best time for application of lime wash to trees, after comparing Mr. G. E. Fisher's statements in the February Horticulturist with what Professor Macoun has found so beneficial. Mr. Fisher, speaking of the lime and sulphur and salt preparation, advises that the first spraying be done in April, as late as possible before the opening of the buds; while Professor Macoun on page 57 of same number says—"The mixture (lime and salt) should be applied in the autumn or early winter." Now is there any material difference between the two spraying mixtures? Does the boiling with sulphur destroy the caustic properties of the lime? At the annual meeting our Association (P. E. I.) different members spoke of the successful application of lime wash in midwinter, as suggested by Professor Macoun, to retard blooming and destroy the oyster-shell bark louse. Has anyone used the spray of which Mr. Fisher speaks as a winter application? and why, if they are so nearly similar, does one doctor give his medicine in winter exclusively, while the other does his work in summer?

I value the Horticulturist very highly, and note steady improvement. I thank you for marking my copy "complimentary" last year though I had paid for it with my annual fee to our Provincial organization. We expect to accomplish something more than usual in our Association this year as we have efficient officers in Messrs. A. E. Burke and Dewar for President and Secretary. I fear that Diagram 2242 would not help Professor Hutt very much in his explanation of sap circulation; it was a puzzle to me until I noticed the roots were upwards.

Yours truly,

JEREMIAH S. CLARK,

Bay Views, P. E. I.,

Feb. 22.

These mixtures are totally different. Prof. Macoun's was simply to retard the bloom in spring and may be applied in winter, while Mr. Fisher's is a fungicide and insecticide

both, and one which is best applied just before the buds open.

We regret the oversight in the case of the illustration.

San Jose Scale.

1280. SIR,—I want you to send me formulas and directions for spraying peach trees for the Curl and for the Perniciosus Aspidictus.

JONATHAN McCULLY, M. D.

Cedar Springs Ont.

1. Peach Leaf Curl has been, and is being treated, successfully by the use of Bordeaux Mixture. The spraying should be done early in the spring before the buds begin to swell, or from one to three weeks before blossoming. The success of the operation depends largely upon the time of application and the thoroughness with which the spraying is done. The twigs should be completely covered with a very fine mist, and this can be done only with a very fine nozzle. The tree must not be drenched. As soon as the mist droplets begin to run together, then is the time to stop spraying, and the trees have had enough.

2. Experience has shown that the San Jose Scale can be kept in check by careful applications of whale-oil soap, and Crude Petroleum. The soap can be used most effectively while the buds are swelling. The buds of tender trees are likely to be damaged if the application is made earlier. (For advice regarding the best brand, consult Mr. G. E. Fisher, San Jose Scale Inspector, Freeman Ont.) The soap should be used at the rate of two and one half pounds to a gallon of water, and one and one half gallons of the mixture are necessary for a full grown peach tree. It is preferable to prepare the mixture by adding the soap when the water is being heated over the fire, as the soap will come into solution much better. In the case of the crude petroleum, it is far safer to use the 20 to 25 per cent. diluted crude petrol-

eum. (Consult Mr. Fisher as to the best petroleum to use.) Our Ontario petroleum Mr. Fisher has found excellent. Peach trees, however, which have been weakened from any cause, are liable to injury from its application. Mr. Fisher thinks that 15% dilution is quite strong enough on peach trees. Of necessity, this dilution must be applied with a combination emulsion pump. The whale-oil soap is not likely to do as much injury as crude petroleum when applied by careless or unskilled sprayers.

O. A. C. Guelph. PROF. LOCHHEAD.

Best Fertilizer.

1281. SIR,—Will you please answer through the Canadian Horticulturist which is the best kind of fertilizers for loamy soil and how many years they will stay in the ground—some kinds will stay three years—and oblige

A SUBSCRIBER.

It is impossible to say which is the best fertilizer for a loamy or any other kind of soil. Artificial fertilizers can be intelligently and economically applied only when the nature of the soil and the peculiar feeding power of the crop that is to be grown upon it are known. For instance, if a soil is rich in available potash, and the crop to be grown is not in need of much of that plant food, it is evident that potash would be applied at a loss. It would, I think, be best to find out by experiments with small plots which fertilizer gives the best results on your land before going extensively into the use of them.

The cheapest nitrogen for farmers or orchardists is obtained from the growth of leguminous crops, such as clover, peas, hairy vetch, etc., and, under most circumstances, wood ashes furnish the cheapest potash and phosphoric acid.

Chemical Dept., Yours truly,

O. A. C., Guelph. R. HARCOURT.

OUR AFFILIATED SOCIETIES.



FIG. 2203. COLEUS BED IN MR. GOODMAN'S GARDEN AT CAYUGA. (Photo by Sweetman).

Cayuga. - The last mission of our society is to strengthen the individual hands of the local members in the improvement and adornment of their homes, so that public opinion will approve of them when they fearlessly say with "Elizabeth in her German Garden," "I love my garden!"

At the present time it is, in small places like Cayuga, considered effeminate to be fond of flowers. One is met with a remark of this kind; "Oh yes it is very pretty, but we have no call for this sort of thing." The farmers about us prosper and thrive, but the little villager nods away a local existence on a put-off plan and stunts and dwarfs the development of his intellectual vision with a self-possessed conceit that knows it all. Each year finds him in the same rut a grocery politician fighting improvement, a makeshift regardless of all ordinary laws of sanitation, accustomed to fence a piece of the street when he likes, bound to throw his filth where he will, blind to duty, obstinate and dirty; full of a pugnacity in public matters that tends to poverty of soul and pocket.

The growing distaste for country life is not because of the farm. Our country is full of noble, intelligent farmers; it arises in protest against the little villager.

Imagine then the consternation at the temerity of our society advocating public gardens, and securing them, too, the first season. We read of, look at and enjoy the public gardens of Toronto, Hamilton, Quebec and Montreal, but in the country where it should be the easiest place of all to have these things it never heard of. It was con-

trary to nature—no, not contrary to nature, but contrary to the nature of the little villager.

The farmer is brought up to work; the little villager is the product of perfect idleness.

A local society has a great and noble work. If its members are faithful, it is possible to materially change and improve many small places. Our society has found much help in the success of the many individual gardens in this season just past.

A. K. GOODMAN.

The second open meeting of the Cayuga Horticultural Society was a pronounced success in all of its features.

For rare occasions like this the Court Room if possible is secured, and there is no prettier and statelier room within the county for a public gathering of a semi-social character such as this was.

By a very simple arrangement the tables of the Court Circle, the Clerk's and Judge's desks made a perfect little platform with a background of shelving rising tier on tier for the display of a profusion of plants and flowers that was truly a dream of beauty and loveliness.

Begonias from giant towering, gorgeous shrubs five feet high crowded with a very wealth of bloom down to the dainty two-branched little beauties carrying only a couple of balls of bloom. These flowers were the most in evidence and occupied the highest and most prominent place in the floral terrace. These were flanked on either side by splendid palms, tall, sweeping graceful ones of the grounded type, and a magnificent specimen of the nicotine plant.

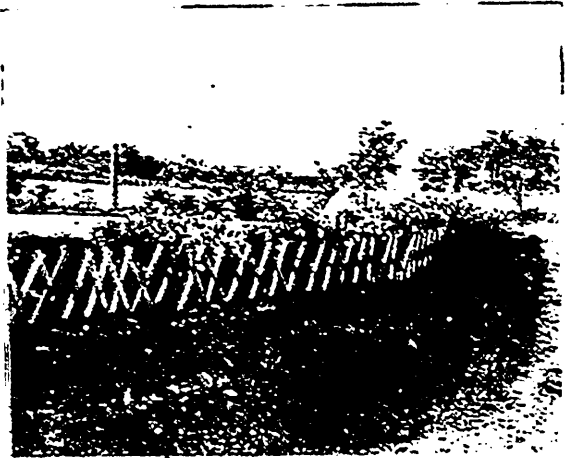


FIG. 2204. ASTER BED AT CAYUGA.

Just below this line on the next step was a magnificent miscellany of geraniums of all colors with great spikes of bloom. Petunias, sword palms, ferns, dianthus and coleus, the central portion being here occupied by a splendid easter lily. The base line was formed by a splendid array of primulas, Irish primroses and hyacinths. The effect of the whole was a spectacle not often seen. The most refined homes in the town were exploited for the material for the display and the contributors are to be congratulated on a result the memory and the impression of which will not soon be forgotten. The arrangement and the grouping and blending were dictated by an artistic sense that was given free scope.

No trouble was spared and a good deal of expense was gone to.

The finishing touches of this magnificent flower show were given by the addition of a coronal drapery of pink and white depending from the alcove of the portico behind the Judge's seat and surmounting the whole formal edifice, and the addition to the collection of flowers already described, of a gorgeous collection of a cineraria and cyclamen in full bloom and of every variety of shade. The piece de resistance was a small table gracefully draped, literally thronged with vases containing showy bouquets of carnations, tulips and narcissus. The apex of the drapery was crowned with a huge bunch of American Beauty roses.

The audience for the evening entertainment began to gather early and at 8.15 there was not a seat left in the building from the floor to ceiling. At this hour Mr. Goodman opened the entertainment with a neat speech stating the aims and purposes of the Society for the year 1902.

The Cayuga orchestra of seven pieces were present and added to their already well established reputation as a musical organization. The programme was carried out in its entirety except the numbers of Mrs. and Mr. Renshaw from York whom the impassable roads prevented from attending. Miss Matthews from Toronto was heard for the first time in Cayuga in two songs every note of which was appreciated. This young lady possesses a very sweet, true and expressive voice. There is sympathy in every tone and she added much to the enjoyment of the evening.

Mr. Farmer of the Bank of Commerce contributed two numbers, both of which were enthusiastically enjoyed. This, too, was Mr. Farmer's first public appearance in the town, and Cayuga people are hoping it will not be the last. Mr. Farmer is not new to the concert stage, having won golden opinions from the best teachers in Toronto and elsewhere. His rendition of his two selections was indeed a treat to his audience.

Professor Macdon and Mr. Goodman supplied the addresses of the evening.

Walkerton. The first public meeting of this society took place in the opera house on Thursday evening, March 13th. The Mayor of the town occupied the chair and the Walkerville orchestra provided delightful music. The speakers of the evening were Messrs. M. H. Race and L. Woolverton, of Grimsby. The former gave a most delightful and inspiring address on the influence of flowers upon the life and character, and the latter

took up the subject of landscape art as applied to home and school grounds. The interest was intense from first to last and the society hopes to stir up the town to attend some special work along the lines of special improvement.

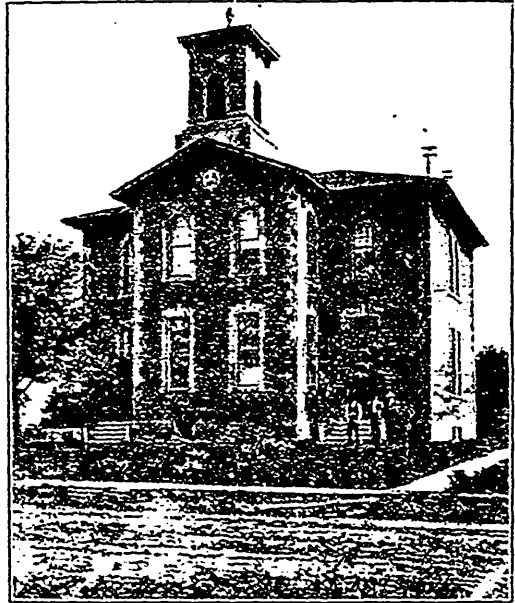


FIG. 2295. THE HIGH SCHOOL AT CAYUGA.

Brampton.— On Friday, the 7th of March, Mr. A. Gilchrist, of Toronto, and Mrs. Torrance, of Chathamqueay Basin, P. Q., visited us, and at the same time the editor of our monthly journal, Mr. Woolverton. Visits were made in the afternoon to the high and public schools, and addresses given with a view of interesting the children in nature study. The evening attendance was small, because of negligence in advertising, and scarcely anyone seemed aware of the meeting. Mrs. Torrance talked about "Plants which were successfully grown in her garden"; Mr. L. Woolverton upon "Civic improvement as work for our horticultural societies"; and Mr. Gilchrist exhibited a chart showing how school grounds might be so improved as to afford spacious playground in the rear, and also a beautiful and artistic lawn in the front, with borders of trees, shrubs and flowers.

Toronto.— A Fine Flower Show. Quite a new plan of exhibitions has been adopted by the Toronto Horticultural Society. Instead of having one large annual exhibition, there will in future be one held each month in St. George Hall of flowers, either house or outdoor, then in season. The object is to induce the public in general and amateurs in particular to take greater interest in the cultivation of plants, and it is thought more can be accomplished by monthly displays than by one big exhibition during the year.

Napanee.—A very large and successful public meeting, under the auspices of the Napanee Horticultural Society, was held here on Tuesday evening, 4th inst. It was one of the most successful and pleasant meetings yet held by the society. The speakers of the evening were Mr. A. Gilchrist, of Toronto Junction, and Mrs. Torrance, of Chautauquay Basin, near Montreal. They are both first class speakers and practical horticulturists, and their services have been engaged by the Fruit Growers' Association, in connection with the Ontario department of agriculture. They were probably the strongest and most efficient deputation that has yet visited Napanee in any such capacity. The chair was occupied by Mr. W. S. Herrington, K. C., vice-president, who made one of the most complete and practical chairman's addresses the society has ever had the privilege of hearing. It is well worth publishing verbatim.

At the conclusion of the addresses a vote of thanks was moved by T. Symington and seconded by J. Pollard. Rockwell's Glee Club were present and added much to the pleasure of the meeting by rendering several musical selections in their very efficient manner. A question drawer, and the practical answers it drew out, was also a very valuable feature of the meeting.

Another thing that added to the pleasure of the meeting was the fine exhibition of plants by some of the well known members of the society. Mrs. Wilkinson, the efficient president, gave a display of some very fine specimens of hyacinths. Mr. John Wilson and John Pollard also displayed some beautiful plants of their own cultivation.

The society, under its present efficient management, is said to be now one of the best in the province. Some of its leading members have proposed procuring a small plot central in the town and beautifying it. Such a movement would add much to our town's attractions, and, we doubt not, that some of our leading citizens would cheerfully give

tangible encouragement to it. We have already heard it intimated that some would subscribe liberally for that purpose. Mr. Gilchrist, who has attended many similar meetings, publicly stated that he met here the most responsive audience he had anywhere met similar occasions.

Cobourg.—A meeting of the directors of the Horticultural Society was held on Monday afternoon March 3rd. It was resolved to offer cash prizes amounting to \$40 for excellence in flower gardening during the coming season, and Messrs Hayden and Denton and Mrs. Field were appointed a committee to arrange a prize list, and the conditions of competition. Mr. Hayden suggested that prizes be given for the best flower beds, window boxes, ferneries, earliest potatoes, etc., open to the town, and that there be special prizes awarded to the school children for sweet peas, bouquets, etc. The object of the Society is to encourage local improvement as much as possible. It was decided that the Spring distribution for 1902 shall consist of the following named plants; to which each paid-up member will be entitled, viz:—One of Kelway's new hardy hybrid Delphiniums, one of Kelway's hardy perennial Gaillardias, one of Kelway's choice autumn perennial Phloxes (The foregoing plants have been imported by the Horticultural Society directly from the renowned Royal Horticultural Gardens, established by Kelway & Sons at Langport, Somerset, England). One hybrid perpetual Rose, one one clematis Jackmanni Superba, one box of Carnations.

Leamington.—The directors met on the 15th of February and decided to offer the members Hubbardston, Jonathan and Bismarck apple trees; Monarch and Climax plums; Engold, Dewey and Chairs peach; and Spiraea, Hydrangea, Wiegelia and Honeysuckle shrubs.

OUR BOOK TABLE.

REPORTS.

REPORT OF INSPECTOR OF SAN JOSE SCALE, 1901, by George E. Fisher, Freeman. This report is a most interesting and valuable one, and every fruit grower who has reason to fear the invasion of his orchard by the scale should at once write the Department of Agriculture, Toronto, for a copy.

BOOKS.

CYCLOPEDIA OF AMERICAN HORTICULTURE.—Comprising suggestions for cultivation of horticultural plants, description of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches, by L. H. Bailey, of Cornell University, illustrated with over two thousand engravings, 1902. 3 volumes at \$5.00 a volume. Published by the MacMillan Co., 66 Fifth ave., New York City. A magnificent work and indispensable to the library of every progressive horticulturist. This fourth volume completes the work, which reflects great credit upon the editor and his co-laborers. No doubt it will be in world wide demand.

FUMIGATION METHODS, by W. S. Johnson. A practical treatise for farmers, fruit growers, nurserymen, gardeners, florists, millers, grain dealers, transportation companies, college and experiment station workers. Published by Orange Judd Co., 1902. Price, \$1.

CATALOGUES.

CARNATIONS, Wholesale List, 1902. Also plant novelties and general floral stock. J. Gammage & Sons, London, Ont. **STRAWBERRY PLANTS.** T. C. Robinson, Owen Sound, Ont. Spring, 1902. **F. R. PIERSON COMPANY**, importers, growers and dealers in choice seeds, bulbs and plants, Tarrytown on Hudson, N. Y., 1902. **I. H. GREGORY & SON**, Marblehead, Mass., 1902. Catalogue of vegetable and flower seeds. A fine illustrated descriptive catalogue free to all. **MARLE'S SILVER ANNIVERSARY SEED CATALOGUE, 1902**, Philadelphia, Pa. **FRUIT AND ORNAMENTAL TREES**, Central Nurseries, A. G. Hull & Son, St. Catharines. **CHOICE STRAWBERRY PLANTS**, Chas. H. Snow, Cummings Bridge, Ontario. **GRAPE VINES AND GENERAL NURSERY STOCK**, Lewis Roesch, Fredonia, N. Y., 1902.