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FIG. 1972. DIRECTORS AND OTHERS AT HAMILTON IN 1892.

THE CANADIAN HORTICULTURIST



** JANUARY **

OUR ASSOCIATION.

AWAY back in the year 1859, a few gentlemen interested in fruit growing, met in the Board of Trade Rooms, Hamilton, and formed the Fruit Growers' Association of Upper Canada, with the Hon. Judge Logie, President, George Leslie, Esq., Toronto, 1st Vice-President, Chas. Arnold, Paris, 2nd Vice-President, and Delos W. Beadle, St. Catharines, as Secretary and Treasurer.

Nine years later, in 1868, at a meeting held in the Court House, Hamilton, a Constitution and By-laws were adopted, under the provision of the Agricultural and Arts' Act, with the title of the Fruit Growers' Association of Ontario. The membership then was 242.

In October, 1877, the question of publishing a monthly magazine devoted to the objects of the association was discussed at great length, and the whole question left in hands of a committee consisting of Messrs. Burnet, Saunders, Leslie and Beadle, to inquire into the cost and report. This committee reported favorably, advising the publication, and estimating the cost of a

sixteen page monthly at \$860 per annum. The report was adopted and it was ordered that the journal be published on the 15th of each month, beginning with the January number and as soon as possible to catch up with the date.

For ten years the journal was ably edited by Mr. D. W. Beadle, one of the foremost horticulturists in Ontario, and in 1887, he was succeeded by the present Secretary and Editor. The growth of our association as a result of this publication has been phenomenal. In 1886, the number was 1652; in 1900, the paid members numbered 4500, with promise of considerable increase in 1901; while the little sixteen page monthly of 2000 copies, published for \$860 per annum, has grown to be a 48-page monthly, of 5500 copies, published at a cost of \$2,500 per annum, and given free of charge to each member.

In the year 1889, at a meeting of our Association in the Court House, Hamilton, a photograph was taken showing the Directors and others as they came out of the meeting at noon. This will be of especial interest to some of our friends of to-day,



FIG. 1973. D. W. BEADLE.
Elected Life Member in 1900.

for it shows the faces of some of our highly esteemed and prominent Directors and patrons now passed away.

In the front row, beginning from the left, we notice Messrs. W. E. Wellington, J. A. Morton, M. Pettit, A. M. Smith, A. McD. Allan, Thos. Beall, *P. C. Dempsey, and *J. M. Denton; in the second row, T. H. Race, *John Croil, *Prof. Panton, Dr. Saunders, the Secretary, J. K. McMichael, G. C. Caston, A. H. Pettit, and further in the rear, W. M. Orr, Jas. Goldie, E. Morden, L. B. Rice, P. E. Bucke, W. W. Hillborn, E. D. Smith, and *Warren Holton.

In 1894, we formed a plan for the establishment of Fruit Experiment Stations, to be governed by us in conjunction with the O. A. C. at Guelph, which, while it increases our official work, largely increases our usefulness, and from the reports from these stations, publications of permanent value will soon result.

In 189-, Mr. Thos. Beall, of Lindsay,

*Deceased.

read a paper before our association in which he advocated the formation of Horticultural Societies more in accordance with the true intent of the Act than those already existing, most of which seem only to aim at the division of the legislative grant among a few professional exhibitors, while the membership as a whole get little or no benefit. The Act contemplates five objects, as follows:— (1) The holding of meetings for discussion and for hearing lectures on subjects connected with the theory and practice of improved horticulture. (2) The promotion of the circulation of horticultural periodicals. (3) The importation and otherwise procuring seeds and plants of new and valuable kinds. (4) The offering of prizes for essays and questions of scientific enquiry relating to horticulture. (5) The awarding of premiums for the invention or improvement of horticultural implements and machinery for the production of all kinds of vegetables, plants, flowers and fruit, and generally for excellence in any horticultural production in operation.

Of these objects, most of the old style horticultural societies choose out a portion of the fifth object only and totally disregard the other and more important objects. To remedy this evil, our directorate appointed Mr. Thos. Beall organizing director of (affiliated) horticultural societies, whose by-laws are so modified as to give greater attention to the other and more important objects and less to the mere holding of an annual show of flowers. The scheme has met with the approval of the leading horticultural people, and already we have fifty such affiliated societies, with over fifty members each, all receiving our journal and report and plant distribution free, and an annual visit from some able lecturer sent out by our association. We hope it may not be very long before every horticultural society in the Province will fall in line and thus reach a place of wider usefulness.

This constant enlargement of our work

rapidly increases the official labors of our association, until in 1899, the executive, recognizing the needs of the work, engaged a regular assistant in the person of Miss Wilena Brodie, who had already been for ten years engaged as private assistant at the expense of the Secretary. And since this young lady is now officially connected with our work, and is so intimately connected with every department of it, we have secured a photograph of her to be engraved for the the readers of our journal. Miss Brodie is the daughter of Mr. Jas. Brodie of Grimsby,

a son of the late Rev. Geo. Brodie, of Trinidad. Her education at high school and business college, united with great natural business capacity, admirably qualify her for the work of bookkeeper and stenographer for our association. Added to this, she has become an expert in photography, and the larger part of the illustrations used in this journal are her work, though not often credited. By this means we are able to give originality to our illustrations, which could not be had without such able assistance.



FIG. 1974. MISS WILENA BRODIE.

WINDOW DRESSING AT A GLANCE.

WHETHER a fruiterer does a good business or not depends much upon his stock and his method of dealing with it. A tastefully dressed window does much to draw customers. There is little doubt that the best results are obtained by using show baskets and punnets.

In these one can make a very effective display of fruit, and at the same time save much labor and trouble over ordinary methods of window dressing, as the baskets can be easily placed in and removed from the window as required. As we have said before, photography gives an inadequate

idea and unsatisfactory representation of the real article, which, if reproduced, would hardly be distinguishable. By manipulating the blocks and punnets which we have had engraved for this purpose, we hope to give on paper a skeleton key, so to speak, of some of the most attractive and best methods of window dressing. All the fruiterer will have to do is to take the illustrations and work by them according to the few simple instructions given with each illustration.

For this purpose the window board should

be the whole length of window, and wide enough to allow of taking show baskets and punnets. Fruit to be placed in these baskets appears in type. The window board should be covered with white paper each time the window is dressed. Some soft packing material should also be placed in the bottom of the baskets, the whole to be covered with a sheet of tissue paper. Choice dessert fruits should also be packed about the base in tissue, thus forming a nest or cup for the fruit to rest in.

—*Journal of Greengrocery.*

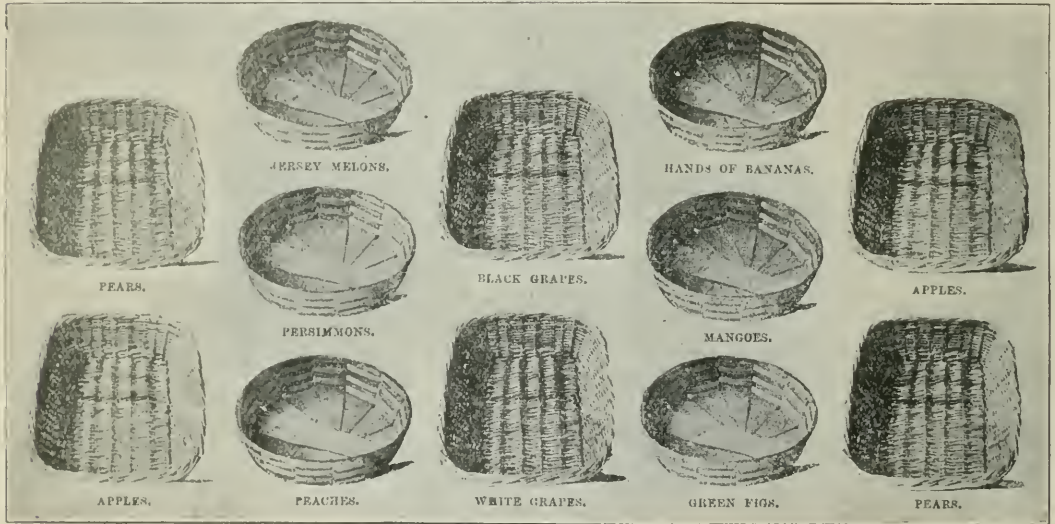


FIG. 1975. A FRUIT WINDOW.

NOTE.—The show or baby baskets and punnets, as set out in our illustration, are sufficient to cover a window-board 5ft. 6in. wide. Each basket to be filled with fruit, the names of which appear in type. For larger shops the window-boards may be increased in length, but not in width, as 3ft. 4in. will be found quite wide enough if the fruit is to be got at easily. The baskets will be increased in number accordingly. As regards punnets, those shown are large sized ones so much in use now in window dressing for exhibiting selected fruits. It will be seen we have introduced two of the newest fruits, viz.; the Persimmon and Mango. Even if the fruiterer has no sale for these they should have a place in the window, as one of the most important points to be remembered in window dressing is to cause attraction, and this these fruits are doing wherever they are exhibited.

BETTER GARDENS—HOW ARE WE TO GET THEM?



REVIVAL of gardening would bring health, happiness and profit to Canadian homes. Let us see what is the best way to reach this end so that the first summer suns of the country may see a blossoming forth of our neglected home grounds. Much would be gained if the officers of horticultural societies, who may happen to read this, would make it a duty to rouse their members to make efforts

dens closely hedged or fenced, and let those who wish to make a display have ground with no fences, such as one sees in American towns. Few people have a faint idea of the number of desirable features that can be used in garden-making. We give some illustrations of great gardens of the world, from which we may learn what means people in other times and countries have used to enrich their pleasure grounds. First, let

the first cut show a garden of ancient Rome. The embellishments are chiefly architectural, pillars and such like. Such ornamentation would be out of place in this climate, but the architectural enrichment of rustic bridges, summer houses and seats is something of which we might have more. Sundials are a very appropriate garden ornament. The next cut is of the garden of the Generalife in Spain, and illustrates the beauty that may be gained by a large use of greenery and water. Water is an ornamental feature which is very seldom used in Canadian gardens, but there is

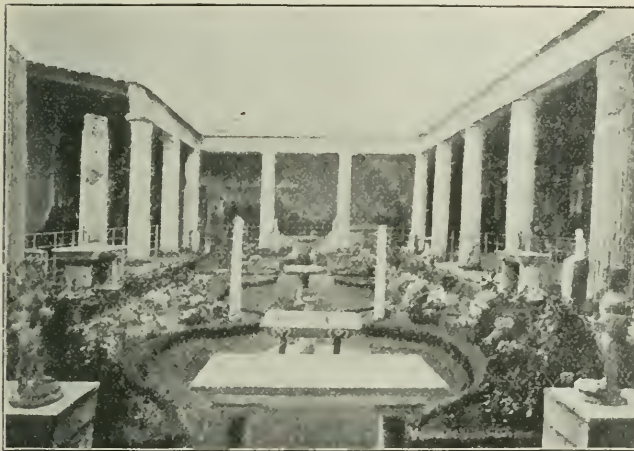


FIG. 1976. ARCHITECTURE IN THE GARDEN.
"GARDEN OF POMPEII."

in this direction. We will try to make some useful suggestions as to principles, which, if followed, will give better results in gardening than we now have. First of all, gardening is varied, and we must have individuality and variety in it. As a picture is better if it be an expression of some phase of mind of the painter, so a garden is far more pleasing and interesting if it shows the tastes of the owner. Let us not grow any kind of flower because our neighbors cultivate it, but let us grow the plants of which we ourselves are the fondest, or which have old associations to us. Let those who are fond of quiet and seclusion have their gar-

hardly anything gives more charm to the landscape. One way in which it may be introduced is to have reservoir supplied with water by a windmill. Many farms have such windmills, and could not be any very great trouble to use them for this. These basins might be very quickly planted with hyacinths and other quiet plants. In many places the lands might be drained so as to form a pond near the house. This, if stocked fish, would be very profitable as well as ornamental. The Government has been making efforts to encourage the raising of fish in ponds, but the farmers seem very slow to take it up. A pond at the Agricultural Col-

lege is one of the prettiest features of the grounds. If the owner has fears of its causing malaria, a plot of sunflowers would be a safeguard, for these plants are a sure preventive of malaria. In city gardens fountains are very nice features. Then as to greenery hedges, they might be much more employed in our gardens than they are at present. The white spruce, the high to cut, are cheap and servicable hedges. Somewhat more expensive but more pleasing are the white cedar or privet hedges. Flowering hedges, such as the Japanese Quince, or the Spireas, are very effective. Then the lawn might be much more beautiful than it now is. No one who has not travelled can realize what a thing of beauty it becomes with great care. Cutting, raking, watering and rolling, will do wonders. Bare spaces under trees may be made green by using a shady nook mixture sold by our principal seedsman. In sandy plots at summer resorts a nice show of verdure may be had by the use of squash and melon plants. It may sound rather commonplace, but we have been pleased with the nice change it seemed to make in contrast with the surrounding desolation of sand. Vines of all sorts are another form of greenery useful in beautifying yards. They may cover unsightly fences and sheds.

Our third cut is of a garden of the villa D' Este in Italy, and shows the advantages of terracing in a hilly situation. Terraces are about the only means by which the side of a ravine can be made use of. They should be connected, as in the picture, by steps. Where the ground is level terraces should never be made. They are an utter waste of money, and a nice well kept lawn should take their place. Our next cut re-

presents a garden at Hampton Court, England. It is a formal garden of the best style. In this kind of garden everything is stiff and regular. All the lines are straight. Flower beds are in the shape of mathematical figures; the trees and shrubs are clipped into various shapes. This style of gardening is very suitable for plots in the squares of towns. It goes very well with the buildings, and seems more in place than the usual uninteresting stretch of grass and trees. We would like also to see two or three private gardens in each town designed



FIG. 1977. "GREENERY AND WATER."
"GARDEN OF THE GENERALIFE," GRANADA, SPAIN.

in this style. It has a quaintness and charm that it would be a pity to lose. The clipping of the trees might be dispensed with to a large extent.

A second principle with which we might work in improving our gardens is that of combining use with ornament. Some valuable timber—trees such as the white ash or walnut, or such fruit trees as the cherry or mulberry are quite as ornamental as most of the trees usually planted on the home grounds. Of smaller trees, members of the vegetable kingdom, some are both useful and beautiful. The artichoke is a plant that we would like to see much more widely



FIG. 1978. "TERRACES AND STAIRWAYS."
ITALIAN GARDEN NEAR ROME.

grown. It has a nice yellow flower, very like the sunflower, and its roots make one of the best vegetable products that we have. Once put them in and they are so prolific that you will never be able to get rid of them should you want to do so. Freezing does them no harm, and if cooked for a long while their flavor is almost unsurpassed. Used raw they are an exceedingly economical food for hogs. The asparagus will be most ornamental if the stalks are allowed to grow the latter part of the season, though the yield of the bed next year will not be as good. Grape vines are a very taking ornament for the walls of a house.

Another line along which we might work is that of economy of labor. Let us not go on planting annuals year after year where perennials will do. Nor let us buy foreign novelties where native trees and plants would be better. The catalpa tree is being widely planted now, but although its leaves and blossoms are beautiful, it is until the beginning of July an unsightly stick in the garden. Our native elm has much more graceful lines, and the scarlet maple and the mountain ash give finer color effects. The most satisfactory shrubs for the garden are the old favorites. The Forsythias are especially desirable on account of their early bloom. The Japan quince, Tartarian honeysuckle, Thunburg's barberry, are all good shrubs. We would call attention to the variegated elder, with its white and green leaves, as being perhaps the most elegant of all our shrubs. It is hardy, and can be had at a very low price. Wild flowers can be obtained by any one, and coming into flower a little earlier in the garden than they do in the woods, give pleasure in the first spring days. Large clumps of red and white trilliums are very effective if grown side by side.

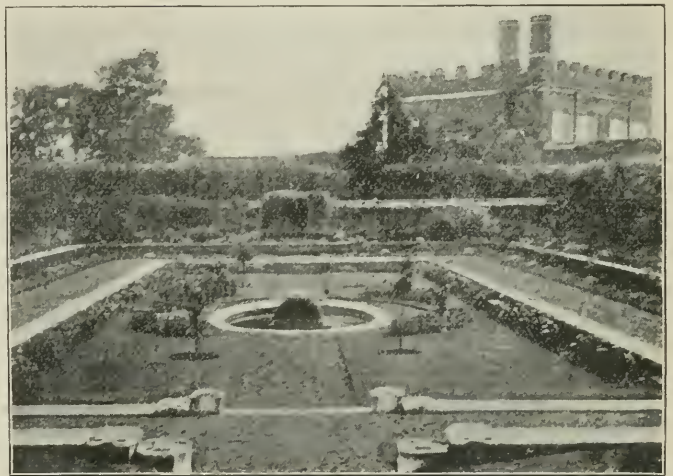


FIG. 1979. "FORMAL GARDEN."
GARDEN AT HAMPTON COURT, ENGLAND.

The crown imperial is very handsome also if grown in clumps. Of roses we think *rosa rugosa* the most satisfactory for general culture.

Another way in which we might have better gardens is to have gardens planted with evergreens, and trees with ornamental bark or berries to make the place bright in winter. This subject we dealt with fully in the

January number of the Horticulturist for 1900, and we refer our readers to it.

We hope all members of Horticultural Societies will try to rouse the interest of their friends and neighbors in gardening, so that the home grounds throughout the country may become a much greater source of pleasure and profit to their owners.

Toronto.

A. E. MICKLE.

CENTRAL EXPERIMENTAL FARM NOTES—XII.

WHEN four inches of snow fell on November 14th, it was thought that it would soon go away again as that date was much earlier than winter is usually expected at Ottawa. The snow, however, kept increasing, and by Christmas there was fully a foot and a half on the level. The snow which fell in December had fallen on unfrozen ground, and the former kept it in this condition until December 17th, and even up to Christmas there was only about three inches of frost there. There has been very little soft weather since the first snow fell and December has been quite cold. The coldest day was of December 10th, when the temperature fell to 18.8° Fahr. below zero.

There have been some very fine winter scenes this year at the Central Experimental Farm, there being more hoar frost and snow which clings to the trees than usual. The winter scene shown in this number is from a photo taken by Mr. F. T. Shutt, and gives some idea of the beauty of the landscape. The bright fruit of the high-bush cranberry, of which reference was made in the last notes, looked fine this month in contrast with the fresh snow.

The question of cover crops is an important one for the fruit grower to think about during the winter, and the following quotation from my report for 1899, giving the

results of our experiments, should prove both helpful to those who propose planting a cover crop next year, and suggestive to those who have not yet decided to do so :—

“ Since 1895, orchard cover crops have received much attention at the Central Experimental Farm, and in the reports of the Horticulturist for 1896, 1897 and 1898, considerable space has been devoted to this subject ; but the importance of cover crops in the orchard cannot be too often nor too strongly impressed upon the fruit growers of Canada. After the disastrous effects of the winter of 1898-99 on fruit trees in some parts of Ontario, the fruit growers living in those districts must realize more than ever before, perhaps, how necessary it is to have some protection for the roots of their trees.

“ It is now quite generally conceded that cultivation should cease in orchards in Eastern Canada about the middle of July. At this time the season's growth is well advanced and the ripening of the wood soon begins. The seed which is to produce the future cover crop should now be sown. In Eastern Ontario, the common red or mammoth red clover, sown broadcast at the rate of twelve pounds to the acre, will probably make the most satisfactory cover crop. It will reach a height of from ten to twelve inches by winter, and will form a dense mat of foliage which will make a thick mulch, thus



FIG. 1980. WINTER AT CENTRAL EXPERIMENTAL FARM, OTTAWA. (*Shutt.*)

preventing the alternate freezing and thawing of the ground which occurs in late winter or early spring, and which often proves so disastrous to trees. After the seed is sown, the soil should be rolled with a heavy land roller, which will cause the moisture to rise to the surface of the soil and assist the germination of the seed. This rolling is very important, as should the seed lie in the ground for any length of time without germinating, there will not be time for a good cover crop to be formed before winter. No nurse crop, is, as a rule, necessary. In places where the soil is very dry, lucerne or alfalfa might be sown with advantage, as the seed of this clover appears to germinate more readily than that of the common red clover. Cow peas and crimson clover may be used in the warmer parts of the country. The hairy vetch (*vicia villosa*), has been used with very satisfactory results by

Mr. J. Tweedle, Fruitland, Ontario.

“Another advantage of clover growing in an orchard in autumn, is that much of the plant food in the soil which has been liberated and made more easily available by the constant cultivation during the early part of the summer, is prevented from leaching by being used by the growing plants, the clover thus becoming a ‘catch crop,’ as well as a cover crop.

“Where soils suffer from lack of moisture in a dry time, the clover should be ploughed under as early in the spring as the land can be worked, and cultivation begun at once. This will conserve much of the moisture which would otherwise be transpired through the leaves of the growing plants until they were ploughed under towards the end of May, which is the usual time. If the soil, however, contains plenty of moisture, it would be better to let the clover grow until

about the third week of May, as there would be additional humus and nitrogen to be obtained by this method.

"The great improvement made in the soil by the annual plowing under of clover crops is clearly shown in figures given by Mr. G. T. Powell, Ghent, N. Y., U. S., at the annual meeting of the Ontario Fruit Growers' Association held at Whitby in 1899. After crimson clover, which had been used as a cover crop—had been ploughed under in an orchard for three years, the soil was analyzed and the following differences were found between that where the clover had and had not been ploughed in :

	Clover ploughed under for three years. Per cent.	No clover ploughed under for three years. Per cent.
Water.	15'00	8'75
Nitrogen.	'21	12
Humus.	2'94	1'91
Phos. acid.	'015	'008

The gain per acre would be :

Water.	6'25 per cent	= 46,875 tons.
Nitrogen	'09 "	= 1,350 lbs.
Phos. acid	'007 "	= 105 lbs.

"Although such good results might possibly not be secured by the use of red clover, still the improvement in the land by such treatment would be very great.

"For the reasons mentioned in my report for 1898, the methods which are recommended above have not been adopted at the Central Experimental Farm since the spring of that year. Clover is used for a cover crop, but it is only ploughed under every two years. As the soil here is light and lacking in humus, but apparently contains plenty of moisture, a system of cutting the clover with a field mower and leaving it to rot in the orchard, has been followed. In 1898 five cuttings were obtained, the clover being from eighteen to twenty inches high at each cutting and just coming into bloom. It was estimated that from the first four cuttings 25 tons per acre of green crop were left lying on the field. Clover sown in 1898

was cut four times in 1899, and the crop from each cutting appeared fully as good as that of 1898. It can easily be imagined that this is improving the soil rapidly.

"Common red clover was sown in the orchards in 1899 on May 10, 17, 25 and 31 ; July 4, 11, 18 and 25. There was a good cover crop obtained from all of these sowings, with the exception of that on May 31, which did not germinate well, and from those of August 2, 9 and 16 at which time the weather was very dry and the seed did not germinate until September, and then but thinly. Clover sown on May 17 and 25, was nearly smothered by purslane, but eventually overtopped it and came on well and formed a good cover crop by autumn.

"In a part of the apple orchard where the soil is very poor, two green crops were ploughed under in the summer of 1899. On June 10, clover which had formed a cover crop the previous winter was ploughed under and the land was then re-sown with buckwheat, soja beans, English horse beans and field pease, with the following results :—

"Buckwheat sown broadcast on June 17th, at the rate of 2 bushels per acre, came up on June 23. Ploughed under on July 25th. Average height, 27 inches. Estimated yield, per acre of green crop, 8 tons, 335 pounds.

"Soja Beans :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up June 24. Ploughed under on August 7. Average height 14 inches. Estimated yield per acre of green crop, 3 tons 466 pounds.

"English Horse Beans :—Sown in drills 6 inches apart on June 17, at the rate of 4 bushels per acre, came up on June 27. Ploughed under on August 7. Average height 18 inches. Estimated yield per acre of green crop, 6 tons 592 pounds.

"Field Pease :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up on June 24. Ploughed



FIG. 1981. HIGH BUSH CRANBERRY AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

under on July 29. Average height 26 inches. Estimated yield per acre of green crop, 5 tons 1,191 pounds.

"After these crops were ploughed under the land was re-seeded with clover on August 2, 9 and 16, in the hope of getting a cover crop by winter, but owing to nearly six weeks of very dry weather about that time, the seed did not germinate until September and a cover crop was not formed. The trees in this part of the orchard were mulched with manure.

"On July 6, English horse beans were sown in a part of the orchard where the soil was light and where the snow does not lie well in winter. On July 16, after the beans were up, common red clover was sown among them at the rate of 12 pounds per acre. The beans reached a height of 18 inches by autumn and helped very much to hold the snow while they must have gathered much nitrogen during the growing season. There

is also a good stand of common red clover.

"On July 25, Lucerne clover was sown in a part of the orchard where the soil was very light, It reached a height of from 7 to 12 inches by autumn, and although there was a large number of plants destroyed by a storm carrying away the surface soil, there was a fairly good cover crop.

The advantage of using leguminous plants, such as clover, pease, beans, and vetch, is that by means of the nodules or tubercles on their roots they assimilate free nitrogen from the air, and hence much of this expensive plant food is obtained without other expense than the price of the seed. Buckwheat and rye do not belong to this class of plants, and while useful in the orchard, are not as valuable as the others, as they do not gather nitrogen from the air.

W. T. MACOUN,
Horticulturist, Cent. Expl. Farm,
Ottawa.

OUR BRANTFORD MEETING.



FIG. 1982. W. M. ORR, PRESIDENT FOR 1901.

ONE of the best meetings we have ever held in point of real work and valuable addresses was held in Brantford the 19th, 20th and 21st of December last. Not that many members showed up in attendance from the locality, but a fine attendance of our best fruit growers, shippers and representatives of societies and colleges, and all combined to lend importance to the occasion.

After the report of our experimental shipments was presented by the secretary, which was given our readers in the December number, the Hon. John Dryden gave an address containing much encouragement to fruit growers. He dealt chiefly with the San Jose scale and his efforts to perfect a system of continuous cold storage transportation of tender fruits to England. Among all the branches of agriculture, he said, there was none of more importance than fruit growing, and he instanced the success of the Ontario

exhibits at Chicago and Paris. Their results had been achieved by time and effort. The fruit farmers, he said, have had to learn that fruit trees could not be used as forest trees, and that they had to be continually tended, that fruit suitable to one section was not suitable to another. In that work the Government experimental stations had aided. Insect pests, he urged, had to be fought by the farmers unitedly. Some people were apt to place too great reliance upon law. It was necessary, but it could only be enforced when backed by public opinion. They could not drive the people generally, and they could not drive farmers especially. When he established the travelling dairy to educate the farmers and farmers' wives to right methods in the home, he was asked why he did not start cheese factories and creameries. They came, as he expected, from the education afforded from the travelling dairy. He was sure that within five years those who had opposed his San Jose scale legislation would say he had been right. He would be the proudest man in Ontario if for twice \$100,000 he could have stamped out the scale. Even with the methods being adopted it was found that the pest was getting ahead of the inspectors, and that \$300,000 would be required to annihilate it. That was more than the legislature would vote. It remained, and would for some time to come. The work done had stamped out the scale in at least 100 districts. The nurseries, he believed, were the chief danger, and he would enforce the proper fumigation of stock. No treatment yet adopted have absolutely killed the scale, but he knew no better way of meeting the difficulty than by continuing the present method of spraying.

COLD STORAGE TRANSPORTATION.

Turning his attention to cold storage transportation to England, he said the individual could not work out his salvation without help. The only thing discovered yet to ensure delivery of tender foreign fruits in England was cold storage. There was variance between himself and the Dominion Government on two points. He wanted lower temperature and circulation. He wanted it remembered that if fruit was decayed no cold storage would put it in condition again, for which reason it was absolutely essential that it should be put up in cold storage as soon as picked, and kept in cold storage until and after it reached Liverpool. He had had much labor and anxiety all summer over the question. The Dominion authorities had said Canadian peaches and grapes could not be shipped to England successfully, so he had started to work. If fruit could be held in cold storage on land he was convinced it could at sea. The cold storage should be provided, and they wanted boats leaving every week. He had met with opposition, but to ensure what he wanted he had built in the ship *Trader* a cold storage department. The results were shown in Mr. Woolverton's report. Mr. Dryden emphasized very strongly the need for continuous cold storage, and said if the fruit dealers wanted it they would have to have it. What, he asked, would that trade be worth to Ontario? Would it not be worth spending \$3,000 a year for several years to obtain? It would, a hundred times over, he believed. The Ontario Government would aid in building cold storage houses here, and had provided a proper car—the car which had carried fruit successfully in South Africa. He had the lecturers to farmers' institutes to explain the cold storage problem. He believed it one of the greatest questions before the Province to-day. It might be termed class legislation, but it benefited every class, and for his efforts on behalf of the farmers, Mr. Dryden said he sometimes had

more appreciation from financiers and bankers than from farmers themselves. He urged the association to continue its work energetically in aid of one of the greatest of the country's industries.



FIG. 1983. MR. M. PETTIT.

Mr. M. Pettit, of Winona, read the report of the San Jose Scale Committee, which recommended that the system of general inspection be continued, and that, as the scale cannot now be exterminated, instead of wholesale destruction of the trees, an endeavor should be made to control, and that such treatment be made compulsory upon individual growers, under supervision of the Department of Agriculture, both as to material and the carrying it out. It was recommended also that the department be urged to relax no effort in the matter, and that a committee be appointed to confer with the Minister as to the methods to be put in operation during the coming season. "Your committee believe," the report concluded, "that a serious mistake was made by the large number of owners of infested orchards who offered determined opposition

to the carrying out of the original intention of the act, and that if public opinion had supported the Minister in his efforts the scale to-day would be almost if not entirely exterminated. We desire also to place on record our appreciation of the efforts of Hon. John Dryden in behalf of the fruit industry of this Province." The report was adopted.

The Hon. F. R. Latchford was in attendance and ably addressed the association upon cold storage, explaining in particular the principles upon which the Hanrahan Cold Storage Car was constructed. After explaining that for years he had taken a keen interest in the question, and was a fruit and flower grower, he spoke briefly on the unscientific and therefore unsuccessful methods hitherto attempted, and treated of the nature of decay. For twenty years decay in animal life had been studied and had resulted in greatly ameliorating the condition of the human race. Decay in vegetable matter resulted from three causes—moulds, yeasts and bacteria. On one bunch of grapes Pasteur had discovered twelve different moulds. The action of moulds and yeast was facilitated by dampness. Yeasts and moulds could not grow in low temperature, say 40 degrees and under, and bacteria could not propagate. That was why low temperature preserved fruits. It had long been known how to develop low temperatures, but the application had been neglected. It had been proven that putrefication would not go on in pure air, and pure air was possible of attainment. Cold storage to be practicable had to be economical. The speaker went on to show that scientific cold storage demanded pure, cold air. The material in storage gave off odors which had to be removed. The disadvantage of bringing in hot air from outside to be purified and cooled was pointed out, and it was shown how instead the cold air of the car could be constantly purified. This is the principle of the Hanrahan method, and from

the model of the car Mr. Latchford illustrated what he meant. The ice is held in a compartment which divides the car into two sections. The air at the ice box being colder, and therefore heavier, falls and travels along the floor of the car to the end, where its temperature will increase, and it will rise and flow back to the ice box. Then the moisture dissolves the gases and odors gathered from the contents of the department, and there go off in water by a waste pipe, while the air purified goes on another journey through the car. Mr. Latchford pointed out that fruit might just as well be cooling in the car on its way to the market as standing to cool in a cold storage house at the place of shipment. He spoke of the importance of the fruit industry, and declared that the Government would aid them in every way possible.

THE FRUIT MARKS ACT.

This is the new title given by our association to the Apple and Pear Marks Act, which at our request was presented before the House of Commons last winter, but which was so strongly opposed by the apple speculators, who buy in large quantities, that it was withdrawn. Only as late as Thursday, the 13th inst., just before our meeting, a large body of apple packers at a banquet to Mr. G. H. Fowler, at Brighton, passed a resolution expressing "disapproval of the same, believing that it would be impracticable and unworkable, and not in the interests of the apple export trade. While deprecating the practice of 'topping' resorted to by some shippers, the prevention of which this bill aims at, we are of the opinion that the bill interferes with private rights and cannot be made to accomplish the purpose for which it was intended."

In view of the opposition, we appointed a large committee of both apple growers and apple buyers, including Mr. J. H. Shuttleworth of Brantford, well known in the trade, and Mr. Elmer Lick, an extensive apple

grower at Whitby, and the whole question was fought out with great ardor in committee before an agreement was reached which would satisfy both grower and buyer. The changes were such as to give perfect freedom to anyone as to whether he would use the specified grade marks, but if he did use them, his packages were subject to inspection, and a fine if found fraudulent. As this bill is an important one and means everything to the future of our apple trade, we give the text of the proposed act in full, as revised by our committee and accepted by our association.

1. This act may be cited as Fruit Mark Act, 1901.
2. This act shall come into operation on the first day of July, 1901.

3. Every person who, by himself or through the agency of another person, packs fruit in a closed package intended for sale, shall cause the package to be marked in a plain and indelible manner before it is taken from the premises where it is packed.—

(a). With the initials of the christian name and the full surname and address of the packer.

(b). With the name of the variety, and

(c). With the designation of the grade of fruit.

4. No person shall sell, offer, expose, or have in his possession for sale any fruit in a closed package unless the name and address of the packer is marked upon the package in a plain and indelible manner.

5. No person shall sell, offer, expose, or have in his possession for sale any apples or pears packed in a closed package upon which is marked the grade "A No. 1 Canadian," unless such fruit consists of well-brown specimens of one variety, of normal shape and not less than ninety per cent. in each package free from scab, worm holes, bruises

and other defects, and properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches or fractions thereof across the core of the apples or pears as the case may be.

6. No person shall sell, offer, expose, or have in his possession for sale any apples or pears packed in a closed package upon which is marked the grade "No. 1 Canadian," unless such fruit consists of specimens of one variety, sound, of fairly uniform size, and not less than eighty per cent. in each package free from scab, worm holes, bruises and other defects, and properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches or fractions thereof, across the core of the apples or pears as the case may be.

8. No person shall sell, offer, expose, or have in his possession for sale any fruit packed in any package upon which is marked any designation of size, grade or variety which falsely represents such fruit; or in which the faced or shown end gives false representation of the contents of said package; and it shall be considered a false representation when more than 15 per cent. of such fruit are substantially smaller in size than, or inferior in grade to, or different in variety from the marks on such package, or from the faced or shown ends of such package.

9, 10, 11, to remain as at present.

12. Strike out "apples or pears are" and substitute "fruit is."

13, 14, 15, 16, 17, to remain as at present.

A clause to be added as follows,—the word "packer" when used in this act shall be construed as the person on whose behalf any fruit is packed.

The phrase "closed package," shall be construed as one in which the fruit is invisible and which cannot be readily opened without injury to the package.

In our next number we hope to give further extracts from the report of our meeting which we hope will be of especial interest to our readers.

THE CONSTRUCTION OF ROADS.

THE construction of park roads is like the construction of all other things largely a matter of local conditions.

There are however, some principles common to all conditions which must be made factors in the work or the results will not be at all satisfactory. The character of the earth upon which road materials are to be laid largely controls the method of construction and the materials to be used. Sand, of course, is the best, but it should be properly underdrained or in wet springs there is likely to be so much water accum-

ulated in places that, as the frost breaks the bond of the road surfacing, the road will become wavy and the wheels will break through if much used. This is only likely to happen when sand is supported and surrounded with earth impervious to water. Clay is the worst material, but it is by no means to be feared if properly drained and the road surfacing is not thin. The underdraining of clay is not necessary. If provision be made for at once carrying off the water which reaches the surface of the clay under the road material the disturbance of

the road by frost will be as little as on foundations of other material.

The thickness of the road material depends entirely upon the traffic to which the road is to be subjected. The lightest of all roads in parks, some little turn outs to hitching places or the like, might be five inches in thickness if resting on confined sand and constructed of sound stone or good gravel. This thickness should never be less than seven inches on clay. The road material in the ordinary park road should not be less than nine inches in thickness after rolling. Not because that much material is required to hold up the traffic, but because the surface will probably be worn down at least two or three inches before it is resurfaced. At its thinnest it should be capable of holding up heavy sprinkling wagons and coaches or any vehicles which may come upon it.

A well built nine-inch road of good material is amply heavy for ordinary park uses. For boulevard roads the material should be somewhat thicker. If properly cared for in any boulevard twelve inches is ample. In some of the outer boulevards nine inches will be sufficient. The question might be asked why if a nine-inch road will hold up a traffic in the parks when frequently very heavy vehicles pass over it, is it necessary to have a heavier road in a boulevard? It is the matter of wear again. Take a busy avenue, for instance, in the busiest part, where 13,000 vehicles have frequently passed over the road in 24 hours and the traffic is always very heavy even in wet weather. The wear is, of course, great. Suppose the road to have gone two years without surfacing; nearly three inches is worn off the surface. Suppose the following winter to be a severe one on roads, that is to say a wet one, then if the road was nine inches thick to start with there would be perhaps only five or six inches of material remaining with its bond broken, utterly incapable of holding up the traffic. With a twenty-inch

road there would still be eight or nine inches of material, which would be sufficient.

The kind of material to use? There are several things to consider in determining this. Principally it must be durable and of two grades. The upper three inches should be material that will best resist abrasion, which means a hard, tough uniform granite or trap rock. The under six or nine inches as required may be any hard stone that will preserve its integrity when subjected to frost. The upper three inches should be stone broken into pieces closely approximating one and one-quarter inches in their largest dimensions, as nearly cubical as possible; the under layer into two and one-half inch pieces. The granite or trap rock as was said should be used for the upper three inches. For the much used boulevard drives this is almost imperative, but for the outer boulevards and the park roads a softer and less expensive material may be economically and satisfactorily substituted, limestone or good bank gravel.

For the roads in the park color of surface is a consideration. The glaring white surface of a limestone road is very painful during the bright days and at all times its great contrast with the surrounding dark greens is anything but pleasant or desirable. The sienna of the bank gravel is much better, but the gravel road is more difficult to keep clean and is much more liable to be muddy after the summer shower or if as frequently happens, the sprinkling is too heavy. The determination of this matter must be largely affected by the local conditions in each case as to the cost and materials found at hand. To darken the surface of limestone roads a dressing of crushed granite or trap rock, say one-half an inch thick, has been applied, but it is expensive because of the frequent renewal necessary to keep the color at all even. If it is thought necessary to darken the surface it would be economy in the end to make the upper three inches of the road of the

more expensive material to begin with. The result will certainly be more satisfactory as to maintenance ; for, of course, the harder material does not wear as rapidly, therefore does not have to be cleared as often, is not

as dusty in dry weather, nor as muddy in wet weather.

FRANK FOSTER, C. E.

Before American Park and Out-Door Association.

AWARDS OF MEDALS FOR CANADIAN FRUIT AT THE PARIS EXPOSITION.

ALL OUR provinces have a noble record of fruit exhibits at the Paris Exposition, and we shall await the full and complete report of the prizes awarded when the Commission has completed their labors.

In the meantime Mr. Robert Hamilton of Grenville, P. Q., who was at Paris during a great part of the season, sends on an incomplete list of our awards, from memory, explaining at the same time that he could give far more information only for the unfortunate loss of all his papers, photos, &c., on ship-board. Mr. Hamilton promises to give us several papers on French horticulture early next year.

The following is Mr. Hamilton's list :

Awards of Medals, &c., for Canadian fruit at the Paris Exposition, 1900.

Dates of the concours and awards :

June 27. Awards for Natural Fruit—Old Apples. A Gold Medal to each of the following : Dominion of Canada, British Columbia, Ontario, Quebec, Nova Scotia ; a Silver Medal to New Brunswick ; a Bronze Medal to Prince Edward Island.

July 11. Natural Fruit disallowed on this occasion. Fruit Preserved, Non Edible : a Gold Medal and Grand Prix to the Dominion of Canada ; a Gold Medal to each : British Columbia, Ontario, Quebec, and Nova Scotia. A Gold Medal to the North-West Territory of Canada. A Gold Medal to the Experimental Farms of Canada.

July 25. Natural Fruit, 1899. Awards to Fruit Growers' Associations : a Gold

Medal and Grand Prix to the Dominion of Canada ; a Gold Medal each to British Columbia, Ontario, Quebec, Nova Scotia. A Silver Medal to New Brunswick and a Bronze Medal to Prince Edward Island.

August 8. Natural Fruit, Old, 1899. Awards to Local Fruit Growers' Associations. To Grimsby, Ont., Burlington, Ont., Montreal, Que., L'Islet, Que., Abbotsford, Que., Nova Scotia, and to British Columbia, a Gold Medal to each.

August 22. Natural Fruit, Old, 1899. Awards to Provinces : a Gold Medal each to British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick ; a Silver Medal to Prince Edward Island.

September 5. Natural Fruit, Old, 1899. A Gold Medal was again awarded to each of the Provinces: British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick.

September 22. Natural Fruit, New (a few old). The fruit arrived late, but a committee of the jury made the award on arrival of the fruit. A Gold Medal was awarded to Ontario, to Quebec, to Nova Scotia, and to Linus Woolverton ; a Silver Medal was awarded to Robt. Brodie, St. Henri, Montreal, and to J. W. Bigelow, Wolfville, N. S.

October 10. Natural Fruit, New, 1900, and also of 1899. A Gold Medal was again awarded the Provinces of Ontario, Quebec, and Nova Scotia.

October 31. New Fruit, 1900. Other awards were made but I had left before this date.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.

1. Crude Petroleum Experiments against the San Jose Scale.

Prof. J. B. Smith, of New Jersey, has recently published a bulletin (number 146), dealing with the action of crude petroleum as insecticide. The results secured by Dr. Smith are interesting, and should be known to all the fruit-growers of the sections infested by the San Jose Scale, for his successes and failures depend largely on the quality of the crude petroleum used and on the mode of application.

Crude petroleum varies widely in its composition, and has no definite meaning in the trade. Crude petroleum as it comes from the well, Dr. Smith says, does comparatively little injury to vegetation unless the application is very excessive or long continued, but crude oil composed of mixed crude and distillate is decidedly harmful. For orchard spraying the crude petroleum should have a specific gravity of 43° on the Beaume oil scale at a temperature of and any oil which registers less should not be used, for injury will be done to the trees. If these conclusions are correct, then Dr. Smith has done a real service to fruit-growers who purpose using the crude oil against the scale.

The Bulletin also records cases of decided injury to trees by the application of crude petroleum, but such results are accounted for by the use of oil registering lower than 43 degrees.

Regarding the action of crude oil, Dr. Smith says that the tree should be dry when the oil is applied, though it may be cloudy and rain immediately thereafter. "The best time to spray peach trees is while the buds are fully dormant, not when they are about to waken into life and growth. Apple buds are very well protected, and are rarely hurt unless the oil is in excessive quantity."

Spraying is best done with a vermored nozzle adjusted so as to give a fine mist, and no more oil should be used than sufficient to moisten the surface thoroughly. Half a pint will be enough for an average size peach tree. The oil may be applied undiluted, or in a mechanical mixture with water by means of an emulsion sprayer. Dr. Smith "prefers the undiluted form because it is then known exactly what has been done." Spraying should be done on mild days, for the oil when cold "becomes less fluid, is not so readily sprayed, does not penetrate well and is less effective."

2. Recent Books on Mushrooms and Toadstools.

During the past few years great activity has been shown in the collection and study of mushrooms and toadstools, usually called fleshy fungi. As a result of some of these studies three important works have been published lately all of which will tend greatly to a better and more satisfactory knowledge of these very interesting plant forms.

The first work which deserves mention is Underwood's *Moulds, Mildews, and Mushrooms*, a small book published by Henry Holt & Co., New York, 1899. The fleshy fungi are treated concisely, and tables are given for the purpose of identification of the edible, suspicious and poisonous species. Illustrations are absent, a feature of decided demerit. The book serves as a good introduction to fungi in general, and to fleshy forms in particular.

The next work McIlvaine's *One Thousand American Fungi*, published by Bowen-Merrill, the present year, 1900, is a more pretentious book, containing beautiful illustrations of the common fleshy forms, and carefully prepared botanical descriptions of the various species. Several pages are devoted to the

best modes of selecting and cooking the edible forms. The volume is a bulky one of 704 pages, but in spite of its size may be regarded as one of the best books of the kind. The amateur is seldom at a loss to identify his specimens with its aid. The book should be in every public library in the province.

The latest publication dealing with Fleshy Fungi is one by Professor Atkinson of Cornell University, entitled *Mushrooms Edible, Poisonous, etc.* The publishers are Andrews & Church, Ithaca, N. Y. The price, \$3.00, is within the range of all enthusiastic amateurs and is specially low when one considers the admirable illustrations of over 200 photographs.

The writer had the pleasure of attending Professor Atkinson's class in Fleshy Fungi, the past summer, and can therefore, speak candidly with regard to the very extensive knowledge possessed by the author on these plants. The photographs were made with

extreme care from fresh specimens, and on account of the great care employed they often bring out individual, specific or generic characters, better than the common colored illustrations.

Besides descriptions of the common forms, there are chapters on the "Collection and Preservation of the Fleshy Fungi," "Receipts for Cooking Mushrooms," by Mrs. Rorer, "Chemistry and Toxicology of the Fungi," by J. F. Clark, "Analytical Keys," and a full "index to generic and species described."

This work of Professor Atkinson's will, the writer is sure, be highly appreciated by every lover of mushrooms and toadstools, for it is a book of convenient size, dealing with forms which are found in Ontario, and is thoroughly reliable, coming as it does from an acknowledged authority.

W. LOCHHEAD.

Ontario Agricultural College,
Guelph, Dec., 1, 1900.

A SUCCESSFUL SHIPMENT.—“The announcement that Canadian grapes have been sold at Manchester will meet with approval from a large circle of buyers in that centre,” says the London Fruit Grower. “It is pretty clear that this market has been chosen for one or two reasons. In the first place, it is just the spot for distributing large quantities of cheap grapes to the industrial populations in the Midlands, who are large consumers of fruit, and secondly, because the Canadian grapes can be sent into Manchester by the ship canal. From all accounts these grapes have come to hand in perfect condition. The fruit is of a good size, the

berries are black and carry a fair amount of bloom, and the flavor of the fruit is excellent. When such a shipment as 12,844 pounds of fresh grapes can be sent all the way from Canada, and be put upon the English markets in perfectly fresh condition, it is clear that the system of transit has been brought to a pretty perfect condition. Certainly the promoters of this industry are to be congratulated upon the success that has been assured to these fruits. They have been packed in fancy little packages, such packages as must commend them to the retail trade.”



TIMELY TOPICS FOR THE AMATEUR.—XI.

IN the issue of the journal for December, 1900, several suggestions were offered that I considered would, if adopted by our horticultural societies, have a tendency to increase the interest, more especially of our young people, in the culture and care of plants and flowers.

This being the initial number of the "Horticulturist," not only for a new year, but also for a new century, and as there is very little routine work to occupy the attention of our readers in the flower garden or on the lawn during the winter season, the time is I think very opportune to offer a few suggestions more particularly regarding floral exhibits, that may perhaps be of interest to readers of the journal.

The schedules or prize lists of exhibits of plants and flowers, held ten or twelve years ago, were almost without exception compiled and arranged to meet the requirements of professional and commercial plant and flower growers only. Even at the present time the prize lists of most of the large industrial shows, as well as the smaller township shows, that generally include an exhibit of plants and flowers, often entirely ignore the amateur plant grower; making no distinction between the professional and amateur in this respect.

This method is manifestly unfair to the amateur, who has perhaps a small collection of window and garden plants, and who is often deterred from exhibiting these from the fact that they are almost certain to be placed in competition with products that have perhaps been cultivated in a greenhouse, or that have had professional skill and care bestowed on their culture. With the rapid advance and more general practice of floriculture, it has become necessary to remedy this unsatisfactory state of affairs, and I feel sure that it is only necessary to call the attention of our readers to this matter, especially those who take an interest in industrial exhibitions, so that it can be to some extent remedied. Our affiliated horticultural societies have in some instances very wisely adopted the plan of a separate class for amateurs and professionals, and have still further sub-divided the amateur class of exhibitors, so as to distinguish between those possessing a greenhouse, and those who have not the advantage of this useful adjunct to floriculture. The late issuing of the schedule also often proves a great drawback to the success of an exhibit, giving very little time to prepare the plants, etc., necessary to comply with its conditions. In compiling the schedule, opportunity

should be given for as many exhibits of individual varieties of plants as possible, as this gives every one interested an opportunity to contribute something to the exhibit. The idea of interesting all classes of our people in the several branches of horticulture, and more especially floriculture, being one of the main objects of our horticultural societies, the arranging of the schedule or entry list with this end in view, will help very materially in securing a thoroughly complete and representative exhibit.

A paper on "How to make our Exhibitions More Popular" might be compiled and read by some member at a winter meetings. The paper, besides introducing perhaps some new features, would certainly form the basis for a discussion that would probably bring out many strong points of detail matter that might contribute greatly to the success of an exhibit.

As an illustration however, one exception to this almost general rule may be mentioned, viz., that of the exhibit of plants and flowers shown recently at the Southern Fair, Brantford. The schedule for this section of the show, was a most comprehensive one, the amateur and professional classes being quite distinct the one from the other, and both being well represented. The lists for each class were very similar, with the exception that the amateur list invited more exhibits of individual specimen plants; an additional feature of this class being that of prizes for window boxes, a commendable feature to introduce in a schedule or prize list. This system has been in operation for two years, possibly longer, and having had the honor of awarding the prizes on the two occasions quoted, I feel justified in mentioning this as an illustration, for the exhibit in both classes were of a very high order, and would do credit to a city double the size of the city of Brantford.

The remarks made in the December issue

of the journal, regarding the distribution of plants to scholars might be still further commented on. There is nothing to prevent this plan of distributing plants, etc., to the senior scholars in our township schools as well as to those in town or city schools. Many of our readers who are residing outside the scope of influence of an horticultural society, but who are interested in floriculture, and are perhaps trustees of a township school, or interested in the nearest agricultural show, might take up this matter, and thereby not only enhance and encourage the love of floriculture amongst our young people, but also help to brighten up the surroundings of many a home, as well as to furnish an exhibit that would prove an interesting and attractive feature of the annual autumn exhibition of the township or village. The distribution need not necessarily be of plants, as seeds or bulbs could be distributed early in the season, so that the flowers from them could be procured for exhibition at the time required. The amount of labor and the expense necessary to carry this plan into operation would be very small, and would be more than compensated for by the pleasure that would be derived in the cultivation of the seeds and plants, and the interest they would excite both in old and young people wherever they were exhibited.

For the purpose mentioned there is no better plant than the ever popular geranium, as it could be cultivated very easily. Some remarks regarding the culture of this plant have already appeared in this journal that would give sufficient information for the above purpose, the plants might however be allowed to come into flower a little earlier than advised in the article referred to, so that they would be well developed for the date of the exhibition. The varieties of the flower seeds, if these were distributed, might consist of a small packet of mignonette, asters, cosmos, zinnias, marigolds, and larkspurs. These

could all be had in flower during September and October, and do not require any great skill in cultivation. The best kind of bulbs for fall flowering for this purpose, would be the gladiolus. All the plants, seeds, etc., should be as nearly alike as possible, so that there would be no cause for complaint in that respect. A few simple directions as to how to sow the seed and plant the bulbs, could easily be given at the time of the distribution.


The first day of May (May-Day) would be a good time to make the distribution, as it is not only about the right season for sowing flower seeds, etc., but it would probably revive and perpetuate in the memory of many of our readers of mature age, the pleasing floral and festive scenes of an old-fashioned May-Day celebration, that perhaps they may have taken part in in the old land in days gone by. These remarks may be thought to be too sentimental in an article of this kind in this practical, go-ahead

age; but sentimental though it may be, there is a magnetic influence that prevades these and similar old associations, that has perhaps been more instrumental than we give them credit for, in causing the recent outburst of patriotism from Britain's colonies, and that has startled the old-world, and appraised it of the fact that the children of the motherland the world over, are prepared to stand by her, and by each other, in the time of difficulty and trouble. And none of us are able to estimate the good effect the encouragement of the ennobling pursuit of the culture and love for the many beautiful plants and flowers to be found in the floral world, and the influence they may have in moulding the character and principles of our children, so that they will be able to look back in years to come at the many happy hours spent in these and other pleasing pursuits, when perhaps they are far away from the scenes of their childhood.

Hamilton.

HORTUS.

CACTUS LORE.

UR Canadian winter being now upon us, the most of the Cacti family are having their season of rest, and it is during this resting season that care must be taken to allow these odd plants their natural treatment. In their native climate this resting season means a long drought, and at such times the plant shrinks into itself, and presents a half dead appearance. The spiny, globular sorts, look to be still more closely covered with their porcupine-like protection, and give a very decided warning that growth has ceased for that season. To the inexperienced they may look about dead, and a mistaken idea of forcing them back to their freshness and

growing condition, will be usually followed by the loss of the plant entirely.

The best treatment is to allow the rest nature demands, by withholding water almost entirely. Set the plants, if convenient, in a dry cool place, where they will have light. They will winter in a dark room, but the bloom will be much less in the spring, than if light has been supplied to them while resting.

Another advantage of the light corner or window, is that when the sun commences to get strong in the spring, and growth begins, it will not be puny and white, but will be the natural growth of the plant, improving the specimen instead of detracting from its

value. Then, when there is good light, growth can readily be seen and water gradually given until in a surprisingly short time the plant has swelled to its former size, assumed a fine healthy appearance and a vigorous growth set in.

or even at any time if drainage is not perfect.

But there are exceptions to this rule, for some cacti are very fine winter bloomers. Among these are the *Epiphyllum Ruspelianum* (crab cactus), called by some Christ-



FIG. 1984. PHYLLOCACTUS.

This is when blooming commences, and what cactus fancier is not proud to display to a friend the beautiful flowers, as if by magic from the sides, ridges or centers of of these the oddest plants in nature?

The penalty for disregarding the plants' demand for rest is very suddenly discovered some day, and the surprise is great. The centre of the plant will send out a new and splendid appearance of young growth, and all will look well for a time. Then it will take a change of color, perhaps slight, and an examination will reveal the fact that there is nothing left but a shell, covering a rotten mass of jelly. This is what so often follows when too much water is given at this season,

mas cactus, also *Phyllocactus Anguliger*, one of the flat leaved varieties which is a grand winter bloomer, bearing on its heavy stems, magnificent white flowers which have the advantage over so many other white flowered varieties, of being day bloomers, and lasting several days. The crab cactus is well known and its fine drooping habit and generous quantity of crimson flowers, open at Christmas time, are much appreciated. The *Phyllocactus Anguliger* is not so generally known, but where its beauties are once shown, it is ever after, a much valued specimen in any collection.

J. H. CALLENDER.

Woodstock, Ont.

GREENHOUSE AND WINDOW.

THE increasing power of the sun's rays as the end of January approaches will brighten up the outlook for a better supply of blossom than has existed during the early part of the winter. From now until spring there should be a succession of the showy, welcome, and one might almost say "anticipating blossoms" of the natural spring flowering bulbs, such as daffodils, narcissi, hyacinths, etc., as these always seem by their bright attractive blossoms to bring prospective spring nearer to us than it would otherwise seem to be without them. Bulbs are indispensable for greenhouse and window effect in winter. Stevias, Eupatoriums, Epiphyllum truncatum (lobster cactus), and similar plants will also make a variety of blossom at this season of the year. The last named plant, of which there are several varieties, makes a grand addition to a few greenhouse or window plants in winter. The Epiphyllums succeed best when grafted on the Pereskia stock. The grafting process is not a difficult operation to accomplish, the best time to secure cuttings or growth with which to propagate being probably after the plants are out of flower in spring. A small piece of the cactus can be broken off at a joint, inserted in a cleft made in the stock, and secured there by a sharp piece of stick being run through the stock and graft. If the atmosphere is at all moist, nothing further will be needed to ensure success. Tying with a piece of string will answer the same purpose as the small pointed piece of stick, to secure the graft in position. Cuttings of these plants will also root readily in sand, but are better suited to furnish hanging pots, brackets, etc., than for growing in the ordinary way. A light sandy loam, not very rich, with plenty of drainage, and not too much water at the roots, are conditions that

suit Epiphyllums the best. The bright colored, odd looking flowers of these plants, protruding as they do from the extreme tips of their peculiar flat, crenate growth, give them a unique appearance, and making a plant or two of them a striking feature amongst a general collection of greenhouse plants. In summer plants of the Epiphyllum can be stood outside in partial shade until early autumn, and require very little care and attention. The Epiphyllums make good plants also for the window. Calla lilies will require plenty of water at the roots and an occasional syringing of the foliage. These plants are very subject to aphid or green fly, and sponging the parts affected with weak tobacco water, or a light fumigation from burning damp tobacco stems, will keep down these little pests that multiply so fast on greenhouse plants generally.

Amaryllis bulbs that have been dormant or semi-dormant during winter, will soon show signs of active growth. These should be potted at once on showing signs of growth. A fairly rich loamy soil, and about an inch of broken pots for drainage, suits most of the numerous varieties and types of the Amaryllis family.

Late flowering cinerarias must be repotted into large pots before the pots they are in are filled with roots. The earlier sown Cinerarias will soon be showing flower, and a little weak liquid cow manure once a week will help to produce large flowers. Overhead syringing, almost daily, helps these plants and also assists in keeping down green fly; the latter are very partial to cinerarias. Tepid, clear water, should be used for the latter purpose.

All autumn struck geranium cuttings should be potted into small pots. Any old plants of these that were cut back, and have been kept in sand, can be potted into as

small pots as the roots will nicely go into. Over potting into too large pots in winter time is a mistake, especially for plants just starting root and top growth. Use nearly half sand mixed with the loam, for these and the cuttings before mentioned. In fact these remarks regarding newly rooted, or newly started plants, will apply to almost every class and type of plant, to a greater or less extent.

Cyclamen bulbs will soon be showing flowering buds, and will require plenty of water at the roots at this period. A little liquid manure once or twice a week will help to produce large flowers, and intensify their color, as well as the pretty markings of the foliage, so attractive a feature of the cyclamen. A cool temperature and an occasional syringing is necessary to have the best results possible with cyclamens.

Roses should be syringed with tepid water two or three times a week if at all practicable to do so. Sprinkling the hot-water pipes on very cold nights, when there is a good circulation of heat in them, will raise a cloud of vapor that will serve the double purpose of making the insidious little red spider very uncomfortable, as well as helping to seal up any open joints there may be in the glass roof. Steaming the house is a good plan on cold, windy nights, but must not be attempted unless the temperature of the house can be kept at least above 50° during the night.

Cuttings of lobelia, double alyssum, cupheas, and similar plants required for hanging baskets, vases, etc., should be taken now. This will give them a chance to make nice plants by the time they are required in spring. Old plants of *festuca glauca* and *Isolepis gracilis*, can be cut into small sections and repotted into sandy soil in small pots. These grass-like plants are pretty and useful for hanging baskets, window boxes, etc. Ventilate the greenhouse or conservatory very cautiously, if it is done

at all, and be sure and close the ventilators early in the day.

WINDOW PLANTS.—The principal plants in flower in the window will probably be a plant or two of *begonia incarnata*, calla lilies, and some pots of early flowering bulbs, Roman hyacinths, with some of the earlier flowering varieties of narcissi. Dotted here and there, these will make an attractive window display, placed amongst a few ferns



FIG. 1985. GERANIUM, "PETER HENDERSON."

and other plants, whose foliage alone is acceptable at this season of the year. A few trusses of geranium blossom will also be seen, if the window has a sunny aspect, and the directions given in the May number of journal regarding the culture of geraniums during the summer for the express purpose of producing flower in winter, have been followed up. The accompanying photo of a plant (taken in October) shows the result of the summer culture as before mentioned.

The plant shown is one of the semi-double varieties, and is named after the late eminent plant-grower, "Peter Henderson,"



FIG. 1986. FLOWERS ON SIDEBOARD.

one of the most enthusiastic and energetic florists of this continent up to the time of his demise a few years since. The flower of the geranium noticed is of a bright cerise-scarlet color. Its robust habit of growth, together with its free-flowering propensities, and its adaptability as a bedding variety in summer, or as a forcing variety in winter, have tended to make it a general favorite, especially with amateurs. There are several more varieties of geraniums of various colors, suited particularly for winter flowering, that were noticed in the article referred to previously, besides others of more recent introduction that can be easily obtained.

Plants are very susceptible to cold draughts of zero weather, and these must be prevented from striking directly on the plants by placing sheets of newspaper, or something similar, between them and the window on very cold nights.

If the plants are standing on a table it is easy to remove table and all a foot or two into the room from the window on very cold nights. This will often prevent a collection of window plants from being frozen and irretrievably ruined.

I have had handed to me a photo of a

small collection of plants that are evidently ready for an extra severe visit of winter weather. They also make a very pretty floral display on the sideboard for evening visitors to admire. It is to be hoped the plants as shown were removed back to the window as soon as possible, so as to give them the light and sun so necessary for the well-being of plant life in general. Those who succeed best with window-plants are those who endeavor to give them as nearly as possible the same surroundings that are supplied them naturally in their native haunts.

In the centre of the photograph at the back is seen a fine plant of *begonia sanguinea* with the last of several fine cymes of its delicate pale pink blossoms still showing. This is one of the most satisfactory varieties of the many numerous and beautiful types of begonias, specially adapted for window culture. Its thick heavy leaves, the upper surface of which is of a bright glossy olive green color, while the underneath side of the leaf is of a bright blood-red color,—hence its specific name “*sanguinea*”—seem able to withstand the dry heated atmosphere of a dwelling house, better perhaps than any of the begonia family, although there are several kinds, such as *B. manicata* and *B. manicata aurea*, that are good varieties for house or window (besides others of more recent introduction).

The cyclamen in the centre, and the pot of Von Sion and Orange Phoenix narcissi on either side, and the small plants at the extreme ends of the side-board had a very pretty effect altogether when the room was lighted up for the evening. A hanging pot or two of tradescantia or a trailing plant of German ivy or smilax would have completed a very pretty picture.

With increased fire-heat, insect pests will develop quickly. Green fly and red spider are the foes most to be dreaded. Sponging

as recommended for greenhouse plants is probably the safest method of disposing of green fly on window plants.

Spraying and syringing the foliage, especially the underneath side, as often as possible, at least two or three times a week, is not only the safest remedy, but the best preventive of the destructive attacks of the dry-air pest, viz., the red spider. Keep as moist an atmosphere as possible around the plants, and spray or syringe the foliage on fine sunny days. Ventilate the rooms also on fine warm days when possible. This should be done by lowering the top sash of the window ; this avoids chilling the plants. The bottom sash should be raised for ven-

tilation only when the thermometer registers several degrees above freezing, 45° to 50° being safe figures to act on, if the wind is not cold and biting. Water the plants thoroughly at the roots, but only as often as it is needed. The latter point can only be determined by close observation of the needs and requirements of each individual plant. Bulbs while forming flower buds and when in flower require plenty of water, as well as soft-wooded plants, such as geraniums, stevias, spireas, etc. Freesias require plenty of water for a time after they have done flowering, and even a little liquid manure to help develop the new bulbs for next season.

Hamilton.

HORTUS.

GLADIOLI AFTER FLOWERING.—I watch my Gladiolus beds very carefully, and as some sorts are earlier than others, I take them up as they ripen-off, and put them into the house. In the back kitchen there is a copper close to a patent kitchener, where there is considerable heat, and there I place them. They remain for a couple of weeks until they are quite dry, when I put them in paper bags and lay them by. That they will bear some considerable drying-off I have proved, for a small box of mixtures was forgotten for some weeks, and when taken out I did not think they were good for much. I, however, planted them in an out-of-the-way place under the shade of trees, and there they have grown and bloomed most vigorously. The Gladiolus disease seems in some way to be connected with climatic influences, and results, probably, from exceptional causes. These may be removed, and the bulb itself acquire more

hardiness. Hollyhock growers will remember that some years ago the same thing took place in that plant. Collections were cut up, and the attempt to grow the flowers pronounced hopeless. It, however, after some years of much heart-burning to growers, wore itself out, and the plant is now being grown again. So with the Gladiolus, I believe. Those who have seen a collection of them as cut blooms will desire to see them extensively grown. As cut flowers they have few rivals. They bloom so well in water, daily expanding their flowers, and are so vivid and varied in their color, that they must be great favorites. My ideas on their cultivation would be, Dry the roots well, keep them in a cool place to prevent their growing too early, manure highly in the autumn, again give a slight coating in spring, and do not plant too early.—*Garden Work.*





The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
 SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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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 it 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.

NOTES AND COMMENTS.

ERRATA. The word "successful" on page 526, December number, should read "succession," and "Fuchsia" in second column, page 527, should read "Freesias."

BRECKON'S SEEDLING.—Mr. R. Breckon, 956 Dundas St., Toronto, sends us two beautiful apples, with the following note:—

SIR:—"I send you two apples that I cannot name, and I have had them before two of the best judges in Toronto and they cannot name them. I would be very thankful if you would name them for me.

The two were grown by an old man who is now dead. He was very fond of growing trees from the seed of all the best apples that he could get, and also fond of grafting. This tree is about 10 or 12 years old by the appearance of it, and it grows upright like the Spy tree. The tree is in an orchard, or at least on one side of the orchard, where there are only Spy and Blenheim orange trees growing.

The tree bears a good heavy crop every year, and the man told me that he keeps them until the middle of May and they retain the flavour better than the Spy. The sample that I sent you has been in a ❧ arm room in my house for over three weeks, so it

does not give you a chance to judge its keeping qualities."

This apple is surely a seedling, but one well deserving farther attention from our Committee. Form oblate, $2\frac{5}{8} \times 3\frac{1}{4}$ inches in diameter; color, light yellow, beautifully shaded and striped with bright red, with numerous obscure yellowish dots; stem, $\frac{3}{8}$, very short and stout, in a deep cavity, and calyx nearly closed in a moderately deep wrinkled cavity; flesh fine grained, moderately juicy, of excellent quality. Season probably January or March.

APPLES have been advancing in price almost constantly, proving the correctness of our views of the crop and the markets as expressed in previous numbers. Many predicted a glut like that of 1896, but instead prices for No. 1 fruit have been better than

usual. Mr. J. M. Shuttleworth, of Brantford, sends us the following cables of Dec. 12th:—Messrs. Simons, Shuttleworth & Co., Liverpool, cable:—There is a steady demand for good sound fruit. The market is active and prices have advanced from our last quotations.

GALLING TO OUR YANKEE COUSINS.—The advancement we in Ontario are making in the way of extending our fruit markets, especially since the Provincial Department of Agriculture has moved in the matter, and the fruit is landing in Great Britain in such admirable condition, is a bitter pill for our Yankee cousins, who may never move in such an enterprise except at each man's own private risk and loss. The following extract from Cold Storage proves our statement:—

It must be galling to patriotic Americans who gloat over the vast strides we have made for foreign trade to learn that we are playing second fiddle to Canada in the matter of exports of perishable fruit products. It certainly moves us to wrath. That there is no sense in such a situation is apparent, except that Canadians are beating us in the game of progressiveness. That exception is just doing the trick. If our producers must get along without any governmental aid they ought to be the first ones to interest their fellow partners in the trade, and start a concerted movement for pushing exports of perishable products. Canada now sends more butter, cheese and eggs abroad than this vast Republic, and its fruit business is rapidly overhauling ours.

With less than one-quarter of our territory, and with a vastly larger percentage against that country in the matter of production, Canada has managed by ceaseless energy, to approach and pass us in sending abroad those products which this country is paramount in. Here is something for Americans to ponder over. Refrigeration is doing for Canada what it has done for Australia and New Zealand, and what it ought to do for this country. We know as much about the science as Canadians, but are not applying it to develop foreign business. We simply seem satisfied to work within our shell. Here is one sort of expansion that will meet with approval on all sides.

THE NOVEMBER FRUIT SHIPMENT.—On the 18th of November, the "Trader" sailed from Montreal, carrying a shipment of Grapes, Pears, Quinces and Apples, which we had forwarded from Grimsby a few

days previously. A letter has just been received from Mr. Peter Byrne, Government Agent, at Liverpool, dated Dec. 8th, in which he says:

The last shipment by the "Manchester Trader," which left Quebec on the 19th November, was discharged on the dock at Manchester on the afternoon of the 5th inst. I inspected it immediately on being landed and found the apples, pears and quinces all sound. But the grapes, though fairly dry and sound were in several instances wet and decayed. Since then I learn that they deteriorated after being landed and I fear a heavy loss on them was inevitable. The cold storage arrangements seemed to have been all right, but the fruit must have been too long picked at the time of shipment. The public here are slow to take up with anything new, but a good step has been taken in impressing them favorably with our grapes. I have had three exhibits at Liverpool, and a great many people have tasted them and pronounced them excellent.

Messrs. Potter & Co. write under the same date: The "Trader" has arrived and we hasten to inform you of the condition of the fruit sent by her. We understand that while she was loading at Montreal, the temperature was 15° F., and from the engineer's report that it took six days for the chamber to reach 39° F., no brine being pumped in the meantime, we judge that the fruit had been pretty well frozen. The result is that the pears rapidly rotted, almost immediately they were discharged they went off in color, and we fear it will be difficult to dispose of them at anything like a price. Of course you cannot expect them to stand such cold, and we should say it would not be wise to try to ship them so late another time.

This emphasises what we have all along advocated that in order to have perfect success, we must have weekly steamers. Last season we had only the space on one steamer engaged, and that after October 5th, it was November 18th before the next sailing, and fruit harvested in October had to be kept all the time waiting.

Let us have a steamer every week properly fitted as the "Trader" is, and this kind of a difficulty will not again occur. This kind of accommodation ought to be provided for us by the Government, and if our local associations would express their wishes either by letter or resolution to the Hon. John Dryden, we have no doubt he will make such provision as shall enable any company of growers willing to make up weekly shipments, with railway and steamship accommodation for the same.

QUESTION DRAWER.

Salt for Asparagus.

1198. SIR.—What amount of salt should be applied per square rod to an Asparagus bed, or what is the greatest amount which can be applied without injury to the plants? Is it possible to apply enough to keep down weeds without injuring the Asparagus.

GEORGE WOOD.

Erasmus, Ont.

Salt may be applied quite heavily to an asparagus bed without injury to the asparagus, indeed heavily enough to keep down weeds and grass. Some advise sowing one bushel to the square rod, as a fertilizer; but whether it has other than a mechanical effect upon plant growth is a disputed question. In addition to the salt we would recommend an annual top dressing of Nitrate of Soda, say two hundred pounds per acre, in March or April, as a specific for the encouragement of plant growth.

Apples for Ottawa Valley.

1199. I would like very much to have your advice as to which of the following varieties of apples you would consider the most profitable to plant:—Ontario, Northern Spy or Canada Red. I am planting an apple orchard in the Ottawa Valley and have set out some McMahon's White to be top grafted with either one or two of the above sorts. The Canada Red is proving quite hardy in that section, but it is not a strong grower nor a heavy bearer. Would top working it on a strong grower overcome these defects? Is the Ontario of as good color as the Spy? Does the Canada Red sell as well as the N. Spy? I have never seen market quotations of this sort.

I. F. MORROW.

Kelton, Ont.

In our opinion the Spy is the best apple of the three. It has a name in the Chicago market, and Canadian Spys are in considerable demand; and it is constantly rising in favor in the English market.

The Ontario so much resembles the Spy that it might sell as a substitute for it, and it has the advantage of being an earlier and more regular bearer. On this account, if planting young trees, we would choose the

Ontario as the one most certain of giving returns within the first fifteen or twenty years.

But for the Ottawa Valley we question whether either one is hardy enough. If our correspondent can satisfy himself in this point, he cannot go wrong with either variety.

Canada Red is not productive enough, as a rule, to be selected for a commercial orchard, although it is a fine color, and a good packer. Very often too, it is under-size, and these days no apple is wanted under 2½ inches in diameter.

1200. In an article on "The Boston Fern" which appeared in the Horticulturist a short time ago it stated that for treating scale on the leaves, washing was the best cure. Would you recommend anything but clear water to do this or is there any preparation which would be best to use? Kindly answer the above and you will confer a favor on,

F. DAVEY DIAMOND.

Answer by Mr. W Hunt, Hamilton.

The safest and most effectual method for the removal of "scale" from ferns and plants of a similar delicate texture, is to wash them with water in which a very small quantity of common soap has been dissolved. Apply the soapy water carefully with a small piece of sponge. By rubbing slightly, the scale can be removed without injury to the plant. Rinse or syringe the plant with clear water at once, so as to prevent any of the soapy water from clinging to the foliage. Whale oil soap and similar preparations are dangerous to use on ferns for the removal of scale.

1201. What is the best and most convenient fertilizer for a lawn? When and in what quantity should it be applied?

GEORGE WOOD.

Erasmus.

Clean stable manure, fine and rotten, is

about the best all around fertilizer for the lawn, and the effect in the rich dark green growth is very soon observable. If this is not convenient, excellent results may be obtained by sowing the lawn (1) with wood ashes, at the rate of from 25 to 50 bushels to the acre, to furnish potash, an important element in the formation of the stems and

woody portions of vegetation; (2) with nitrate of soda, say 75 lbs. to the acre, to promote vigorous growth; (3) with bone meal, about 200 lbs. per acre, which aids the nutrition of the plant.

The best time to apply these fertilizers is in May when the growth is starting.

Open Letters.

The Edible Fungi.

SIR,—Referring to the very valuable contribution of Dr. Hare in your November issue at page 454 on (let us say) "Edible Fungi," I hope the learned Dr. will give us some practical hints whereby we may distinguish the poisonous varieties.

It would be very useful if some one competent would give some hints as to how mushrooms may be *naturally* or *quasi* naturally produced in fields, etc. We find them on old pasture fields and places where cattle, etc., have been *salted*. In this neighborhood we have had phenomenal crops even where roots were being grown on land originally known as black ash and water elm "swails," first heavily *salted*.

Is there any connection between the *salt* and the *mushrooms*, or between the *salt* on that *particular class of land* and *mushrooms*? The matter is worth exploiting. W.

Birds and Berries.

SIR:—"As you have kindly helped me very much by your answers to my questions, I take the liberty to ask another, viz:—"If you have much trouble in growing Black Cap Raspberries from the birds eating them." Through the kindness of the Society, I have some very fine kinds and bought one or two more. I did not grow any for some time after

starting gardening here, thinking the winters too cold, but tried those you sent out and the first year or two after they began to bear I had very good crops, but the rust troubled me, and when I had overcome that, the birds stripped them off, although the red raspberries close by were hardly troubled. Do the birds make a dead set on yours? I wish to note my experience with the Codling moth. As my garden is small, I only grow one apple tree, which is large enough to bear 2 to 3 barrels of fruit every other year. It is a winter variety without a name, large greenish with red markings, a good deal like a spy. Four or five years ago it was infested with the worm so as to be almost worthless, and I then made a point to destroy or feed all apples that dropped; also tied a piece of sacking around trunk, and destroying the larvæ every two or three weeks, and this year I had scarcely a wormy apple in the whole lot, not more than were sprayed. I dug the ground late in the fall, as I grow black currants near it. I have a neighbor who has several trees and takes no particular care of them and they are badly affected.

I noted in the December number of Horticultuist, page 509, you speak in great praise of the high bush cranberry, and while speaking of it so highly, omit to mention one great advantage it possesses, viz; that the berries make an excellent jelly, which with meats we find to be generally preferred to any other.

Listowel, Ont.,

A. J. COLLINS.

OUR BOOK TABLE.

CATALOGUE OF FRUIT TREES, under test at Experimental Farm at Agassiz, B. C., Ottawa, 1900.

This is bulletin 3 second series, which is to include such as may be too scientific and technical for the common reader.

This catalogue, however, is one that is of interest to every fruit dealer in the Dominion, containing as it does such an extended list of fruits, largely descriptive. It includes 1,217 varieties of apples, 36

crabs, 557 pears, 311 plums, 154 cherries, 213 peaches, 53 apricots, 25 nectarines, 12 quince, 7 medlar and 6 mulberry trees.

REPORTS, Experimental Farm, for 1899. The work done at the Central Experimental Farm, Ottawa, does great credit to the Director, Dr. Wm. Saunders, and his able staff. Copies of the Report may be had on application.

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The plants I supply to customers cannot be excelled in United States or Canada.

They are grown with every possible care to avoid mixing and are shipped in open boxes packed in damp moss.

Their condition on arrival is guaranteed. Don't order your plants till you have seen my catalogue and prices. A postal all that is necessary.

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Box 3, Cummings Bridge, "near Ottawa," Ontario.



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GREAT CROPS OF SMALL FRUIT AND HOW TO GROW THEM.

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K. B. Whyte.

J. I. Graham.

Prof. Macoun.

T. H. Raee.

Harold Jones

A. McNeill.

Elmer Lick.



M. Pettit.

W. A. Whitney.

Prof. Hutt.

G. C. Gaston.

L. Woolverton.

W. M. Orr.

Thos. Bengough.

J. S. Scarff.

A. M. Smith.

FIG. 1987. OFFICERS AND DIRECTORS FOR 1901 AT BRANTFORD MEETING.

THE CANADIAN HORTICULTURIST

Vol 24 1901 No 2

** FEBRUARY **

THE BRANTFORD MEETING—II.

CONSIDERING the extreme value to farmers and fruit growers of the discussions at our meeting in Brantford, and the talented gentlemen who were invited to speak, it was surprising what a little local interest was aroused. We had a large outside attendance, but Brantford people were conspicuously absent. In future we shall take good care not to accept an invitation unless guaranteed a good local attendance and interest. Six places have competed for the next meeting, and we have accepted the invitation to Cobourg because backed up by a good live affiliated horticultural society, which insures a local interest. Many who are not able to attend our annual meetings will be pleased to see in our frontispiece our present directorate, and compare it with that of 1892 shown last month. This one is engraved from a photograph by Park & Co., of Brantford.

We are fortunate in being able to include H. L. Hutt, Professor of Horticulture of the O. A. C., Guelph, and W. T. Macoun, Horticulturist of the C. E. F., Ottawa, who by virtue of their positions well deserve a place on our directorate.

Mr. W. H. Bunting reported for the Committee on Transportation, showing that while much yet remained to be sought for, some more reasonable concessions had been made on carloads of fruit to about 20 per cent. The making of 20,000 lbs. a carload made it impossible to get the advantage of the reduction in the case of this fruit, because, owing to the light weight of this fruit and room occupied by the baskets, this weight of grapes could not be put in a car. The committee was continued with one or two additional members.

Dr. Saunders, of Ottawa, contributed very largely to the interest of our meeting and to the value of our report, by his very able address upon Canadian fruits at the Paris Exhibition. Canada had won more medals and prizes in fruit than in any other department, and had created a most favorable impression among foreigners, leading to much inquiry for purchase.

The fruit forwarded by the Secretary by the Manchester Commerce on September 15th and on the Manchester Trader on October 5th had arrived in capital condition, although five days out of cold storage from

Manchester. Even peaches had arrived in good condition and gained for us a special *Grand Prix*.

At the evening session in Wickliffe Hall, an address of great interest was given by Mrs. John Hoodless of Hamilton, in which she gave a comprehensive account of the progress of women in the study of horticultural problems and practice in Great Britain, and strongly advocated that provision should be made in Ontario for the training of young ladies in this art, by the erection of women's buildings in connection with the Ontario Agricultural College at Guelph. The suggestion was adopted and a resolution passed supporting the ground taken by Mrs. Hoodless on this subject.

The secretary showed quite a number of fruit packages for the consideration of the meeting, including *the barrel* advocated by Nova Scotia and adopted by the American apple shippers, viz., staves 28½ inches long, head 17¼ inches, bilge 6¼ inches; *bushel apple-box* 22 x 10½ x 11, inside measurement; *pear-box*, 22 x 10½ x 5½; *peach-box*, 22 x 10½ x 4½. This was felt to be a very important matter, and one upon which uniformity should be secured as soon as possible. It was therefore referred to a committee consisting of W. M. Orr, W. F. Fisher, S. M. Culp, M. Pettit, T. H. P. Carpenter, W. H. Bunting, Robt. Thompson, D. J. McKinnon, A. H. Pettit, E. D. Smith and L. Woolverton.

MAKING WHITEWASH.

AT DAIRY conventions and meetings the necessity of *perfect cleanliness* and the advantage of an *attractive appearance, inside and outside*, at cheese factories and creameries are constantly reiterated. The following receipt for making whitewash is highly recommended:

Take half a bushel of unslacked lime. Slake it with boiling water. Cover during the process to keep in steam. Strain the liquid through a seive or strainer, then add to it a peck of salt previously dissolved in warm water; three pounds of ground rice boiled to a thin paste and stirred in while hot; half a pound of Spanish whiting, and one pound of clean glue, previously dissolved by soaking in cold water, and then by hanging over a slow fire in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well, and let it stand a few days covered from dirt. It should be applied hot, for which purpose

it can be kept in a kettle or portable furnace. A pint of this whitewash mixture, if properly applied, will cover one square yard. It is almost as serviceable as paint for wood, brick or stone; and is much cheaper than the cheapest paint.

Coloring matter may be added as desired. For cream color add yellow ochre; for pearl for lead color add lampblack or ivory black for fawn color add proportionately four pounds of umber to one pound of Indian red and one pound of common lampblack; for common stone color add proportionately four pounds of raw umber to two pounds lampblack.

Cheesemakers might use a barrel and steam, instead of a furnace. The east end of the President's house at Washington is embellished by this brilliant whitewash. It is used by the government to whitewash light houses.—*Report Cheese and Butter Association.*

AGARICACEAE OR GILL-BEARING MUSHROOMS.

IT is not my intention to attempt a systematic and thorough discussion of this subject. I take it for granted that what is desired for the columns of the *HORTICULTURIST* is not a technical treatise that may interest students of mycology, but such a clear and concise description of the salient characteristics of a few of the more important species of this group as will enable the average reader to recognize them readily, and so enrich his fungus *menu* by one or more new acquisitions or to avoid at least the forbidden fruit that some have eaten to their cost. Judging from my own experience and that of others, I bespeak for every reader of the *HORTICULTURIST* an intensity of interest and pleasure every time that he identifies a new species, and places it for the first time upon his table, and partakes of it without harmful results. The subject of mycology is so fascinating, and the interest in it so easily awakened, that I venture the assertion that some who may read these articles will not be content with the few fragmentary thoughts that I may be able to give them, and will eagerly seek for more. To those unfamiliar with the subject it may be desirable to explain a

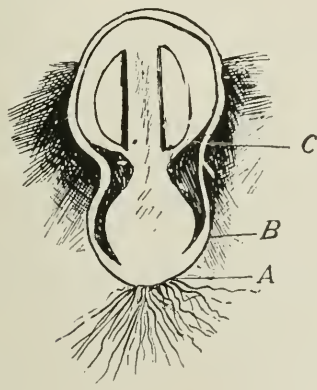


FIG. 1988. UNDEVELOPED AMANITA.

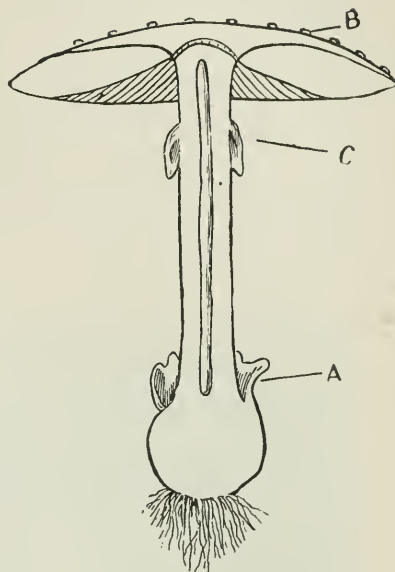


FIG. 1989. MATURED AMANITA (*McIlvaine*).

few terms used in describing the more important structural features of this group.

Fig. 1988 represents a cross section of a young and undeveloped amanita. The letter A points to the mycelium or thread-like vine, the true fungus from which the fruit or mushroom grows; B—the outer envelope or volva, by some styled the “universal veil,” completely enveloping the whole plant; C—the inner or partial veil connecting the stem with the cap and enclosing the lamellae or gills.

Fig. 1989 represents a cross section of the same plant at maturity. During the period of growth the outer veil has been ruptured, and nothing remains of it but a cup or sheath at the base of the stem indicated by the letter A, and some shreds or fragments looking like scales or warts on the top of the cap; (B). The inner veil has also been torn from the cap and now appears as an annulus or ring about the stem; (C). The gills under-

neath the cap serve the important purpose of affording surface for the development of spore-bearing cells (basidia) known collectively as the hymenium. The cap or pileus is sometimes styled the hymenophore because of its bearing the hymenium. The spores shed from the basidia are of different sizes, shapes and colors, and afford important features for the determination of species. For instance, the family agaricaceae has been divided into five series, viz., leucosporae, rhodosporae, etc., according to the

(1) *Agaricus Campestris*, or Meadow Mushroom—This is the best known of all our mushrooms and the one usually cultivated artificially. Fig. 1990 presents a group in different stages of development. The second specimen from the left is one in the young or button stage. There is no volva or universal veil surrounding it, as illustrated in Fig. 1988; but there is a partial veil connecting the cap with the stem, and leaving when ruptured by the growth of the plant a ring or remnants of a ring upon the stem. The

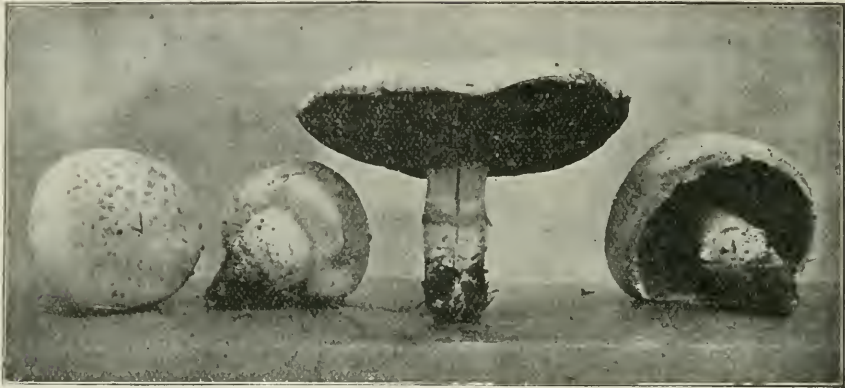


FIG. 1990. *AGARICUS CAMPESTRIS*.
(From Coville, U. S. Department of Agriculture.)

color of the spores, whether white, pink, brown, purple, or black. The shape of the cap and the gills and their relation to the stem or stipe, the shape and position of the ring, the presence in some form or other of one or both of the veils referred to, or their entire absence afford important distinctions by which species may be determined. Standing at the head of the family Agaricaceae, the very aristocrat of the whole mushroom race, is the genus *amanita*, to which belong our most poisonous varieties. I shall reserve the discussion of these for the next article, and shall proceed to describe some edible species belonging to this family found within the college grounds, or in the neighborhood of Whitby.

cap when fully expanded is from two to three and a half inches in diameter and varies in color from creamy white to light brown or tawny. The gills are unequal in length and are pink when first revealed, afterwards changing to brown, purple brown, and almost black. The stem is solid and generally shorter than the horizontal diameter of the cup, and about equal in thickness throughout. The spores are brown and may be obtained by placing a mature specimen gills downward on a piece of white paper, care being taken to cover it with a tumbler or bowl to exclude draughts of air. We cannot shake the spores out of this mushroom, and have them appear in the form of dust, as in the case of the puff ball. If it is

desirable to preserve a "spore print" the surface of the paper should be coated with a thin solution of gum arabic. This mushroom has been found for many years in great abundance in our college lawn and pasture fields. During last summer the pasture field was plowed up, and this only added to the luxurious growth of mushrooms. The usual custom of peeling this mushroom before cooking is a mistake, as it takes away from it its choicest flavor. It may be fried in butter or stewed in milk or cream, or eaten raw, and is always palatable and easily digested.

(2) *Agaricus Arvensis*, or Horse Mushroom.—This has been considered a large variety of the *Compestris*, and has likely received its name, "horse mushroom," because of its size and rankness of growth on the same principle that the horse radish received its name. Its cap often expands to the diameter of six or seven inches. It resembles in many respects the *compestris*, but differs from it in having a hollow stem, a slightly bulbous base, a double ring or collar, and a paler shade of pink in the gills of the young plant. Dr. Peck says of it: "The collar appears to be composed of two parts closely applied to each other and making a double membrane, the lower part of which is of a thicker, softer texture and split in a stellate manner into broad yellowish rays. This is perhaps the most distinctive character of this species." It has been supposed that the spores of this and of the preceding will not germinate until they have passed through the alimentary canal of the horse. Whether this be so or not, it is certain that it is only in soil enriched by the manure of this animal that either of them can be successfully grown in gardens or in cellars. *A. arvenses* has been found in considerable quantities in and around the college hot beds.

(3) *Agaricus Gambosus*, known in England as St. George's Mushroom.—It is one

of our earliest spring mushrooms, having been found as early as April 23rd. Its most striking feature is its densely-crowded, yellowish white gills of unequal lengths, each annexed to the stem with a decurrent tooth as shown in Fig. 1991. The cap is about three inches in diameter, occasionally five inches, and is *smooth* (no patches or warts on surface), thick, and fleshy, suggesting soft kid leather, at first rounded, convex, ultimately expanding quite horizontally, and is commonly fissured here and there with irregular cracks both in its expanse and at its edges. Its color is white or yellowish white. The stem is comparatively short, thick and solid with a slight

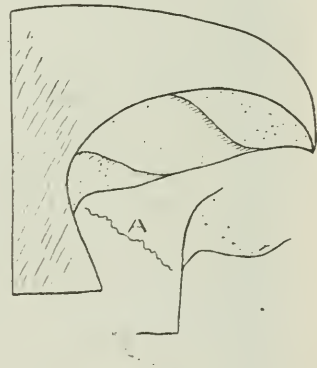


FIG. 1991. *AGARICUS GAMBOSUS* (Gibson).

enlargement toward the base, and *with no indication of volva or sheath*. This latter feature will be more strongly emphasized when we come to speak of poisonous varieties. It has a stronger fungus odor than the common mushroom and sometimes grows in rings and clusters. It has been found for some years on college grounds, and its edible properties have been fully tested.

(4) *Marasmius Oreades* or Fairy Ring Mushroom, called in England "Scotch Bonnets," also "Champignons."—It received the name "Fairy Ring" from its tendency to grow in rings or circles or parts

of circles. Fig. 1992 gives a good idea of its appearance on the lawn. In the early days of superstition it was thought that the rings marked the place of fairy dances, or bolts of lightning, etc. It is now known that the ring is due to the outward growth of the mycelium. Starting with a single fungus whose development in the soil takes from it the constituents necessary to its growth. This exhausted condition of soil necessitates

the college lawn about twenty years ago, and its manifest rings presented a rather unsightly appearance, and special efforts were put forth to stamp it out. Of late years we hail it with delight and proceed to fill our baskets with wholesome and nutritious mushrooms. The following description of this fungus is given by Dr. Peck: "Pileus fleshy, tough, glabrous, convex or nearly plane, often somewhat umbonate,

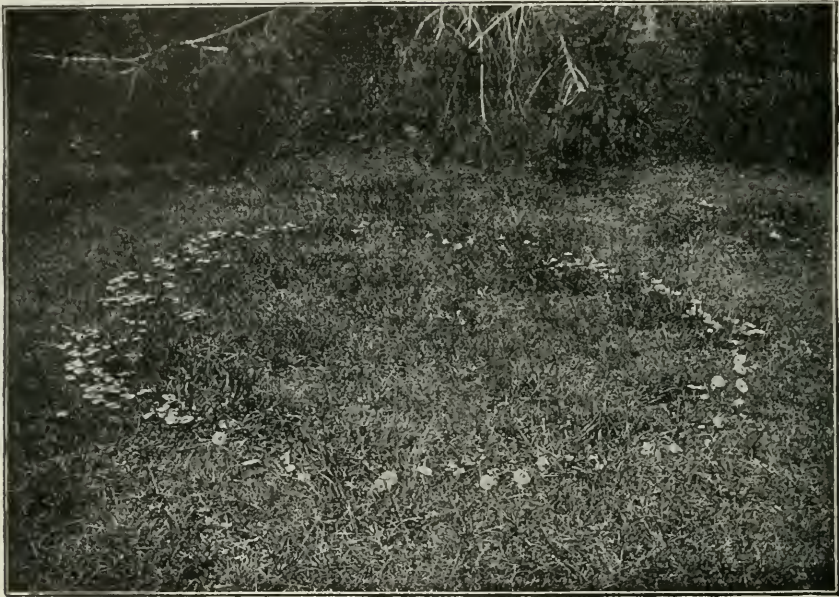


FIG. 1992. *MARASMIUS OREADES*.
(U. S. Department of Agriculture.)

the outward spread of the mycelium, and so it extends from year to year, growing always on the outside and dying on the inside, thereby indefinitely increasing the diameter of the ring. Should any cause intervene to stop the growth of the mycelium in any direction, a broken ring or an arc of a circle would be formed. Strange to say the grass surrounding the ring is always deeper in color and more luxuriant in growth than the rest of the grass on the lawn.

This mushroom made its appearance on

reddish or tawny red, becoming paler with age or in drying; lamellae broad, distant, rounded behind or free, whitish or yellowish; stem slender, tough, solid, coated with a close, dense villosity, whitish; spores nearly elliptical white .0003 to .000035 inches long." The cap is from one to two inches in diameter and the stem from one to two and a half inches in length and about a quarter of an inch in thickness.

Fig. 1993 shows a couple of young specimens. In these the mound or umbo, at the



FIG. 1993. YOUNG SPECIMEN
MARASMIUS OREADES.
(U.S. Dept. of Agr.)

juncture of the stem and cap, is not so manifest as in some others. In old specimens the pileus is usually flat.

Fig. 1994 exhibits one of the most striking and important characteristics of this mushroom,

and that is that the gills are rather broad and wide apart, showing at the rim of the larger specimens not more than ten to twelve to the inch. I draw special attention to this characteristic, because associated with it on our college grounds is a poisonous species, *Marasmius ureus*, closely resembling it in shape and size but differing materially in the number and closeness of the gills,

having from twenty-five to thirty to an inch. They differ also in taste. The true fairy ring can be eaten raw and is quite agreeable to the taste, in fact it has been described as "sweet, nutty and appetizing," whereas the poisonous variety is rather acrid to the taste. Another species, *Nancoria semiorbicularis*, said to be found sometimes in company with *Marasmius oreades*, but I have not yet succeeded in obtaining it. Should any reader of the *HORTICULTURIST* desire specimens of *Marasmius oreades* and *Marasmius ureus* at the proper season, I shall be pleased to send them to them.



FIG. 1994. MARASMIUS
OREADES SHOWING
THE GILLS.
(U.S. Dept. of Agr.)

J. J. HARE.

Ontario Ladies' College, Whitby, Ont.

FEEDING CROPS.

FOR hundreds of years the common practice in farming has been to feed the soil rather than the crops grown on the soil. So ancient is this practice that it has become a fixed law, and many intelligent farmers even to this day continue to enrich the soil without any considerable reference to the crops to be grown thereon. This is one of the most stubborn habits the scientific agriculturist has to contend with; still, it must be understood that the science of farming is so young that many of us well remember the rather startling propositions of Liebig and Lowes, and with what incredulity they were first received by the vast majority of even the more intelligent classes of farmers.

All this brings us back to the main point, the feeding of crops. Stated briefly, crops

should be fed (fertilized) with reference to the special needs of the crop. A soil in good general condition is not sufficient of itself, just as good farmers now know there is no good general purpose in anything on the modern farm. A soil black with humus, and in excellent tilth, may answer very well for certain crops, but these are the very crops so common on such soils, and which usually are but slightly profitable. The successful modern farmer is one who quickly learns what crops are to him most profitable, and learns also how to make his soil produce those very crops, whether they are common to his neighborhood or not.

The first thing to do in most cases is to *unlearn* all the old ideas as to manures, soil heart, etc., and to confine the idea of plant feeding to the bare fact, now unquestionably

fixed by thousands of scientific experiments, that plant food is not merely manure, or fertilizer, or fertilizer chemicals even, but the nitrogen, potash, and phosphoric acid contained in these substances. This is the first idea to fix thoroughly in the mind, and a great deal has been gained when so much is accomplished. Next should be considered the feeding habits of plants, and these are shown largely by the chemical analysis of the whole plant substance of any crop, grain or forage, including in every case the roots, stubble and straw—all such parts as are commonly considered useless as having no sale value. It is well to look into these refuse portions of crops still more closely. While straw, roots and stubble have little crop value in the market, they take up their proportionate amount of the plant food needed for the crop; but, without these comparatively useless proportions the valuable grain or forage as the case may be, cannot be realized. Hence, the plant food required for a certain crop must always include an allowance for the elements contained in the comparatively useless stubble, roots and straw.

The feeding habits of the chief grain crops are shown roughly by the following table, giving the actual plant food required for crops as indicated:

	Bu. per acre	Nitrogen	Potash	Phos. Acid
Wheat	35	60 lbs.	35 lbs.	25 lbs.
Rye	30	52 "	47 "	27 "
Barley	40	47 "	39 "	22 "
Oats	60	56 "	65 "	23 "

It is imperative, in order to realize the yields as above, that the crops should have in available form the quantities of nitrogen, potash and phosphoric acid given in the

table. It is also well known that crops cannot sweep a soil clean of food, and that all plant food elements must be present in excess of the actual requirement of the crop. Knowing this, the farmer can easily balance his plant food to fit the crop.

Unfortunately, there is a tendency among farmers to use incomplete fertilizers (fertilizers not containing all three of the essential elements of plant food), and to these we must say that the laws of plant growth are inflexible; no one element of plant food can replace another. If any two are present in ample quantities, or even in excess, and one element deficient, the crop is limited by the deficient element, the excess of the other two elements goes largely to waste. In this connection, farmers will do well to scan the composition of the fertilizers offered by dealers, to see if they are not practically incomplete in the sense that one or more elements are present only in very small percentages.

Where incomplete fertilizers are used to grow a legume (plants of the clover type), the procedure is rational, as the object is to favor a heavy growth of the legume, which type of plant not only takes up atmospheric nitrogen for its own uses, but also stores up large quantities in roots and stubble which may be used as plant food for succeeding crops. In this case, potash and phosphates must be used liberally, as the nitrogen cannot be assimilated unless certain quantities of potash and phosphates are present to accompany same in the vegetable substance of the crop. It must be kept in mind, however, that fertilizers for this purpose may be deficient in nitrogen only.

S. P. Cox.





FIG. 1995. PYRAMIDAL ARBOR VITAE.

CENTRAL EXPERIMENTAL FARM NOTES.—XIII.

THE weather during the past month has been very changeable. There has been no continued spell of very cold weather and no mild weather worth mentioning. On November 14th four inches of snow fell, and there has been a constantly increasing depth of it until now there is fully three feet on the level and more in some places. The heaviest snowstorm since the

first of the year occurred on Jan. 12th, when fourteen inches of snow fell. The coldest day was on the 18th, when the temperature was 24° Fahr. below zero, but on the 3rd it was 21° Fahr. below zero, almost as low. There has been more cloudy weather than is usually the case during the month of January. On the 16th there was a heavy rain-storm which lasted five or six hours and the

weather continued mild most of the day, but in the evening it froze again. The snow must have been lessened somewhat, but not perceptibly.

Owing to the heavy covering of snow there is very little frost in the ground. The probability is that on this account spring will open very early this year, though it may be backwards enough later on. Bulbs had a splendid opportunity of making great root growth, and the flowers next spring should be very fine.

Evergreens are noticed in the winter months perhaps more than in the summer on account of their contrast with the bare-looking appearance of the deciduous trees, and it is surprising how much more comfortable a house looks with a few evergreens near it, even though they do not offer any protection from the cold winds, which they often do.

Among evergreens there are few as satisfactory as the different varieties of American Arbor vitæ. At the Central Experimental farm there are now fifty-one distinct forms growing which vary much in foliage and habit of growth from the dwarf and compact "Little Gem," which is only a few inches high, to the pyramidal Arbor vitæ which rises straight and full in striking contrast to it. The American Arbor vitæ adapts itself to a great variety of soils, and it is only on the heaviest clay and lightest sandy soils that it fails to make satisfactory growth. This adaptability to so many different situations is one of the reasons why it is so valuable for ornamental planting. Another important reason why they are so desirable is that they are all perfectly hardy, as the ordinary form grows in the coldest parts of Ontario and Quebec. Owing to the dwarf or semi-dwarf habit of most of the varieties, they are very useful for small grounds where there is not room to grow anything which will reach a great size. Some of the varieties are so distinct in shape, such as *com-*

pacta, *globosa*, *pyramidalis*, and *Hoveii*, that visitors to the Experimental Farm are often led to believe that they have been pruned to their several shapes until informed to the contrary.

Out of the large collection the following are selected as being among the best as regards form and color of foliage :

Douglas' Golden Arbor vitæ (*Thuya occidentalis aurea Douglasii*): For those who are fond of yellow foliaged evergreens, this is a very desirable one. It is of a fine, upright form, with bright golden leaves which retain their yellow color well in the winter, making this tree very attractive at that time of the year. Contrasted with darker kinds it makes a good effect.

Compact Arbor vitæ (*Thuya occidentalis compacta*):—This is a compact, dwarf variety with bright green foliage and is very pleasing to the eye. There is a variety, Parsoni, which is particularly good.

Ellwanger's Arbor vitæ (*Thuya occidentalis Ellwangeriana*):—Although this variety does not grow very tall, specimens from twelve to fourteen years old being about four feet high, it is a vigorous growing sort and spreads out well. It is a compact variety and has slender leaves and branches which give it a less stiff appearance than some other varieties.

Hovey's Arbor vitæ (*Thuya occidentalis Hoveii*): This is one of the finest and most attractive varieties. The leaves are bright green and the branches flat and parallel, giving the shrub a very remarkable but pleasing appearance. It does not grow very tall, specimens from twelve to fourteen years of age being only between four and five feet high.

Pyramidal Arbor vitæ (*Thuya occidentalis pyramidalis*):—The pyramidal Arbor vitæ is one of the most distinct in form. It is a compact and very upright grower, being quite columnar in form, which makes it a very conspicuous object wherever planted.

Siberian Arbor vitae (*Thuja occidentalis wareana Sibirica*):—The Siberian Arbor vitae is one of the best known varieties. It is of compact habit, and while not as dwarf

Thuja occidentalis Columbia:—Of those varieties of the American Arbor vitae which have variegated foliage this is one of the best. The tips of the leaves, which are rather blunt, are whiter than most of the other variegated forms, and the contrast between the lighter parts and the green is, therefore, more marked. This is a very beautiful variety.

There are a good many species of spruce, and of the Norway spruce especially there are a great many varieties, but there are few of them which are better than the ordinary forms. The Norway spruce (*Picea excelsa*) is one of the best evergreens that will grow in this country. It is hardy, of rapid growth and good form, and possesses more good points than any of the other species.

The Rocky Mountain Blue Spruce (*Picea pungens*) is a very handsome tree. It lacks the graceful form of the Norway, but if a good specimen of the glaucous form is procured there will be nothing found to equal the beauty of the steely blue foliage. This tree is a slow grower and it takes some time before it reaches a great height. The beautiful specimens growing at the Central Experimental Farm are the wonder and admiration of all visitors. This species varies much from green to steely blue, and in ordering this tree the blue variety should be asked for.

Among the newer spruces there are none of the hardier species which equal Alcock's spruce (*Picea Alcockiana*) in beauty. It is a native of Japan and there attains a height of from forty to sixty feet. It is quite distinct from other species. The upper surface of the leaves is dark green and the lower surface is bluish, silvery-green, and the contrast gives the tree a very attractive appearance.

The cut of this spruce, which was produced from an excellent photo taken by Mr. F. F. Shutt, gives some idea of the character of it.

The native White Spruce (*Picea alba*) is not to be ignored. When given plenty of



FIG. 1996. ALCOCK'S SPRUCE.

as some others, it does not grow very tall. The leaves have a blunt appearance, which distinguishes it from most varieties, and their deep bluish green color is also quite distinct.

room where it can develop symmetrically it makes a handsome tree. The White spruce varies much in the color of the foliage, and by a careful selection specimens may be obtained which almost equal the Blue spruce in beauty of coloring. If one cannot afford to buy trees of other species one can get much satisfaction from growing a White

spruce. The trees should be planted when quite young to get the best results, and they should be branched almost to the ground. If larger trees are planted they are liable to be scraggy or will become so.

W. T. MACOUN,
Horticulturist, Central Experimental Farm,
Ottawa.

IMPORTATION OF NURSERY STOCK.

ORDER IN COUNCIL.

His Excellency, in virtue of the provisions of section 5, chapter 23, 61 Victoria, intituled "An Act to protect Canada from the Insect Pest known as the San José Scale," and of 63-64 Victoria, chap. 31, "An Act to amend the San José Scale Act," and by and with the advice of the Queen's Privy Council for Canada, is pleased to order that exemption from the operations of the above mentioned Act shall be and is hereby authorized of any trees, shrubs, plants, vines, grafts, cuttings of buds, commonly called Nursery Stock from any country or state to which "The San José Scale Act" applies; and that all importations thereof shall be and are hereby permitted to be entered at the Customs Ports only of St. John, N. B., St. John's, Que., Niagara Falls and Windsor, Ont., and Winnipeg, Manitoba, between the following dates in each year; in the spring, and in the autumn; and at Vancouver, British Columbia, during the winter months only, at which ports they will be thoroughly fumigated with hydrocyanic acid gas by a competent Government official in accordance with the most approved methods.

All shipments made in accordance with the above will be entirely at the risk of the shippers or consignees, the Government assuming no risk whatever.

Packages must be addressed so as to enter Canada at one of the above named ports of entry, and the route by which they will be shipped must be clearly stated upon each package.

As it is well known that well matured and thoroughly dormant nursery stock may be safely treated, but that there is danger of serious injury to the trees if fumigated in the autumn before the buds are thoroughly dormant, or in the spring after the buds have begun to unfold, all stock which when received is immature or too far advanced for safe treatment will be refused entry and held at the risk of the shipper.

His Excellency, in virtue of the provisions of section 7 of the Act first above mentioned, is pleased to direct that the authority herein granted be published in the *Canada Gazette*.

JOHN J. MCGEE,
Clerk of the Privy Council.

THE CANADIAN EXHIBIT OF FRUIT AT THE PARIS EXHIBITION OF 1900.

COLLECTION OF THE FRUIT, ETC.



THE collection of fruit and vegetables for the great International Exhibition was begun in June, 1899, in time to obtain the earliest fruits of the season.

The work was begun simultaneously in the different Provinces of the Dominion. This was absolutely necessary where so large an extent of territory had to be gone over. In the older Provinces the work was put into the hands of experienced men, under the general direction of the Director of the Experimental Farms. A good deal of the work was done at the several experimental farms—their splendid collections of fruits and vegetables giving them unusual facilities for the task.

As it was desirable to make as complete an exhibit as possible of the various fruits of the country, it was necessary to preserve the soft fruits and the smaller vegetables, that were quickly perishable, in antiseptic fluids, in clear, glass jars. For that purpose jars of various sizes from a pint to a half bushel were procured and sent to the collectors, together with the formulas, and the necessary chemicals and alcohol to be used in making the antiseptic fluids. Thus fitted out the collectors went into the country, and either personally collected the fruit in the gardens and orchards or made arrangements to have it sent to a central point where it could easily be reached and collected for preservation.

FORMULAS FOR PRESERVING THE FRUIT.

1st. A two per cent. solution of formalin was used for strawberries, red raspberries, black berries, and black currants. 2nd. A two per cent. solution of boracic acid for

cherries, red and black currants, red gooseberries, red and black grapes, plumbs and apples. 3rd. A three per cent. solution of chloride of zinc for all light colored fruits, green and russet apples, &c. 4th. A solution of sulphurous acid, of one pint of the acid to eight pints of water, to be also used for light colored fruits. 10 per cent. of alcohol was added to all these solutions to prevent danger from freezing,

These preservative fluids were calculated to preserve the colors as well as the substance and texture of different fruit, and accomplished the desired end fairly well, and would doubtless have been perfect had the fruits been always in proper condition when put into it. In fact so well did they accomplish that purpose that they were universally admired. Probably no part of the general exhibit of Canada, or for that matter of any of the countries exhibiting, awakened so great a degree of interest and gave opportunity for asking so many questions as the splendid display of Canadian fruit, both natural and in solution. The bright liquids and the clear glass jars gave the preserved fruit a very tempting appearance. Householders never wearied of admiring it, nor of enquiring how it was done, when it was gathered, and what were we going to do with it at the close of the exhibition, and the disappointment was correspondingly great when they found that it was not to be eaten. As the summer was full advanced, the astonishment was always marked when visitors, in answer to their questions, were told that the natural fruit was of the year 1899. A considerable quantity of the fruit of 1899 was still in perfect preservation when the new fruit was installed in October.

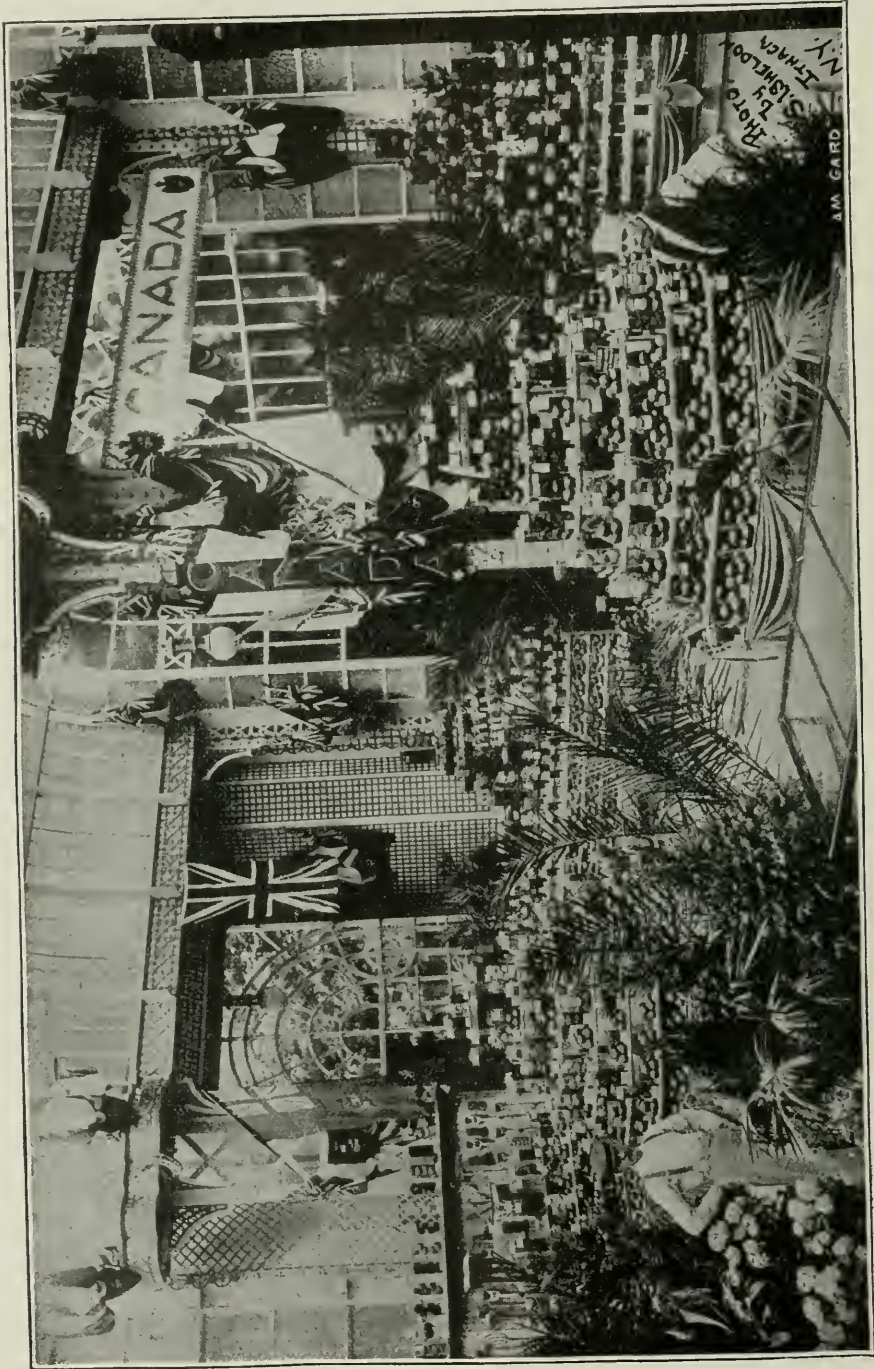


FIG. 1997. THE CANADIAN FRUIT EXHIBIT.

FRESH FRUIT—APPLES.

Our fine fruit, in such variety, and in such admirable keeping and condition, as it was throughout the entire seven months duration of the exhibition, seemed a new revelation to many of the visitors. It seemed incomprehensible to most of them, who had never heard of cold storage or had only a vague idea of what it was.

The entire collection of fruit and vegetables consisted of about 1700 jars in solution and over 500 cases of fresh fruit—apples.

Although there were a great many of the cases of bottled fruit broken in transportation, there were still nearly 1400 jars in good condition for the exhibition, and nearly a hundred varieties of apples were placed on the tables and stands for our first concours.

It is perhaps needless to say that many of the jars of fruit in solution were spoiled by the intense heat of the Horticultural building (a glass structure), but about 1200 were still in good condition at the close. The losses were chiefly in the colored fruit, which, while it retained its form, almost entirely lost its color.

It will be easily understood that the collection and preparation of such an exhibit was no holiday task, and called for sound judgment and a great deal of thoughtful consideration from those engaged in it, and also that it was not accomplished without a large outlay of money.

PREPARATION OF THE PERISHABLE FRUITS.

For the due preparation of the fruit, scales, weights and measures were necessary, besides vessels in which to mix the several solutions. Strainers and filtering papers were also necessary, perfect cleanliness and clearness of the fluids being amongst the conditions required in thorough work. It was further necessary that the fruit should be as nearly as possible without

bruises or imperfections of any kind, and it is gratifying to know that many fruit growers put their best fruit at our disposal for this purpose and gave us a free hand, so that it was sometimes possible to take our apparatus into a garden and stay a few days in the neighborhood, by this means securing the best species in the best condition and at once putting it into the preserving fluid, thus obviating the necessity of a second handling.

The water used in the solution required to be of the clearest. Generally there was no difficulty in procuring it, especially where a filter was within reach. Otherwise distilled water was used when renewing the solutions, as was sometimes necessary in Paris. The Seine water, the only water procurable in the Horticultural building, was very impure.

All the small soft fruit, i.e., the strawberries, raspberries, cherries, currants, gooseberries, &c., were put up in pint bottles. The greater weight of a larger quantity than a pint would have crushed the fruit, and besides, the smaller bottles showed the fruit to better advantage. Some of the smaller plums, also, were put into these small bottles.

For the general run of plums a quart jar was used, and for the largest sizes a two quart jar. Crab apples and the smaller sizes of apples were also put into the two quart jars. The general run of apples and small sized pears required a gallon jar, or larger, and the largest sizes, Alexanders, &c., took the largest sizes at our disposal, and, unfortunately, the largest sized jars suffered the most in the transportation.

Packing and placing in cold storage from time to time when a sufficient quantity of fruit had accumulated it was collected, re-labeled and carefully packed in medium sized cases for shipment and transferred to the cold storage warehouse, there to remain till finally shipped to Paris.

The bottled fruit did not suffer as much

from the several transshipments as might have been expected, when it is remembered that much of it came from British Columbia, the North-West and Prince Edward Island, Nova Scotia and New Brunswick. With all the handling that these changes entailed, with the double handling at Montreal, re-handling at Portland, from train to ship, and again from the ship to train at Antwerp, and finally at Paris, it is little short of miraculous that it reached its destination at Paris as well as it did. It is, I think, safe to say that the greater part of the injury sustained by the fruits in solution was after it reached Paris. There the laborers engaged seemed incapable of handling anything except in the roughest manner. They apparently took a fierce pleasure in throwing things about.

PARIS.

On our reaching Paris in the end of March, we found everything in the buildings in confusion. No part of the building was ready, nothing was completed, and, to add to the confusion, large quantities were continually arriving and being laid down in the building, or outside of it, so that for some time it was necessary to climb over piles of cases to get into the building—such was the state of matters in the Canadian pavilion. In the Horticultural palace, where our fruit exhibit was to be made, things were in a still worse condition. Our side of the building was neither roofed nor paved, and all our efforts for several weeks accomplished nothing in hastening the work. Repeated visits to the office of the British Royal Commission, in whose hands our portion of the building was, yielded nothing but promises. After some weeks delay the roof was put on, and as there was no prospect of the paving being attended the Commissioners finally determined to put a floor down and proceed with preparation for our installation, as the placing of our fruit was called.

PREPARATION FOR INSTALLATION.

After many delays through waiting for lumber and material of various kinds, and the dilatory character of the French mechanic, about the first of June we were ready for the installation of the fruit, but we had yet to learn many things of French methods of not doing it. Our fresh fruit that was in cold storage at Liverpool took nine days to reach Paris, by Grand Vitesse as their trains are called.

In building the stands, etc., for the display of our fruit, we were necessarily restricted by the size and shape of the space at our disposal. This space was divided, in its length, into two nearly equal parts, at different levels, the higher being raised about two feet above the lower—the whole being about forty feet square. On the upper space, twenty by forty feet, we built four oblong stands or tables, taking up nearly the entire length of the space, less the passages, one semi-circular shelving stand, and two quarter circle shelving stands, one in each of the two corners at the ends, in all seven stands on the upper level. On the lower part, out of which the British Royal Commissariat had reserved two spaces of about six by twelve feet each, we built two oblong shelving stands, two regular octagonal pyramids and one oblong pyramid all with shelves, five stands in all on the lower level, making altogether twelve stands of different sizes and shapes that suited our installation perfectly.

On the small shelving stands of the upper level we made displays of bottled fruit and vegetable only; on the four long tables, at first only fresh fruit, and on the long stands the lower level, as well as the pyramids, composite displays of both fresh and bottled fruit. We changed them, however, as much as possible for every succeeding *coucoure*.

These stands suited the character of our exhibit by Provinces. We were able to

allot a larger or smaller stand to each of the Provinces according to the size of its exhibit, while reserving a large space for a Dominion display. The whole installation when completed was very much admired, both by visitors and judges. When our visitors had feasted their eyes on the different kinds of fruit, and afterwards were invited to sample some of the best flavored, their admiration knew no bounds, and when afterwards they were shown on the map of Canada, which we had hanging on the wall, the locality from which the fruit came, and saw that it extended from ocean to ocean, nearly 4,000 miles in extent, they mostly allowed that Canada must be a great country, in fact, next to France.

THE CONCOURS IN COMPETITION.

These concours, as they were called by the administration, took place every fortnight or three weeks. They were not really competitions. Every object was judged on its individual merits and without regard to the quality of other similar objects. A number of points was adopted as a standard (20) and in accordance with the number of points obtained by the object, under judgment, it received a first, second or third prize, or, perhaps, honorable mention. The number of points adopted as the standard was twenty, and from 15 to 20 entitled the object to a first prize or gold medal; from 11 to 15 to a second prize or silver medal, and from 6 to 11 entitled the object to a third prize or bronze medal; below 6 it might receive honorable mention.

THE INTERNATIONAL JURY OF JUDGES.

The International Jury, as the whole body of Judges was called, was largely French, but its members were also chosen from all the nationalities exhibiting, so that besides Frenchmen there were Russians, Germans, Austrians, Hungarians, Swedes, Japanese, Americans, Australians, Italians, and

Canadians. In the section on fruit and fruit trees, there were about 25 or 30 in all, and the whole number present on any occasion, together judged and passed, upon the objects before them; but the fact was that only a few were able to see the object under judgment; the few declared their opinion and the rest simply acquiesced. These decisions were generally regarded as fairly just, though, occasionally, on remonstrance from interested parties, they were reversed. I think, however, that full justice was done to the Canadian fruit on every occasion.

VARIETIES OF FRUIT IN THE CANADIAN EXHIBIT.

As our first concours, on the 25th of June, we had about 90 varieties of apples, but they rapidly dwindled down until at the concours, of the 26th September, we had not more than 7 or 8. Amongst those that held out to the last were the Spies, Baldwins, American Pippin, Ontario, Nonpareil, Rox Russet, Golden Russet, and Mann. We had now, however, received some of the new fruit, and, besides apples, showed a very good collection of pears and peaches.

From the first the fruit on the stands was daily examined, and decaying specimens were removed and replaced by fresh fruit. The slightly damaged fruit served for sampling, but was mostly given to the Sisters of Charity, or some one of the city institutions, who called for it two or three times a week.

The changes that took place in some of the varieties of apples on exhibition were very remarkable. While the greater part of the fruit exposed turned brown, softened and rotted, many specimens seemed to undergo a sort induration and remained unchanged, except that they faded and became almost colorless. This peculiarity was not confined to any one particular kind. Some specimens from a good many kinds were subject to it: not juicy fruits, how-

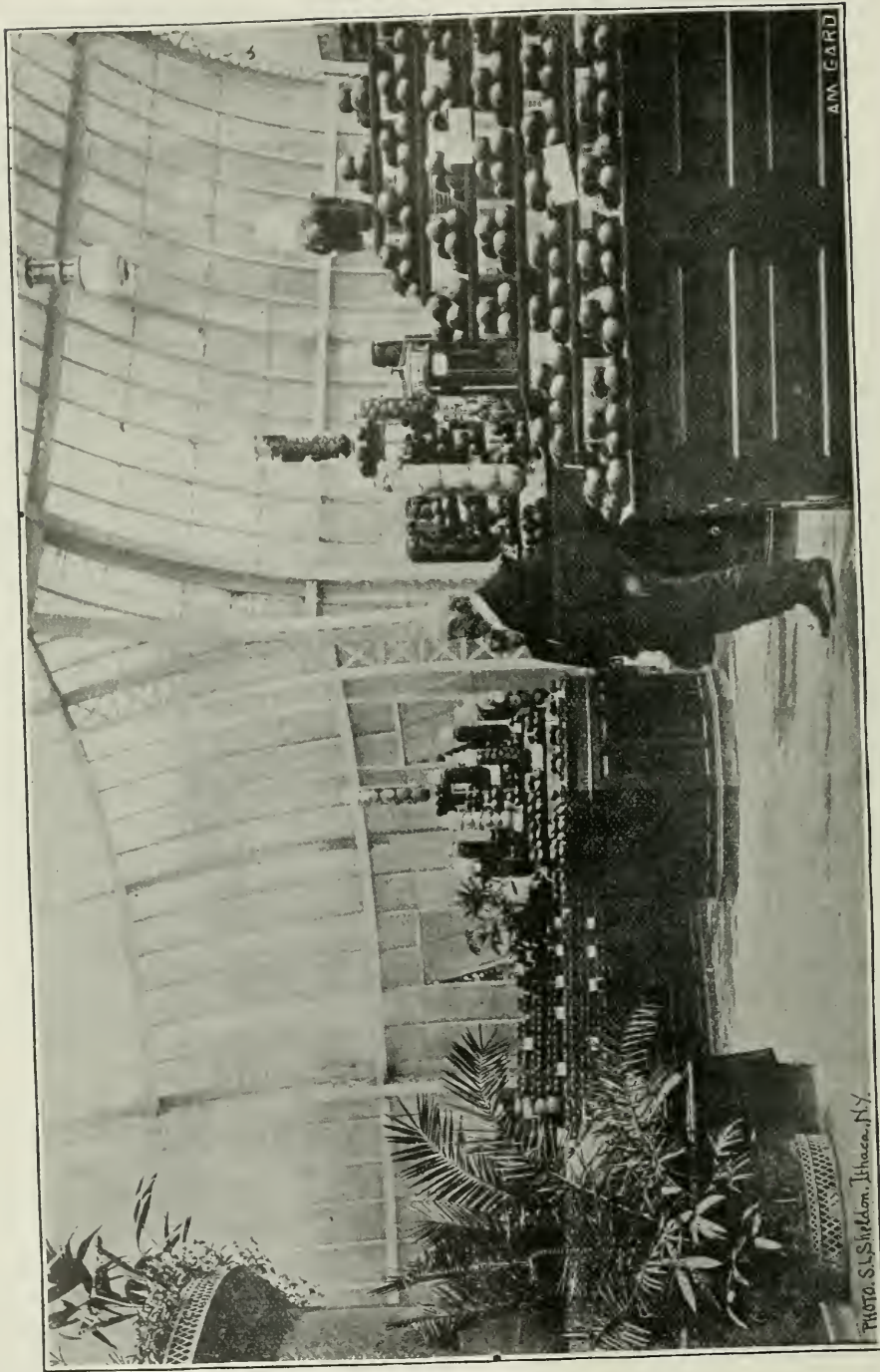


FIG. 1998. THE UNITED STATES FRUIT EXHIBIT.

ever—*Spys never*. Such varieties as American Pippin, Baldwin, Canada Red, Canada Baldwin, Spitzenburg, La Salle, and some of the Newman seedlings. The Russets and the Fallawater shrivelled but retained their flavor and soundness. The only juicy fine fleshed apples that kept well were the Spys and the Ontarios.

The only other exhibit of fresh fruit besides the Canadian, that calls for mention, was that from the United States, but it did not, at any time, contain as large a number of varieties. Their Jonathans, York Imperials, Winesaps, Newtons, Ben Davis, Ingrams and some others were magnificent specimens, well colored and highly flavored.

The Russians on two occasions in early summer showed some very fine apples, but with the exception of the Synaps, of which they had three or four varieties, the rest were ordinary French varieties; they were from the Crimea.

The French at two or three of the earliest concours showed a few specimens of apples. The chief variety was the Reinette du Canada. They had a good deal better success in keeping grapes, some very fine clusters of the Chasselas de Fontainebleau were still in good condition in May, and I think in June.

The French exhibit of new apples on the 26th September and 10th October were both very large and fine, especially the latter, when they had 14 tables of apples and pears, each table holding from 340 to 495 plates of fruit. Of course, there was endless repetition even in the same collections, but they did not seem to take any notice of it.

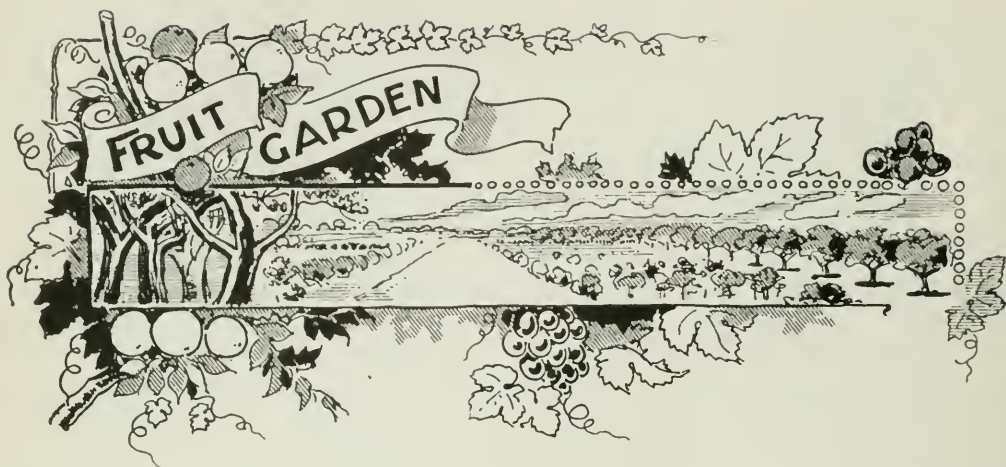
On the 10th October the Germans, Russians, Swedes, and other European countries sent large collections of fruit, apples, pears, grapes, nuts, &c. That from Germany was very distinct and fine, but was very limited in number of varieties. The varieties were very choice, however, and looked as if they might all be good keepers, and some that we sampled were of the highest class in flavor, texture, and appearance. The finest in quality was Winter Gold Pearmain with Landsberg Reinette and Belle de Boscoop close upon it. Those same varieties when grown in the Crimea were of much higher flavor. The same fact is stated with regard to the pears and grapes, and as far as I have been able to test them my own testimony corroborates this.

ROBERT HAMILTON.

Grenville, Que.

HOW TO GROW THE RUBBER PLANT.—“Keep the rubber plant clean by giving it a soap bath,” writes Eben E. Rexford in the *Ladies' Home Journal*. “Tall plants can be made to branch by cutting off the tops. But young plants growing to the height of three or four feet in one straight stock will generally be found more satisfactory as they will have larger, finer foliage than old branching plants ever have. When growth is taking place use a fertilizer, as its demands on the soil are great, and ordinary soils are not rich enough to supply all its needs. The secret of

the successful culture of the rubber plant consists in always feeding it well at the times when a good deal of food is needed—and by this it will be understood that I refer to its periods of growth—and never allowing it to become rootbound. Keep the plant always going ahead, and avoid any treatment that will check its development if you would have a vigorous and healthy specimen. The rubber plant requires a much stronger light than the palm, therefore it is not as well adapted to room decoration in places some distance from the window as the palm is.”



NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.

PEACH YELLOWS.

FOR several years investigators have been trying to determine the nature of this malady of the peach orchard. Dr. Erwin F. Smith, of Washington, worked carefully and patiently but reached no conclusive result as to the real cause. Although no positive conclusion was arrived at, yet many valuable additions were made to our knowledge of the conditions surrounding the Peach Yellows. For example, Dr. Smith showed that although the disease was communicable to other peach trees of the orchard, yet the manner in which the infection spread was very erratic. Young trees planted in the places of those destroyed often escaped infection, and trees nearby diseased ones often remained healthy; moreover, it was determined that neither the age nor the vigor of the trees was a predisposing factor in the matter of infection, as would naturally be expected if the cause were bacterial; besides, apparently the ravages of disease were not influenced by the nature of the soil nor the variety of the peach tree.

It was noticed also as a characteristic feature of the Yellows that the fruit ripened

prematurely, but here again a difficulty arose in trying to explain how it was that all diseased peaches of a tree did not prematurely ripen at the same stage of maturity.

It is very evident, then, that the disease must be produced by some cause operating independent of such factors as the age and variety of the tree or the nature of the soil in which the tree is growing. The cause, whatever it may be, must be sufficient to explain the fact of the communicability of the disease by budding, the irregular premature ripening of the fruit and the periodicity in the severity of the attacks.

In a recent number of *Science* (Dec. 7, 1900) Mr. O. F. Cook, of Washington, proposes a theory of the Peach Yellows, which should naturally attract some attention on the part of peach growers. In his own words, "the yellows may be the result of the poisoning of the protoplasm of the living cells by the bite of a small arthropod, probably a mite of the family Phytoptidae."

In support of his theory Mr. Cook brings forward well-known cases of leaf-spot, or yellowing of the tissues, which are plainly

due to punctures of insects and other minute animals. For example, a palm under his observation was spotted yellow by mites through the poison injected at time of puncture; the carnation leaf-spot or stigmonose is produced by the punctures of certain plant-lice; the tufted branching characteristics of yellows, observed on some plum nursery stock by Mr. Waite, was found to be produced by a parasitic mite; and the galls so frequently found on many trees and shrubs are abnormal growths produced directly or indirectly by the poisoning of adjacent tissues.

It is true that in most cases of plant poisoning by mites or insects that the results are mostly localized, and, as Mr. Cook says, "there is a wide gap between progressive change in a spot less than a quarter of an inch across and one which covers a whole peach tree, but the difference may be one of

degree and not of kind." He supposes that "the mite elaborates in its salivary or other glands an enzyme or other active compound to which the tissues of the peach and closely related fruits are peculiarly susceptible, and which produces in them a permanent and ultimately fatal debility accompanied by definite constitutional symptoms."

Now, the question naturally arises in the mind of the peach grower: supposing this theory to be the correct one how are peach yellows to be treated? I doubt very much if any other remedy than the present one will be adopted, but much could be done to lessen the intensity of the disease by "the destruction of the wild relations of the peach which may be found to harbor the offending creatures." To say the least, Mr. Cook's theory is a very suggestive one, and ought to receive the careful consideration of all fruit growers. W. LOCHHEAD.

APPLE CULTURE.

PRUNING.

TO grow apples successfully requires skill and study. There are two kinds of apples, small and large, it is the latter ones which we all strive to grow. There are many ways to produce them, but pruning (not in itself alone though), is one great essential. This simple looking operation is one which is sadly neglected. Thousands of dollars are annually wasted through lack of attention to this matter. We may take a drive through an apple section and see many an orchard a veritable brush heap.

There are some who profess to understand this art, but are in reality hewers and slaughterers, slaying indiscriminately limb after limb, branch after branch, without regard to symmetry or the growth and development of

the tree and its fruit. There is a science and a philosophy in pruning which is at the same time difficult. No set of rules can be set forth, each must study for himself to master this art. The first thing to understand is the principle of vegetable growth; you must have something definite before you. When you sever a twig, branch or a limb it is necessary to know the why and wherefore, not only how it affects the present appearance of the tree but the effect in a future year.

When the tree has become so full of brush that you cannot pick the fruit, and neither plough nor cultivate the ground on account of limbs straggling along the ground, as we often see in ill regulated orchards, then it seems

the only object, chop off the limbs in order that the plough and horses may find their way and the pickers find the apples.

A case came under my notice last fall where a picker had to carry an axe in order to open up a way to pick the fruit, the majority of which were only fit for hog feed, some in fact sour enough to make him squeal. But where a tree is not as bad as depicted above there is a higher and nobler aspiration to be kept in view; that is to develop its fruits to the highest stages of perfection, to enrich our income from the sale of high colored and luscious apples. To do this there are many things to look after, but one of which is undoubtedly pruning.

Prune annually; never neglect this no more than you would neglect to pay your taxes. If you did so you would find it much easier to attend the latter obligation. Now let us go out to the orchard with our pruning shears and saw; leave your axe behind. Now before commencing see what you want to cut; see how a certain limb or branch cut will affect the appearance of the tree or the development of the remainder, or see the effect if left uncut or what would be the ultimate result in a year or two. If you think a certain limb will materially affect others or is likely to in a future year, cut it off. A mistake often made is the cutting out of the centre instead of pruning on the outside, cut off all interfering branches, leave plenty of space in which the sun, light and air may reach the centre and you will have nice choice apples in the centre.

Again, we often see large limbs utterly devoid of branches except on the extreme end, and there you will find a mass of limbs and branches like a brush heap; cut off a few of the large branches, then cut out this brush, check the growth at the end and in the course of a few years you will have a limb nicely distributed with fruiting branches from the trunk to the end. We very often see a long row of suckers on limbs. Suckers are na-

ture's protectors to the limb from the hot sun. Nature leaves man the privilege to exchange these suckers for fruiting branches. After a very heavy pruning these suckers shoot forth. But if thorough and systematic pruning is carried on yearly you will have very few.

Again we find long slender limbs extending far out without a twig. There seems nothing to prune about this, but is you cut off the end, check the flow of sap, laterals will start out and what was an unproductive limb will become fruitful. Give each branch plenty of room for development, allow the sun and light to penetrate through every twig when filled with fruit. Two limbs may appear far enough apart in the pruning season but when the fruit is on there is a mass. In pruning look to this and secure a lot of thriving light, a heavenly gift free and boundless without which higher life would become extinct. Where light and sun penetrate fungi recedes; it will prove a saving on your copper sulphate. The leaves are the respiratory organs, it has been observed that plants throw off oxygen gas in order to make this light as required; carbonic acid gas is a most necessary food for plants, it is decomposed by light, the carbon becoming incorporated with the tree and the oxygen thrown off into the atmosphere. The light helps to mature the blossom and paints the apple with its red and golden hues. What is more tempting to a purchaser than highly colored fruit. Light improves the flavor, and in order to have light in abundance, prune.

Another essential of pruning is the renewing of wood. If you would prune annually you will have better prospects of fruit annually. In all young and growing parts there is more activity within the cells. We study from botany that a plant or a tree is composed of cells each distinct and so small that there are millions to a cubic inch; within each of these cells there is a substance called protoplasm, the seat of the whole vital activity

of the cell, consequently the tree as the cells become older the walls thicken, filling up the greater part of the cavity. Now if we renew the growth of wood we will always have new active living cells to carry on the development of the tree.

Pruning is important financially. You lessen your crops by pruning as regards the number of individual apples, but we have something in size and quality to make up for it and in increase of price.

A small $1\frac{1}{2}$ inch apple takes about as much from the soil as an apple 4 inches. The seeds and pulp are the great feeders on the expensive fertilizers, whilst the balance is obtained without cost from the air and water, 84 per cent. being water. Here is an actual fact: 72 apples, respectable size, netted the writer of this article \$7.30 for the bare cost

of apples before packing. Now a package of the same size would hold 275 to 300 small apples worth about 30 cents.

Where trees have been fruitless for some years a pruning in the latter part of June will induce a growth of fruit buds. Downing says prune in winter for wood and in June for fruit. This may be so, but my experience is that by annual pruning in winter or early spring you will have wood and sufficient fruit buds. Vast sums of money are annually spent in costly pictures to adorn our drawing rooms which are occasionally seen by a few friends; would it not be advisable to spend a few dollars and convert our apple orchards into works of art which is a source of revenue.

J. W. BRENNAN.

Grimsby.

FRUIT IN AND OUT COLD STORAGE.

IN more than one item that I have seen lately in the papers with regard to fruit in cold storage, or perhaps I should say fruit that has been in cold storage, there seems to be some erroneous views held that it would be well to remove if possible. One of these erroneous views is, that if fruit is kept in dry cold storage it will not become moist on being taken out of it. Now that is decidedly a mistake, as we had abundant evidence of during the whole term of the Paris Exhibition. The system in operation there provided dry cold air, very dry, and very cold. The thermometer very frequently showed a temperature, if I remember rightly of about 38° F. with a steady current of air. I kept the atmosphere within the chamber a live one, there was nothing stagnant in it, it seemed as near perfect as it was possible a temperature and atmosphere for such a purpose, and yet, in a few minutes after coming out of the cold air chamber the fruit

was as wet as if a sprayer had played on it for some time. After our first experience, we allowed the fruit to dry of itself by letting it stand for an hour or two, it then looked better than if we had wiped it dry with towels.

Here let me call attention to the remarks of the men who were directed by Professor Robertson to examine the fruit being loaded at Montreal for Great Britain. Amongst other statements made as to condition and quality was the remark that so much of it was wet. Now if it was discharged from cold storage cars in which the temperature was say, not higher than 38 to 40 F., the moment it was exposed to the outer atmosphere on a hot summer day it would become moist and in half an hour would be wet.

For several years past I have been struck with the losses sustained by shippers from wet fruit, and I suspected that it was not so much due to the heat in the holds of the ves-

sels as to the sudden removal from a somewhat cool to a warmer and moister atmosphere. However that may be, if fine samples of fruit are taken out of cold storage and at once put before an auctioneer's audience, without having undergone some drying process, or allowance has been made for the fact of the removal from cold storage, losses will continue to be experienced by even the most careful packers and shippers. It is just possible that there is nothing new in the above remarks, and that the facts noted have been observed and commented on by others, but if so, it appears to be extraordinary that shippers have submitted to the great losses they have sustained from wet wasty fruit without murmur and without having endeavored to overcome the defect.

Just a word or two with regard to the keeping qualities of the various kinds of apples gathered from our experience at Paris last summer. The best keeping apple under all circumstances was the American Pippin. Some of the first set out on the tables were in perfect condition in September. They passed through the mid-summer's heat in

the hot Horticultural building almost without change of texture, the change was in the loss of color. All the Russetts kept fairly well, but shrivelled badly, and were consequently unsightly.

The Northern Spy is a remarkable keeper in dry cold storage, but does not last long when exposed. The Ontario kept very well and was a good deal admired. Many fruit handlers insisted that it was a small sized Spy. It certainly resembled that variety very closely; we had it from Huntingdon Co., from a farmer who had lost the name, but thought it was Hubbardston. A variety that kept remarkably well came from Montreal, named La Salle; this is a variety that has been propagated to a limited extent only, and is in a few hands. It is about like Ben Davis in size and shape, but never reaches as high a color as the best Ben Davis; it is of better quality however. Baldwin kept remarkably well as it usually does. A rather large deep red seedling from Cecil P. Newman, Lachine Rapids, was amongst the long keepers. Fallwater also astonished us by its keeping qualities.

Grenville, P. O.

R. HAMILTON.

THE BOARD OF CONTROL of the Ontario Fruit Experiment Stations met at House of Parliament Buildings on Wednesday the 2d of January. Prof. Hutt presented his report of inspection which showed that good work was being done. Apple trees tested in Wabigoon had been winter killed the first season, but another trial will be made of the most hardy varieties in the hope of finding some that will be sufficiently hardy. The Board discussed at some length the shipments of fruit to the old country. It was felt that an outlet for our surplus fruit was

absolutely necessary to maintain prices, and in view of the success of the experiments during the past year it was decided to push the matter vigorously. The Board felt it necessary to keep a continuous stream of fruit pouring into England in order to catch John Bull's eye, and therefore seek a weekly cold storage Atlantic service instead of every three weeks as at present. Hon. Mr. Dryden was interviewed, and negotiations will be opened with a view to securing a more frequent service for the growing trade.



TIMELY TOPICS FOR THE AMATEUR.—XII.

THE month of February brings to our notice the usual business heralds of approaching spring, that come to us in the shape of seed and plant catalogues. A great improvement is noticeable in the general appearance and get-up of these useful adjuncts and aids to floriculture. Not only are the species and varieties of seeds and plants offered in them of a much more comprehensive and varied type and character, but the illustrations used have a much more genuine and true-to-nature appearance than formerly. This is more particularly the case with catalogues of ornamental trees and shrubs, some of these deserving more the title of magazines of photographic art rather than that of catalogues; depicting as they do scenes of summer beauty and blossom that make them very acceptable visitors, coming at this season of the year when garden and lawn is usually covered deep in its mantle of snow, and when tree and shrub are for the most part bare, gaunt and unattractive in appearance.

Seed and plant catalogues, as well as those of trees and shrubs, also bear the same impress of improvement, showing the same

marked tendency to depict in a more natural manner than heretofore the many varieties and types of plants included under this category.

We see less and less every year of the style of illustrations or cuts representing impossible and unnatural looking specimens of plants and flowers, the originals of which could only have been purely imaginative in character. A few of these pictorial exaggerations can still however be found in the pages of catalogues for 1901.

Reproductions from photographs of actual specimens of plants and flowers, as well as a better and truer type of wood-cut, have done much toward banishing many of these made-up and unnatural illustrations from the pages of seed and plant catalogues. Reproductions from photos, if at all well executed, have at least the merit of portraying the form of flower and habit of plant correctly, two very essential points to be taken into consideration when making a selection of seeds or plants. Color photography and its successful reproduction seems to be the only feature now necessary to make its use absolutely indispensable for



FIG. 1999. SPRAYS OF COLUMBINE (*Gadsby*).

illustrative purposes in horticultural literature.

“Novelties” are a great feature in present day seed and plant catalogues. It is not always wise to discard old and tried varieties for untried and high-priced new varieties. These latter should be considered as extras, as the disappointment they often-times bring will not be felt as keenly as if they had been relied on as staple varieties.

BORDER PLANTS.

Probably at this season of the year a short descriptive list of seeds and plants, suitable for those who have a small piece of garden where a few summer-flowering plants could be grown, might be acceptable and perhaps helpful to readers of the “Horticulturist.” The list will not be an elaborate one, and may not perhaps include many varieties thought to be desirable by well-posted ama-

teurs, but is made more for the guidance of those who have very little time to devote to the culture and care of flowers. Many a nice little plot of garden, or patch of lawn, could be brightened up by the addition of a mixed border or two of easily grown plants that would not only add to the attractiveness of the home, but would give a lasting pleasure that will far exceed the very small outlay required, either of money or labor.



FIG. 2000. RICINUS.

Permanent border plants, generally catalogued as hardy herbaceous perennials, are a class of plant particularly suited for busy people and their gardens, either in town or country. It is better to purchase plants of these than to rely on seed for a supply, as it takes a long time with many varieties to secure flowering results from seedling plants. Herbaceous perennials when once well established will continue to give splendid flowering results for several years with very little care and attention. Keeping clear of weeds and a light forking-over around the plants in spring, at which time a little rotten

manure might be forked in around them. About every second year some of the varieties may need dividing and transplanting so as to ensure the best results possible.

The first of these border plants to flower in early summer, almost before the last of the spring-flow-



FIG. 2001.
LILY OF THE VALLEY.



FIG. 2002. IRIS.

ering bulbs are over, is the pretty little dwarf-growing white-flowering *Arabis alpina*, or *A. albida*. When once well established it soon forms a compact mass of foliage of a silvery-grey shade, and when almost covered with its abundance of flower has a very bright and effective appearance at a time when flowers are scarce in the garden.

A plant or two of *Dielytra spectabilis* must also be included, its bright, coral-like, ivory-tipped flowers, borne in long sprays or racemes, together with its attractive foliage, as well as its hardy character and general adaptability, combine to make this one of the most useful early summer-flowering plants we have. It certainly deserves a more pleasing name than its common one of "Bleeding Heart," a name that seems a little repulsive, and one that certainly does not enhance the popularity of this grand old-fashioned garden flower.

The German and Siberian species of *Iris* are a splendid class of plants for planting in a garden that may of necessity have to be somewhat neglected at times. They succeed well in almost any kind of soil, if not too moist, and can be had in a great variety

of beautiful colors from white to pale blue and dark purple, or from pale yellow to old-gold mixed with shades and markings of brown and deep chocolate. The Japanese and Spanish *Iris* do not succeed as well under ordinary garden treatment as the German and Siberian varieties, but are perhaps more attractive when proper care and attention can be given them. Eight or ten varieties of *Iris* would not be too many if there is room for them.

One or two roots of the lemon lily, *hemerocallis flava*, and the dwarfer and darker-colored variety, *H. dumortierii*, are pretty and hardy free-flowering tuberous-rooted plants that should have a place in every flower garden.

A few plants of the perennial phlox cannot be dispensed with, either for garden decoration or to furnish a supply of cut flowers during the hot summer months.

Herbaceous peonies cannot be left out, their large showy blossoms in colors rang-



FIG. 2003. GAILLARDIA.



FIG. 2004. COSMOS (WHITE).

ing from pure white to pink and deep crimson, make them indispensable for summer decorative purposes.

The old-fashioned Columbine (*aquilegia*) must not be omitted from this list, many of the new hybrid varieties are very beautiful and effective in a mixed border of plants. These can be raised from seed and will flower the second season if sown early the preceding summer. The plant from which the flowers were taken, as shown in the accompanying photo, was one raised from an ordinary packet of seed. *Aquilegia chrysantha* (yellow) and *A. cerulea* (pale blue and white) are two of perhaps the prettiest varieties under cultivation.

Coreopsis grandiflora gives a bountiful supply of its yellow daisy-like flowers in early summer and makes a good variety in a mixed collection of plants. The double flowering *Spirea filipendula* is a low growing and attractive little flower, its finely-cut foliage being a recommendation, making it very useful to use with cut flowers in vases, etc. The two varieties of perennial *Campanulas* (*Canterbury Bells*), *C. persicifolia* (blue), and *C. persicifolia alba* (white), are hardy, showy, and very little trouble to succeed with. *Gaillardia grandiflora* with its

large, yellow margined, chocolate centered flowers, that stand boldly erect from its somewhat meagre foliage cannot be omitted, its free and continuous habit of flowering making it a valuable plant for the flower garden. A plant or two of *Rudbeckia* (*Golden glow*), are suitable plants either as single specimens on a lawn, or for planting in the flower-border, for which, owing to their tall



FIG. 2005. LARKSPUR (ANNUAL).

habit, they make either a splendid background or centre plants as the case may require. The merits of this variety of the rudbeckias is too well known to need any further comment from me. A plant of *Phalaris A. var.* (ribbon grass) looks very pretty in a mixed border and is useful for cutting. * * * Annuals often prove disappointing as the young seedlings are perhaps either burnt up by the sun if not watered carefully, or if over-watered they suffer from damping-off. One of the easiest, and perhaps one as pretty as any of the many fine annuals under cultivation is the well-known but little seen larkspur (*Delphinium*). Its erect spikes of flowers so freely produced in almost all shades and colors can be found on the plants from early summer until winter frosts, and its habit of self-sowing and producing self-sown plants the following season, makes this a very desirable annual for the mixed-border. A packet of mixed colors of Semple's branching aster will give the best results—for the least possible labor bestowed—amongst the aster family.

A packet each of zinnia, marigold, candytuft, phlox drummondii, sweet alyssum, scabiosa, salpiglossis, balsam, mignonette

(machtet), antirrhinum, cosmos, ten week stock, centaurea imperialis (corn flower), sweet peas, and a few castor oil beans (*ricinus*), and nasturtium seeds will make a large enough collection of annuals for a good-sized border or bed. If there is one other flower that ought really to be added to this list and that does not belong to the perennial, biennial or annual classes of plants, it is the gladiolus. There is no summer-flowering bulb or plant that will give more satisfaction for the expense and care bestowed on them than will a few gladiolus bulbs. So many new and beautiful hybrid varieties of these can now be obtained, that no flower garden should be without a few of their gorgeous spikes of flowers from July until October. If the list of annuals given above is too large, the candytuft, alyssum, balsam and phlox could be struck out.

I will endeavor to give a few hints in the March issue of journal on the soil, preparation of border, etc., necessary for the successful culture of perennial and annual flowering plants.

W. HUNT.

Hamilton.

GLOXINIA HYBRIDA ERECTA.

THE *Gloxinia* belongs to a genus of Gesneriworts, distinguished by its corolla approaching to bell-shaped, with the border oblique, the upper lip shortest and two-lobed, the lower three-lobed with the middle lobe largest; and also by the summit of the style being rounded and hollowed. The name was given in honor of *Gloxin*, a botanical author of the seventeenth century.

They are natives of tropical America, and have opposite stalked leaves of rather thick texture, and auxiliary flowers, usually single or a few together, large, the old style

nodding, and of various colors, sometimes variegated with spots.

They are among the greatest ornaments of our greenhouses, the richly colored leaves, and their ample graceful, and delicately-tinted flowers, have gained for them a prominent place among introduced plants. They are fit companions for the beautiful *Cyclamen*, and should be placed side by side in window gardening.

Here, as in many other instances, the process of hybridising has been resorted to with the best results, the older kinds with drooping flowers, have of late given place

to forms with the corolla almost regular and nearly erect, the latter peculiarity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. Permit me to advise all lovers of flowers to visit the greenhouses of our florist Mr. Maxsom, who will, doubtless, find pleasure in showing the *Gloxinia* in all its beauty, and blushing with bloom.

CUTTINGS—They may be propagated by cuttings of three kinds. First, the young shoots, as soon as they are three inches long, springing from the old tubers; these are the best. Second, leaves taken off with a bud at the base. Third, by the leaves only, without a bud. The first mode may be used only when the kinds or variety is plentiful, and the bush so strong as to send out more shoots than are wanted for flowering; the second mode, when the variety is new and more scarce; and the last, when it is more rare still.

There is an advantage in the first and second mode, that the cuttings, if struck early in the year, will, with moderate care and attention to repotting, flower the same year, whereas, those struck from leaves or parts of leaves, will only form small tubers that season. Each kind of cutting requires to be put in sand, under a hand or bell glass, in bottom heat, to strike them quickly. A moist, warm heat is necessary; a moist, cold place would rot the cuttings immediately. Such species as do not make bulbs must be propagated by the first kind of cuttings.

SEED—To raise new varieties it is necessary to save seed. Choose the finest and brightest colored, to save it from. As soon as it is ripe, gather it and dry it, keep it very dry till the March following, then sow the seed on the surface of shallow pots, and let them grow there during the summer; the compost should be of a light sandy substance. Place the pots in a warm moist atmosphere, and as soon as the seeds are

up, and the plants have attained a leaf or two, transplant them thinly on the surface of shallow pots, and let them grow there during the summer. Allow to go to rest in the autumn, and keep them in the same pots through the winter, giving but little water. As soon as life appears again in the spring, pot them off singly into small pots, watering and repotting the same as the cuttings, but it is more than probable they will not flower till the second year.

SOIL—The best soil is light fibrous loam, turfy peat, half-decayed leaves, in equal parts, with a due portion of sand, well mixed, but not sifted.

SUMMER CULTURE—To have a succession of bloom, pot a portion of the bulbs in January, and place them in heat, giving a little water; temperature, 60 to 80 degrees. Pot a second batch about the middle of February and another towards the end of March. These will supply flowers for several months. Put them in pots, according to the size of the bulbs, keep them regularly watered, but never very wet. They may be syringed occasionally previously to flowering, but not much. When the blooming season is over they may be set out of doors during summer, but should be sheltered from heavy rains. They will then gradually go to rest.

WINTER CULTURE—All that they require is to be kept in their pots in a place where neither frost nor wet can reach them; yet the place should never be below 45 degrees, nor above 55 degrees. If the cold is much lower they will be apt to rot, and if higher, to start into growth.

DISEASES—The only disease that these plants are subject to is a kind of dry rot in the bulbs, which changes the substance into a soft pulp, destroying the buds, and so causing them to perish. There is no cure for it. Like many other incurable diseases attacking plant life, it makes us feel disappointed and sorry, but we have only to "grin and bear it."

WM. FOLEY,

Before Lindsay Horticultural Society.

GREENHOUSE AND WINDOW.—II.

THE GREENHOUSE.—Successive batches of cuttings can be placed in sand on the propagating bench, or in boxes or pots as required. These should be shaded on hot, sunny days. Those that have already rooted should be potted into light sandy soil, in small pots. Over-potting cuttings into large

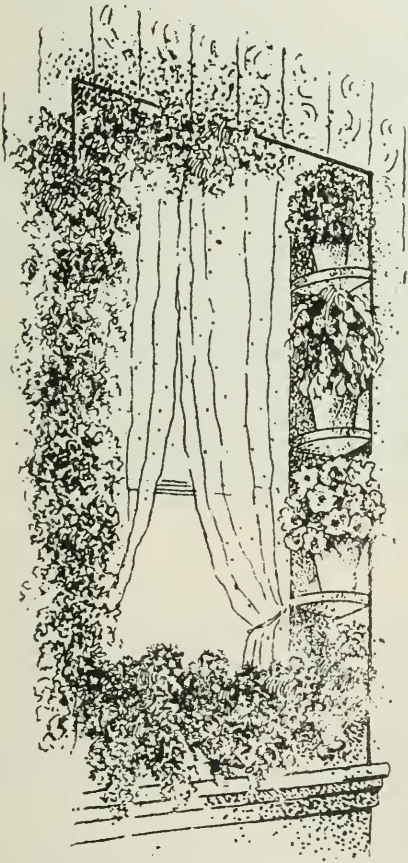


FIG. 2006.

pots is a mistake that is often made by amateur plant-growers. An excess of soil often induces an excess of water around the roots that generally proves disastrous to the well-doing of newly rooted plants. Excessive drought at the roots of cuttings is quite as hurtful as an excess of water. To avoid

the small pots from drying out too rapidly, or requiring very close attention in watering them, the pots can be plunged nearly to the rim in sand until the plants have commenced to root into the soil well. This plunging prevents rapid evaporation and keeps the soil in a moist condition as well as necessitating less attention in the way of watering.

Cuttings of coleus, achyranthes, alternantheras and all bedding plants should be commenced on this month. Put in plenty of cuttings of plants suitable for hanging baskets, window boxes, etc.; there is seldom too many of these either in number or variety when the time comes for using them. Seeds of pyrethrum (golden feather), and *centaurea candidissima* and *C. maritima* may be sown now, both of these are useful as edging plants for flower beds or borders, the last named variety being very pretty when used in window boxes, its silvery-white foliage making it very effective and pretty contrasts when planted near other plants of a deeper shade of coloring. Both of these varieties can be propagated from cuttings.

Seeds of verbenas and petunias can be sown now so as to secure good plants by bedding-out time. It is too early for sowing annual and biennial flower seeds, March or April being early enough for these. Flower seeds of almost every variety succeed better sown in shallow boxes about $1\frac{1}{2}$ inches deep. These can be filled with soil and divided into the necessary sized sections with thin pieces of shingle pressed into the soil slightly, making the boxes look like miniature fields or garden when the seeds are growing. Boxes take less room and give better results as a rule than pots. If these latter or seed pans are used, sinking them about two-thirds down into sand will

help the seeds. Seeds of gloxinia, cyclamen, primula and tuberous begonias may be sown before the sun gets too powerful, even now light shading will be necessary if the seeds are exposed to the sun at mid-day.

Examine the old bulbs and tubers of summer-flowering bulbs. Gloxinias may be started now at any time. Tuberous begonias may be left another month or even more, unless early flowers from them are required. If the tubers of these latter are started into growth, it is better to pot them up at once, as checking them again when they have started growth may result in destroying the tuber. Use top ventilators only when required, and do not forget to close them early in the afternoon. Dampen the floors frequently, especially on warm, sunny days. Insect pests will require the usual remedies of fumigating and syringing, more especially as the heat of the sun increases.

WINDOW PLANTS.—The late flowering bulbs, callas, and perhaps a few trusses of geranium blooms will help to brighten up the window during early spring. Ger-

anium plants that have been flowering—or perhaps trying to flower—since autumn, should have a little liquid manure once or twice a week to help them along. This is much better than re-potting them at this season of the year. If fuchsias that have been resting during winter shows signs of growth they should be pruned back a little, if necessary, shaken out of the old soil and re-potted. Give them well-drained pots, light rich soil, and not too much root room.

A bulb or two of amaryllis, or a few tuberous begonias secured now and potted up will help brighten up the window in summer. These should be put into six or seven-inch pots if the tubers are large, as re-potting these when in a growing state is not safe or advisable. The amaryllis *Johnsonii* will probably give better results in the window than any other variety. Avoid using the bottom sash for ventilation, draughts of cold air are injurious to plants at any time.

W. HUNT,

Hamilton.

ALLAMANDA SCHOTTI.



HIS is probably the prettiest and best variety among the ten or twelve varieties of Allamandas as yet introduced to floriculture, as well as being perhaps the most suitable for growing in conservatory or greenhouse. The beautiful reddish-brown pencillings and markings to be seen in the throat of its large showy yellow flowers, together with its late flowering habit, combine to make this variety one of the most acceptable and attractive among this grand family of tropical climbing plants.

The accompanying photo of two terminal sprays of flowers shows up splendidly the rich reddish-brown markings on the primrose-yellow ground of the flower, as well as showing the profuse and continuous flowering

habit of this plant. The shoot without blossoms, seen in about the centre of the photo, and that starts from near the base of the stem bearing the large flower, on the right of the photo, shows this pushing or continuous habit of growth and flower, so noticeable in the Allamandas. The shoot mentioned has a cluster of buds at its terminal point that were not developed sufficiently to be observable at the time the photo was taken. The spray on the left however, shows plainly this peculiar habit of growth.

Most of the early flowering varieties of the Allamandas such as *A. Cathartica*, *A. Nerifolium*, *A. Nobilis*, and others, produce their wealth of golden flowers chiefly in June and July, when there is abundance of flowers



FIG. 2007. ALLAMANDA SCHOTTII.

outside, while the flowers of *A. Schottii*, that it produces in great profusion, come in most acceptably during September and October, at a time when flowers are usually scarce both in the greenhouse and garden. This late flowering propensity, combined with the distinctive markings of its flowers, make it one of the most desirable of the Allamandas for greenhouse or conservatory culture. So persistent is this variety, in respect of profuseness and continuity of flowering, that numbers of its beautiful flowers are often produced during November and December, and even until Christmas, when exceptionally fine weather has prevailed. This has frequently occurred without any additional heat, beyond that of

ordinary greenhouse temperature having been given the plant.

The Allamandas are generally classed as stove or hot-house plants, and without doubt, better results can be attained by a little additional heat beyond ordinary greenhouse temperature, but this should not deter those who have a greenhouse from planting one of these useful and desirable South American climbers, as they will repay any care bestowed on them, even under ordinary treatment. The Allamandas do not suffer from attacks of insects, another very strong point in their favor, and one that can be thoroughly appreciated by those who have perhaps had to discard many of the prettiest of our greenhouse climbing plants, on ac-

count of the destructive and presistent attacks of insect pests.

The Allamandas strike readily from cuttings inserted in sand, a little bottom heat assisting the cuttings in rooting very materially. Cuttings of the previous years growth, taken when the plants are pruned in early spring, are suitable for this purpose. Two or three joints in length, off the terminal points of the shoots, make good cuttings. These should be grown, when rooted, in pots in the greenhouse, until large enough to plant out permanently in the position they are to occupy.

The Allamanda Schottii is a strong robust grower, and will require six or eight square feet of wire trellis, to grow a nice plant on. A flat trellis work of wire about two feet from the glass suits the climbing varieties of the Allamandas nicely; they seem to succeed much better in this way, than when trained in an upright or standing position.

In planting out the Allamandas permanently in the greenhouse select a position where the young growth can be readily trained up to the trellis before mentioned. The roots of the plants are best kept within bounds and not allowed to grow down into the cold natural soil underneath the greenhouse. A strong box about 3 feet in depth made of plank, will be ample room to grow a good large plant in. This box can be made without a bottom, if it is placed on a concrete or similar floor. The latter is to prevent the roots of the plant from penetrating into the natural soil underneath. I have known plants of the Allamanda that have given no flower results worth mentioning for several years, producing nothing but rank growth when the roots of the plant have been allowed to roam freely wherever they pleased. Good drainage is very necessary for success with the Allamandas.

Put five or six inches of stone, broken pots, etc., at the bottom of the box to secure good drainage at the roots.

A good rich, light loamy compost, consisting of three parts loam, and one part each of well-rotted manure, sand, and leaf soil, well mixed, suits the Allamandas very well. Give plenty of water in summer while the plants are growing and flowering. In winter when the leaves show signs of decay give less water, only sufficient to keep the plant in a semi-dormant condition until spring. In April or May before growth commences the plant should be pruned, cutting back the growth of the previous year to within about three or four inches of the base of the shoot. After the pruning process, a mulching of dry cow manure about an inch deep may be given it. Give the plant a good watering after the mulch has been applied, and a liberal supply of water during the summer. The Allamandas are considered to be evergreen in their nature, but I have found that during the late winter season, when the plants are in a semi-dormant state, the plants may become almost devoid of foliage without injury. This is an advantage, as the plants underneath on the benches are not injured by too much shade during winter.

The flowers in the photograph are about one-third natural size. A flat, shallow Japanese bowl or a shallow jardiniere, filled with the pale yellow blossoms of the Allamanda and a few fronds of ferns, or sprays of pale green foliage, tastefully arranged around and amongst the soft primrose yellow flowers, has a rich and decidedly effective appearance.

These will keep fresh for nearly a week if placed in water at once when cut and the water changed occasionally.

WM. HUNT.

Hamilton.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

FUNGI.—Our readers who have been interested in Dr. Hare's valuable articles on the mushroom, will be pleased to know that he has promised us several other articles to follow this number.

PARIS DIPLOMAS.—Some of our correspondents are asking when they will receive the diplomas awarded at Paris. Let us remind them that in the case of the Chicago Exposition it was a year or two before these came to hand, and further we are informed that each copy must be paid for.

COLD STORAGE facilities for fruit export are likely to be made accessible to all at an early date, now that success has been attained in the season just passed. Shipments by the Linde system of refrigeration sent forward under the direction of the Dairy Commissioner, Mr. J. W. Robertson, and those in Mr. Hanrahan's compartment sent forward under the direction of the Hon. John Dryden,

have arrived in Great Britain in perfect condition, where not overripe when loaded at Montreal.

FRUIT GROWERS are to be congratulated on the prospect of an immediate opening of an export trade in pears to Great Britain by cold storage, by which we may expect the prices even in our own markets will be advanced to a profitable basis.

THE COMMERCE SHIPMENT—It should have been explained on page 499, of C. H. volume XXIII, that the shipment on the Commerce was forwarded in the ordinary cold storage compartment at a temperature guaranteed by the Dominion to be constant between 36 and 40 F. The Trader cold storage compartment was the one in which Mr. Hanrahan's plans were tried. It should be explained that the low prices obtained for the first shipment of grapes under the care of Prof. Robertson,

were merely nominal, the object being to almost give away the fruit at first with the hope of ultimately creating a demand.

THE IMPORTANCE of sending out an expert lecturer to speak on floriculture or fruit culture, before our affiliated horticultural societies, was delegated to a committee of our association. The association has been furnishing lecturers for the local horticultural societies throughout the Province for some years past. These have now become so numerous and important that we are anxious to have the work recognized by the Department of Agriculture, and special provisions made for sending out an expert lecturer to speak before them. To secure an expert professional gardener to do this would require an expenditure of \$4.00 or \$5.00 a day and travelling expenses. Mr. Dryden promised to lay the request before his colleagues.

PROF. J. W. ROBERTSON interviewed a representative meeting of our fruit growers at Grimsby on Tuesday the 15th January. Several resolutions were passed covering the following requests:—

(1) That special provision be made for weekly shipments of fruit in cold storage during the season of 1901, and for transshipment from car to boat at Montreal safe from extremes of heat and cold.

(2) The rental of the cold storage building at Grimsby for further experimental work.

(3) That an expert fruit grower be sent to Great Britain during the fruit season whose duty it shall be to report minutely and promptly upon the shipments of tender fruits on their arrival; and

(4) That the export shipments of grapes be continued and extended in such a manner as is best calculated to develop the export trade.

OUR NEIGHBORS seem to be stirred up by our successful experiments in landing our

tender fruit in Great Britain, and it is evident that unless we push forward heartily and capture this trade ourselves some one else will step in and carry off all the profits. Here is an extract from the 1900 Report of Wm. A. Taylor, Acting Pomologist of the United States:—

Some of the most serious problems that confront the fruit grower are those connected with the questions of harvesting, packing, and marketing the product. This has been found especially true in relation to the export trade in fresh fruits. In numerous instances efforts to increase the sale and use of American fresh fruits in foreign markets have failed through the imperfect understanding that exists among growers, packers, and shippers, as well as transportation companies and their employees, in regard to the requirements of the markets to be supplied and the methods of harvesting, packing, storing, and shipping necessary to meet those requirements. The development of that steady demand which is necessary to build up trade is in many cases retarded by the variability in condition of consignments on arrival. A shipment which arrives perfectly sound and in every respect satisfactory is frequently followed by one or more that arrive in bad condition. The result is loss of confidence in the reliability of American fruit as a staple article of trade and a disastrous lowering of prices. For these reasons it seems highly important that provision be made for a careful study of methods of harvesting, packing, storing, and transporting fresh fruits, both at home and abroad, with special reference to the development of the export trade in them. Authority to make experimental shipments should also be provided for in this connection. In addition to the immediate beneficial effect resulting from such an investigation, it would have a direct bearing on the selection of varieties for the commercial orchards now being planted in many sections of the country, and thus exercise an important influence on the character of the commercial fruit supply of the next two decades. It is therefore strongly urged that provision be made for the prosecution of this work during the coming fiscal year.

SPIREA, Anthony Waterer, is very highly spoken in the Garden, 1894, drawing especial attention to its surprising beauty, its free-flowering habit and lasting flowers. The Garden proceeds to say, "The old Spirea Bumalda is now well-known for its hardiness, easy cultivation and neat, compact habit, and before this variety of Mr. Waterer's appeared, we valued it also for the beauty of its carmine flowers. Compared with the brilliancy and depth of color in this new comer, however, it appears poor and washed out."

UNIVERSITY EXTENSION AT CORNELL UNIVERSITY, ITHACA, N. Y.

Condensed Report of Address by John Craig, Cornell University, Ithaca, N. Y., before Horticultural Section of Association of Agricultural College and Experiment Stations, New Haven, Conn., Nov. 13, 1900.

THE University Extension movement is not new in Arts and Letters. It is, however, decidedly new in agriculture. I do not at this time intend to give you anything like a complete review of the rise and development of this new feature in agricultural education, but will rather sketch briefly the history of its growth in New York State.

THE BEGINNING.—Agricultural Extension in New York stands unique among educational movements, in that it had its beginning with the farmer. The farmer furnished the *raison d'etre*. In 1893 there was a request made to the College of Agriculture, by a group of farmers in Chautauqua County, for certain investigations and experiments in that region. This is the acknowledged grape growing section of New York, and as is common in all regions where agricultural specialities are practiced, particular difficulties had arisen. The farmers sensibly applied to the Experiment Station for help. At that time there was no money available at the Station to cover the expenses of work of this kind. The farmers were so informed. They were resourceful men and not easily discouraged. They laid their case before the committee on agriculture of the State Legislature, and obtained a special grant for the purpose of carrying on work of this character in their own and adjoining counties. This was known as the Nixon Bill for the extension of agricultural information. The money was placed in the hands of the College of Agriculture, and was administered at first by the department of Horticulture. The movement grew and flourished.

The money was used for investigational purposes, as well as for conducting horticultural schools; experiments were conducted in regions where there seemed to be special reasons for instituting them. This was in 1895. In 1896 the work broadened into a great general movement, having for its object the improvement of the farmers position. Each year the scope of the work has widened. The grant has been increased by the State until it has reached the sum of \$25,000 per annum.

The College of Agriculture has now established a department of University Extension. The work of this department divides itself into two sections. (1) The farmer and his fields. (2) The rising generation. (a) The main feature of the first division is the Farmers' Reading Course. This is the central theme around which various lines of work are grouped. The farmer cannot come to college. Neither has he had time or opportunity to become a scientific observer. Reading lessons upon fundamental subjects are distributed at intervals during the farmers' reading season—the winter. These lessons deal in a concise and clear manner with the main principles underlying a successful agriculture. They are accompanied by quizzes, which are to be answered and returned. The object is to assist farmers in thinking out scientific problems by themselves. In the lesson a problem is set, and a solution suggested. (b) Experimental work. It is our aim to make the lessons of such a character that the reading and studying of them will suggest possible experiments on the farmers' fields. It is then our pleasure to assist the farmer in planning and carrying out these experiments. In this way the farmer becomes at once an important co-operator, and an assistant to the Col-

lege of Agriculture. We have great faith in the ultimate effect and result of this Farmers' Reading Course movement, whose central idea is to educate the farmer rather than to give him more information. We are glad to say that the movement is increasingly popular among the farmers of the State. Beginning with a membership of some fifteen hundred in 1897, it has grown till it now reaches in round numbers twenty thousand. Another cheering feature of the work rests in the fact, that among our readers we have a large following of the younger men of the country. The direct result of this work is to improve methods of farming, and to awaken a desire for more wisdom, which may culminate in some instances in a decision to complete the reading course by taking the winter course in agriculture offered by Cornell University. This we look upon as the ideal method of finishing the correspondence course.

THE NATURE STUDY MOVEMENT.—The Nature Study movement is so well understood, and has become so phenomenally popular in recent years, that very little need be said on that subject at this time. It is a pleasure, however, for me to have this opportunity of bearing testimony to the zeal, enthusiasm and perseverance of the members of the staff of Agriculture at Cornell, led by Prof. Bailey, who have had the work in hand, and who have given unselfishly and unstintingly of their time and energy for its furtherance.

This movement had its germ in the thought that the place to remedy the fundamental difficulty of agriculture, as relating to the schools, was in the rural and city schools with the younger children. To ascertain the attitude of children and the teachers toward the movement, at the beginning, a number of schools were visited by instructors of the University. These visits and talks disclosed a keen desire on the part of the majority of the children and a number of the teachers for a closer touch with things

natural. Especially was this desire shown by the children. These early visits also disclosed the fact that one of the first things to be done was to educate the teacher, and here was the real work of the University. This has been accomplished in part by the publication of Nature Study leaflets, containing suggestive outlines of suitable topics for Nature Study illustration. These leaflets were at first issued irregularly. As the work increased and became systematized, it was decided to send them out at regular intervals throughout the year. They are now published quarterly, and are issued in an edition of thirty thousand.

Perhaps one of the most unique, and possibly most important divisions of the nature study work is the Junior Naturalist's Correspondence School. In this school there are marshalled a great army of little ones. They are grouped in clubs called *Junior Naturalists' Clubs*, and are scattered not only throughout the State, but throughout the United States. They have even crossed the waters and are found in Europe and Asia. The club is organized by the teacher. When properly organized each club receives a charter from the Bureau of Nature Study. The Junior Naturalist is a small monthly publication devoted to child nature study topics. Each member of every club receives a copy. There are no money dues connected with these clubs, but still there are dues. These consist of personal comments by the children of each member on the Naturalist or upon any other natural object which may have caught their attention during the month. The clubs are organized for one year, and are disbanded at the end of the school year. To illustrate the popularity of the movement I need only say that since September 1st, 1900, when the new school year was again taken up, seven hundred and fifty clubs have been organized, containing a combined membership of over thirty thousand children. There is no ques-

tion in my mind that this Junior Naturalist movement will be rich in the results bearing upon the uplifting and advancing of the farmer's position and interests throughout the country.

Such in brief are the bare outlines of a

movement whose value and worth are not to be measured by the rural achievements of this decade or of the next quarter of a century. I believe that the results are far-reaching to an extent that we do not at present appreciate or realize.

THE SAN JOSE SCALE.

DEAR SIR,—I enclose you a clipping from the *Toronto Globe* of Nov. 17, 1900, thinking that it might escape your notice:

To the Editor of the *Globe*: I have been requested to again express my opinion in regard to the San Jose scale question, and for different reasons which I have learned from experience beg to say that I still hold to my original view that this very injurious pest cannot be exterminated unless by extraordinary methods. About seven years ago I purchased four hundred fruit trees, mostly plums. At the time of planting six of these trees were not as vigorous in appearance as the balance, and I felt confident they were suffering from some disease of the bark. I immediately investigated the matter, and by close inspection found that my suspicion was correct. Shortly afterward I had a visit from Mr. Orr and Mr. Burrell, who promptly agreed with me that the San Jose scale was the cause of the difficulty.

At the end of three or four years the scale was distributed throughout my whole orchard, and the result was that the larger portion of my fruit being badly discolored wherever the scale settled upon it, was unsaleable. I have counted as many as five hundred San Jose scale upon a single leaf. The increase of the scale during the first year was small, during the second year large, and during the third year very great. Many applications made to eradicate the scale were of no avail, and those that were applied most forcibly did not even then affect the scale, but ruined the trees. I find this to have been the case, not only in my own experience but in the experimental spraying done by Government officials, and also in that done by neighboring fruit-growers, who have applied whale oil soap and other chemicals, which in all cases have failed of success. I can point out to you examples of some at any time. Within a short distance of my place there is an apple orchard of about thirty years' standing, which is so terribly infested by the San Jose scale that, may I be permitted to say, in a very few years a saleable apple will not be found upon it. Yet my neighbors and I, who have destroyed our trees, will soon have to repeat the dose of chopping out our replanted orchards, unless something is quickly done for our protection, and the only remedy I can suggest is

the use of an axe in the said infested orchard, and all others similarly affected.

Freeman, Nov. 10.

H. B. KOTTMEIER.

Mr. Kottmeier is certainly very positive in his statements in regard to the San Jose scale, and if correct, the sooner his axe remedy is applied the better in the interest of fruit growing in his neighborhood. On the other hand, I was talking to a Mr. Archibald, who manages Mr. McCardal's fruit farm near St. Catharines, this summer. I also consider this farm one of the best in the Niagara district, and one of the best managed fruit farms in Ontario. Now, Mr. Archibald is equally positive that the pest can be eradicated from any orchard by whale oil soap, if applied in the right way and at the right time. He told me that he cleaned two hundred peach trees this past summer with applications of whale oil soap, I forget at present in what proportions.

I should think from the positiveness of both gentlemen it would be very interesting to know which is in the right, and I would suggest to pay Mr. Archibald a visit and have the fruitgrower see for himself. Mr. Archibald is approachable, and would only be glad to give any information asked of him, since it is a strong statement made by Mr. Kottmeier that the spraying done by Government officials and others were injurious to the trees and have not destroyed the scale.

Yours, etc., R. CAMERON,

Gardener of Victoria Park, Niagara Falls South.

Open Letters.

The Culture of American Ginseng.

Some Accurate Information Regarding this Valuable Plant.

The subject of growing Ginseng has recently received so much attention from the agricultural press of the country and from circulars and pamphlets sent broadcast throughout the country by dealers, that hundreds of people are being induced to try its culture.

Many of the articles are written by people who have no personal knowledge of the best way to grow it or of the profits to be derived thereby. Others are written by dealers who have seeds and plants to sell, and in both instances as a rule the information is second hand and unreliable. The most extravagant figures are given showing enormous yields produced on a given acreage and Monte Cri to fortunes to be made out of a paltry investment while one lies in the back yard watching the gold dollars sprouting.

Certain dealers have sent out figures informing the public that \$5. invested in their seeds and plants will show a value of \$44,340.00 the fifth year. A million dollar bed in twelve years from a \$1000. investment is advertised on another page. A value *which cannot be obtained* except perhaps in small quantities is placed on the seeds and young plants and the ratio of increase and loss is given very accurately and more extravagantly *on paper*. Can any of these versatile writers please inform us how many turnips can be grown on a \$5 investment in twelve years, the price the roots and seeds will bring each year and how rich a man will be at the end of that period? Certainly not, and information pretending to figure it out would be absolute nonsense.

An article on Ginseng entitled "Valuable Farm Land" appeared in the St. Louis Republic a short time ago and was extensively copied by other papers in the South and Southwest. Among other wild statements the writer said that seeds bring five cents each (another writer says there is unlimited demand at twenty-five cents each) and yearling roots 20 cents each; that the eighth year an acre should produce 3,120,000 seeds which sell at five cents each, giving an annual income to the fortunate grower of \$100,000.00 from the seeds alone. He further states; "Say that a full crop of seed from one acre is available for planting. That will be 3,120,000 seeds. Allow for the loss and failure to generate or 1,120,000 seeds. This will leave 2,000,000 seed that are practically sure to germinate and create 2,000,000 roots. In eighteen months these roots will be ready for market, and can be sold direct to consumers, the present price 20 cents each or a total of \$400,000 from the Ginseng crop in eighteen months. This crop of 2,000,000 roots would require a space of approximately forty acres. One acre should produce 52,000 roots, which at the market price of 20 cents each, should, after eighteen months, bring a return of \$10,400."

Could anything be more baldly ridiculous. Let

us suppose that only 1000 gardeners had the above success as to yield. This would mean over three billion seeds put on the market each year, which at five cents each would require \$150,000,000 annually to pay for them, not to mention the value of the roots.

Suppose further that the ratio of increase both in yield of crops and number of growers continued the same for twenty-five years there would not be money enough in the world to buy a single year's crop. China, the source of demand for Ginseng, would have used all its wealth in its purchase long before the period of twenty-five years had elapsed. Notwithstanding these air castles there is an enormous profit in growing the plant, but it depends on the individual grower as in any other crop. The right conditions for its culture must be supplied, either naturally or artificially and intelligent cultivation given. There will probably always be a good demand for the root at high prices, and it is an article commanding cash at all times.

These conditions for growing are readily found in nearly all the States of the Union or can be produced at reasonable cost of labor and material. They may be stated in a few words; A rich, deep, well-drained, and moist soil, containing abundant decayed vegetable matter and not too heavy or clayey. Humus or vegetable mold, obtained by using decayed forest leaves is extremely beneficial, as is also thoroughly rotted compost. Shade sufficient to keep off the direct rays of the sun is almost necessary, particularly in sections where the heat is excessive. Add to this careful cultivation and you have the secret, if there really be any, of growing Ginseng successfully. Lath covers are perhaps the best artificial shade and apple trees have been found good to keep the ground protected from the sun. At maturity the roots must be carefully and properly prepared for market, and the extra care taken to produce a fine article, clean, well graded and perfectly dry is more than repaid by the much higher price such roots will bring.

The writer who has had many years of experience growing this root will be glad to give fuller information as to the best modes to be used in its cultivation, but would warn the reader against the wildly extravagant articles that appear from time to time and which will damage rather than help an industry that really does promise most unusual returns for the labor and expense necessary to cultivate it successfully.

HARLAN P. KELSEY.

Tremont Building, Boston.

Walbridge.

SIR,—The apple you sent me for identification under date of Nov. 16th is Walbridge. This variety, as you probably know, originated in Illinois a good many years ago. It has always been recommended for hardiness of trees and long-keeping

qualities of fruit. Twenty years ago it was quite popular in the northwest prairie states. It was introduced into Canada by Charles Gibb in 1877. Trees were planted at Gibbland Farm between 1877 and 1886. On the thin, gravelly soil, characteristic of the west slope of Yamaska Mountain, the tree has done fairly well, so far as growth and vigor are concerned, but the fruit lacks size and color. At Abbotsford it has always been an undersized, flat apple, which did not color up until midwinter. Neither has the tree been productive. On the Experiment Station grounds at Cornell, where the soil is a heavy and in places a stiff clay, this variety the past season gave an excellent crop of fruit fully up to the size of the specimen you forwarded. Of course its normal size is medium or below. I do not know of any place where Wallbridge is popular, and I am of the opinion that it has been very much overrated. I enclose you a sectional outline which shows that it has a very small core.

Ithaca, N. Y.

J. CRAIG.



FIG. 2008. WALLBRIDGE.

Our Affiliated Societies.

LINDSAY.—The members of the Lindsay Horticultural Society are doing a quiet but noble work by encouraging the growth of flowers, fruit and shrubs and the beautifying of the homes of our citizens, and they are entitled to much praise for the good work already accomplished.

The large attendance at last Friday night's meeting in the council chamber, despite the darkness and other unfavorable conditions, was a convincing demonstration of the growing interest being taken by our citizens in horticulture and floriculture.

The president, Mr. W. M. Robson, occupied the chair; Vice-President Cathro, Secretary Framton and other officers were also present.

President Robson in opening the meeting congratulated the members and citizens on the society's increasing usefulness. They were enabled to offer very valuable prizes to members at a small cost owing to good management and the liberal aid extended by the provincial government. The premiums amounted to about \$3 worth at a cost of \$1, and there was other advantages as well. He hoped to see the membership double itself during the coming year.

After a few enjoyable selections on the graphophone by Mr. W. H. Stevens, President Robson read an extremely interesting paper entitled "Possible Achievements in Flowers and Fruits." The paper contained a reference to the career of Harry Dale, of Brampton, the greatest grower of roses in the world, who started business some 17 years ago in a small greenhouse, and now has many acres under glass. Mr. Dale has some 50,000 roses continually in bloom, and cuts 500,000 buds annually, which are all disposed of in Canada. In 1891 Mr. Dale carried off first prize at New York for cut roses, the competition being open to the world.

He employs 50 men constantly about his greenhouses, and many others at certain times. His wage list averages \$500 weekly, and it takes 2,000 tons of coal to heat his greenhouses every year. The paper also referred to the famous Montreal muskmelon, grown by specialists, and sold to leading American hotel and summer resort proprietors at \$5 and \$6 each. About 5,000 are shipped annually. The paper was received with applause.

Secretary Frampton, before reading a paper on the Gloxinia, gave a few useful hints on flower culture, and noted some of the simple causes leading to failure, but easy to remedy. The paper was very carefully written, and entered very fully into the methods to be followed in attaining success with the Gloxinia. The reader generously disclaimed the authorship, and explained that the paper had been written by a gentleman "too modest to disclose his name."

Mr. W. H. Stevens, Collegiate Institute Science Master, read a paper on the growth and care of the tuberous-rooted Begonia, which the society is distributing this year to members, among other premiums. There are two varieties, the erect and the drooping, the latter being especially suited for window culture. Those who wish to secure the plant should join the society or purchase from M. Massom, our own reliable florist. During the discussion that followed, Mr. Stevens said that all smooth leaved plants might be watered on the leaves, but water would discolor rough or spinous-leaved varieties. It was pointed out that many people plant seeds too deep. Mr. Massom said a safe rule to follow was to plant three times the depth of the seed, and in case of very fine kinds, to sow on top of the pot or to sift a little mould on top, and then smooth over.

Florist Massom next gave a short but very in-

interesting talk on the Cyclamen, also given as a premium by the society. It was introduced from North Italy, where it grows so freely that the hogs feed on it, but careful cultivation has improved the flower greatly. He had known a lady to plant the bulb wrong side up; there is always a small depression on the side that should be planted uppermost. The soil must be kept moist. The Begonia is a fine plant, but the Gloxinia is difficult to grow. Questioned concerning Azaleas, Mr. Maxsom said he had seen plants 40 years old at the Governor-General's house at Ottawa, but peat had to be specially imported from Wimbledon Common, England, for use of the plants. All Azaleas have a little ball of peat about the hair-like roots, and they seem to thrive until the nutriment has been exhausted. Of hardy plants we would recommend ferns, begonias, rubber plants and cyclamens as likely to survive any ordinary kind of neglect.

In reply to a question whether newly-planted shoots of Boston Ivy required particular care, Mr. Maxsom replied in the negative. It might be well to cover the roots.

The meeting was brought to a close about 10.30 by all singing the national anthem, led by Mr. J. H. Knight.

The graphophone used by Mr. Stevens during the evening was kindly loaned by Mr. R. Chambers. The numerous selections given were greatly enjoyed.—Lindsay Post.

LINDSAY.—The annual meeting of the Lindsay Horticultural Society was held Wednesday evening last at 7.30, in the council chamber, to receive the treasurer's report and elect officers and directors for the year 1901. Treasurer Frampton's report disclosed a very satisfactory state of affairs, the financial position being as follows;

Receipts, 1900.

Balance on hand Jan. 10th, 1900.....	\$117.42
Legislative grant	77.00
Members' subscriptions.....	114.00
Sale of plants.....	2.20

Total receipts.....\$310.62

Expenditure.

Meetings for discussion of Horticultural subjects	\$ 19.50
Horticultural periodicals.....	86.98
Purchase of Plants.....	94.94
Working expenses, including secretary's salary	25.93
Extra printing	6.00

\$233.35

Balance in hand.....\$77.27

KINCARDINE—The annual meeting was held on Wednesday evening, Jan. 9th, 1901. The officers were elected for the ensuing year.

Mr. Barker, the efficient secretary of the society, presented the following report:—

In submitting the fourth annual report he congratulated the society on the marked progress which it has made during its four years of existence which commenced with a membership of fifty-nine and has now attained a growth of ninety members.

For the information of the members and others the secretary prepared a statement showing the exact number of plants, bulbs and fruit trees which have been purchased by the society and distributed to the members last year in accordance with the selections made by them are as follows:—

Collection 1.—27 azaleas, 27 gloxinias, 54 begonias.

2.—14 Fosterina palms in pots.

3.—6 palms, Phoenix reclinata; 18 begonias, red white and yellow.

4.—10 Boston sword ferns in pots, 40 carnations.

5.—52 dahlias, assorted colors; 13 gloxinias, 13 new Russian violets, 39 single tuberous begonias and 39 double.

6.—20 fuschias, 20 geraniums, 10 Russian violets 20 dahlias, 20 chrysanthemums, 20 carnations.

7.—42 double hyacinths and 42 single.

8.—6 cannas and 40 gladiolii.

9.—12 flowering shrubs.

10.—10 cherry trees, Ely, Richmond and Black Vartarian; 10 peach trees, Crosby and Early Crawford.

11.—36 raspberry bushes, 6 of each of six kinds.

12.—110 currant bushes, two years old, first-class, of the following varieties; Champion, Black Naples White Grape, Fay's Prolific and Cherry.

In addition to the above, the Fruit Growers' Association have presented annually to the members of the horticultural societies of Ontario a premium such as newly introduced pear, plum, peach, also small fruits such as the best varieties of raspberry and currant, besides ornamental vines, shrubs and roses. Our members have also received from the above association the annual report of their proceedings—a neatly bound volume containing most valuable instructions and information to fruit growers in Canada, and then each member gets the Canadian Horticulturist magazine every month during the year, and we have no hesitation in declaring this monthly visitor to be the peer of its kind published in Canada, giving such plain instructions regarding the cultivation of fruit and flowers, which make it indispensable to our members and worth much more than our small membership fee of \$1.

Our society last year was in a position to give material aid and encouragement to the Juvenile Flower League of Kincardine by purchasing for them, with their own funds, plants and flower seeds at lowest possible price by which, said League was enabled to make a highly creditable showing in conjunction with our own exhibition last fall.

May we not hope for even greater success in this the first year of a new century? We bespeak the hearty co-operation of every lover of flowers and fruit in Kincardine.

JOSEPH BARKER, Secy.

ORILLIA.—The annual meeting was held on Wednesday evening January 9th, in the Council Chamber. The President, Mr. G. I. Bolster, occupied the chair. The financial statement for the past year, duly audited and certified by Messrs. J. B. Marston and G. H. Clark, was presented by the Secretary-Treasurer, Mr. C. L. Stephens. It showed amongst other matters that \$147 had been paid out for prizes awarded at the fall show, with a balance remaining on hand at the close of the

year of \$69.88. The amount paid for prizes was larger by \$18 than that paid in 1899. The entries for 1900 were 635, an increase of 37 over the previous year. On motion of Mr. E. B. Alport, seconded by Mr. Geo. Street, the report was accepted and ordered to be forwarded to the Department of Agriculture. A vote of thanks to the officers of last year was passed. An interesting discussion, in which many members took part, followed, upon the question as to whether it was desirable to continue to act upon the old lines of co-operation with the East Simcoe Agricultural Society in holding a fall show; or to cut away from that society altogether, and devote the resources of the town society entirely to town objects, such as beautifying of lawns and gardens, holding of summer shows, and other directions in which valuable work might be done. The consensus of opinion seemed to be that it would be hardly be advisable to withdraw at present from the former methods, particularly as it was pointed out, a summer show was impracticable owing to there being no hall in the town suitable for such a purpose. At a meeting of the Directors, which immediately followed, Mr. C. L. Stephens was re-elected Secretary-Treasurer for the fourteenth time.

On motion of Mr. Stephens, seconded by Canon Green, it was resolved that during the ensuing year regular monthly meetings of the Directors shall be held, and the second Tuesday in each month at 8 p. m. in the Council Chambers, were fixed upon for time and place. Mr. Second introduced to the meeting Mr. G. B. Wyllie, District Passenger Agent of the Illinois Central Railway, as an old friend and schoolmate who was visiting him. Mr. Wyllie having expressed pleasure at being at being present and interest in the discussion which he had listened to, gave a short address on the subject of Canadian Summer Resorts, referring chiefly to Orillia and the Muskoka District. He promised a very large influx of visitors next summer from the Pan-American Exposition to be held in Buffalo, and hoped that Orillia would be prepared to receive a goodly number. He emphasised the importance of well-kept grounds and tidy streets as an attraction to tourists. A vote of thanks was passed to Mr. Wyllie for his entertaining and instructive address.

HAMILTON.—The annual meeting of the Hamilton Horticultural Society was held in the Hamilton Scientific Association rooms on the evening of Wednesday, January 9th, at half past seven o'clock. The Treasurer's report showed a balance on hand of \$213.00. \$162.00 were received in members' fees during 1900. \$99.00 were expended in purchasing and distributing seeds, plants and bulbs. With the object of cultivating a love for horticulture \$46.00 worth of plants were distributed among the scholars of the public and separate schools during the late spring, and prizes of plants and bulbs were awarded in October for the best grown specimens from each school, much interest being taken in the competition by parents as well as children. The thanks of the society are due E. G. Brown, John A. Bruce & Co., Walter Holt and Messrs. A. Alexander and William Hunt for kindly donating the prizes. Nine open meetings were held for hearing lectures and the reading of papers. A public exhibition was held in June. The following officers and directors were elected: President, A. Alexander; First Vice-President, F. H. Lambe; Second Vice-President, J. O. McCulloch. Directors: James Anderson, S. Aylett, W. F. Burton, John Cape, J. J. Evel, Wm. Hunt, J. Kneeshaw, Rev. A. McLaren, William Wilson; Auditors, Fred. B. Greening, M. H. Little; Secy-Treas., J. M. Dickson.

The Perth Horticultural Society held its first annual meeting in the Council Chamber, on the evening of Jan. 9th, at which the officers for the ensuing year were elected and considerable business done. The meeting was adjourned until Tuesday, Jan. 29th, at eight o'clock in the evening at the same place, for the purpose of adopting by-laws, etc. This adjourned meeting should be well attended as by-laws are important and other business will be brought up.

PICTON.—The annual meeting of the above society was held in Shire Hall on Wednesday evening, for the election of officers for the ensuing year, and other business.





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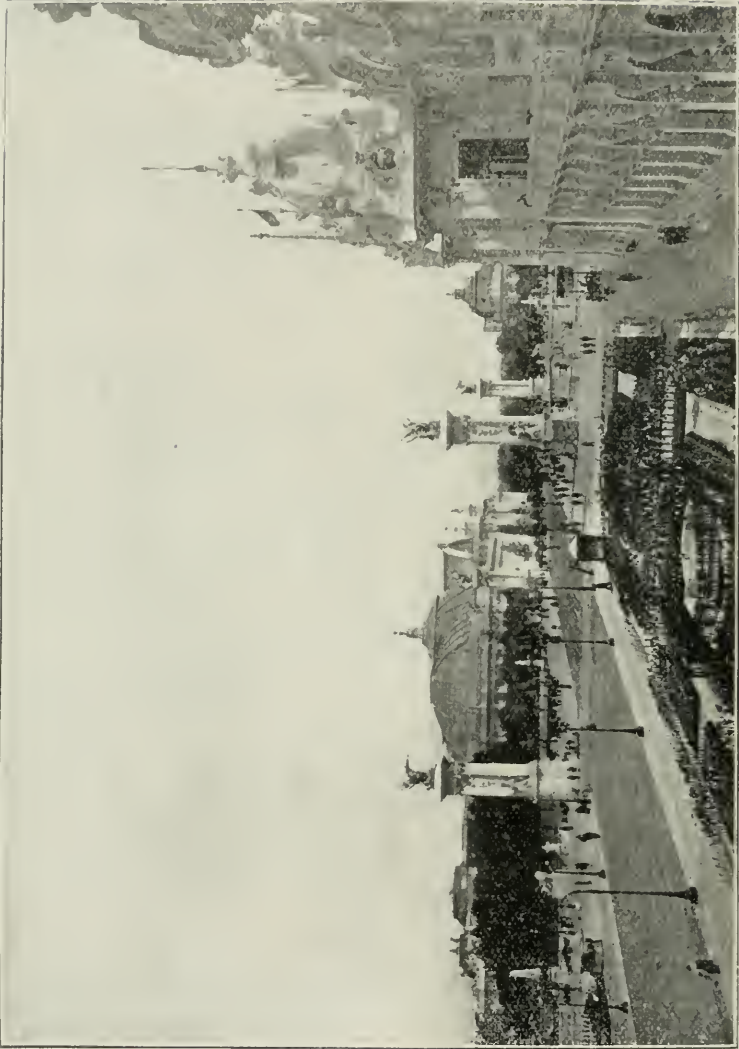


FIG. 2009. AVENUE NICOLAS II, PARIS, FRANCE.

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*** MARCH ***

HORTICULTURE IN PARIS.—I.

THAT the French are a flower-loving people, one realizes in a very short time spent amongst them. The large numbers of people seen hawking flowers in the streets; the large number of flower shops, which are almost as numerous as bread shops or dairy shops, would convince the most sceptical of that fact.

Reaching Paris late on a Saturday night in the end of March, in a short walk in the streets, flower sellers were met about every acre, and they were doing a brisk business. violets, primroses (wild), daffodils, and lilies of the valley, lilacs and roses, with some cytisuses, or kindred plants with yellow flowers, formed their principal stock in trade. Needless to say that at that date the lilacs and roses were forced. The French people take a special pleasure in lilacs, of which they possess a very large number of varieties, many of them of great beauty. In the gardens, on the outskirts of the city, we see them in large numbers, and we find the spikes of cut flowers throughout the entire season. They not only force them, but also retard them. As late as

October large quantities of them were still in evidence.

The Paris houses are always well supplied with flowers. They are daily renewed, and one sees the withered plants that have served their purpose, thrown out into the streets with the other rubbish, for the scavengers to carry off during the night or early morning.

The Paris dwelling houses open into court-yards; these court-yards, when not paved, are usually planted with a nice assortment of the better class shrubs—laurels, rhododendrons, azalea mollis, magnolia, &c., or, if paved, the plants are set around in large tubs or boxes, and may consist of palms, Araucarias, Aucubas, large ferns, and other plants of that character that may be frequently changed.

One of the climbers that one often sees is the Wistaria. In the early summer it bears hundreds of long, graceful, pendant clusters of blue, or white, flowers. Another beautiful climber is the Bignonia radicans, and almost everywhere the common and large-leaved ivies are seen, less frequent are the clematises, the ampelopeses, and the

various honeysuckles. Amongst the large plants that are set out in front of the dwellings and restaurants in the streets are several kinds of box, privets, *Euonymus*, *Laurustinus*, standard roses, laurel, etc.

PARIS PARKS.

The parks in Paris generally contain large and fine collections of plants of all kinds, forest trees deciduous and evergreen, shrubby-herbaceous plants, bedding plants, annuals, and bulbous plants. The apparent effort seems to be to keep up a continuous display of flowers from earliest spring to latest fall, and from week to week one observes the flower beds completely transformed. The early flowering bulbs with which the plots are filled in the fall, are succeeded by pansies, hepaticas, and other low-growing early flowering perennials; these, are in turn, succeeded by annuals in full bloom, or some of the bedding out plants. This sort of flower garden was seen at its best within the exhibition grounds, in the concours made by the large seed-houses and floral establishments. These concours took place every fortnight, or three weeks, and at each successive one, every bed was completely changed. Bulbs of various kinds—hyacinths, tulips, scillas, &c., in full flower, were set into the plots, pots and all, and at the next concours were replaced by *calceolarias*, or *cinerarias*, or *geraniums*; on the next occasion these were replaced by bulbous *begonias*, or *cannas*, or *chrysanthemums*, and one sort of annuals was succeeded by another, or by mixtures of annuals or herbaceous plants. Our native perennial asters were very largely used and made a very beautiful display. In the same way, one bed of shrubs succeeded another. Lilacs in pots and *spireas* of several families were followed by *rhododendrons*, *Azalea mollis*, *Ceanothus*, *Althea frutex*, or *kalmias*, and so the

transformation went on. Many of our own common native shrubs, dwarf chokecherries, *Pyrus arbutifolia*, *Spirea salicifolia*, *viburnums*, &c., taking their place with others in the general transformations. Canadian ferns, too, were largely used in permanent beds and clumps.

Amongst the annuals used in these renewals, were the everlasting *acrocliniums*, *rhodanthe*, *helichrysum*, and the feathered *celosia*. The *campanulas*, chiefly the dwarf species and varieties, *Carpathica*, *Sibirica* and *Venus looking-glass*. Chinese asters were very largely used, so were the dwarf blue *ageratums*, *aubricτίας*, *brachycomes*, *browallias*, *centaureas*, *forget-me-nots*, *asperulas*, *larkspurs* and *whitlavia*s. Amongst the most interesting yellows were the *Gamolepis*, *Tagetes*, *Linaria multipunctata*, *pansies*, *antirrhinum*, dwarf *erysimums*, dwarf *zinnia*, *Tagetes signata pumila*, French and African *marigolds*, *Matricaria*, golden ball. Small white flowers that lent themselves readily to that kind of work were the sweet *alyssum*, *Arabis alpina*, *candytufts*; *pansies*, the large flowered *daisies*, dwarf *asters*, *godetias*, *phloxes*, the *Gypsophila muralis*, *Saponarias*, *schyzanthus statice*, *Humea elegans*, with many of the annual grasses, furnished light feathery effects, while *Virginian stock*, *Nemesia floribunda*, *silene*, varieties of *petunia* and of dwarf compact *crimson phlox drummondii* made dense rosy crimson beds. *Amaranthus bicolor*, *tricolor*, and *Melancholicus ruber*, supplied beautiful foliage.

The *godetias*, especially the varieties of *Whitneyi*, made beds that at a short distance were mistaken for large flowered *geraniums*. Some of the most beautiful masses of blue flowers were made of the single blue aster, *Callistephus hortensis* the original of all the immense number of varieties of the Chinese aster, and for fall



FIG. 2010. VIEW IN THE TROCADERO GARDENS (RUSSIA-IN-ASIA), RUSSIAN PAVILION AND DUTCH INDIAN PAVILION TO THE LEFT.

flowers the improved varieties of many of our native wild asters were unrivalled; the effects were always most pleasing.

The campanulas, especially the canterbury bells, were very largely used, and with good effect. A collection of forty varieties, that came all the way from Russia, was very much admired. The bright varieties of *Tropeolum lobbi* made glowing masses that rivalled the large-flowered tuberous begonias. Plants of the sunflower family *helianthus*, *helenium*, *helianthella*, *rudbeckia*, *doronicum*, *echinacea*, *coreopsis* *gaillardias*, were in abundance at all the concours. The *Aquilegia cœrulea* hybrids, and *glandulosa*, were very beautiful. The aster (perennial), *alpinus speciosus*, was one of the most admired plants during the early summer months, flowers of a

lovely violet and very large and numerous.

Roses in masses were planted by the thousand, standards, half-standards and dwarfs, and as they were chiefly hybrid-perpetuals, Teas and Chinas, they made a splendid display throughout the season, and were not disturbed. These were furnished by the large floral establishments and each mass bore a neatly printed advertisement of the grower. In the same way large clumps of conifers were supplied, each plant carefully named, and as the variety was very large, and the specimens well grown, the whole formed a beautiful object lesson.

Large plots of climbers in the same way, clumps of evergreen shrubs (not conifers) deciduous shrubs, &c. Clumps of purely American plants—rhododendrons, azaleas



FIG. 2011. ALEXANDER III BRIDGE, PARIS.

andromeda, gaultheria, kalmia, sedums, &c.

PARIS SQUARES AND PUBLIC GARDENS.

The squares in Paris generally contain large and fine collections of all kinds of trees, shrubs, and herbaceous plants, that will endure the climate, and it is astonishing what a large number of varieties are found in them. In the Jardin des Plantes is found the famous old Cedar of Lebanon that was brought to France in 1636 by Bernard de Jussieu, and also the first Robinia pseud-acacia that was brought to France from America in 1600. The former a grand old tree in perfect health and preservation. Of the latter only a sucker remains, but an imitation of its trunk is made in plaster.

In the Jardin des Plantes, and buildings adjoining, the School of Botany meets to hear lectures and to receive practical

demonstration in botany and kindred subjects.

PARIS STREETS, ETC.

The streets and highways in Paris and throughout France are generally planted with forest or fruit trees. We had the pleasure, at the Pomological Congress, of listening to a very interesting debate on the subject of "forest trees versus fruit trees for country roads." The fruit trees carried the day.

In Paris the tree most frequently seen in the streets is the horsechestnut, the common, the double, and the crimson. In some districts the catalpa is pretty numerous, and occasionally the ailanthus is found, and the Judas tree. A few elms and maples, too, are seen in places, but next to the horse chestnut in numbers comes the American plane tree with a few of the



FIG. 2012. MR. ROBT. HAMILTON,
Superintendent of Horticulture for Canada.

Eastern plane. This is a very interesting tree with its innumerable little seed balls tangling by a slender thread. Along the River Seine and the canals the black poplar is everywhere met with. Rare specimens of linden and locust were seen and also the Salisburia or Maiden-hair tree.

In private grounds that may be seen from the streets, the variety of trees is, of course, very much greater than in the streets, inasmuch as there is no restriction as to size, character, &c., so that one sees weeping trees of all kinds—maples, willows, elms, birches, cherries, ashes, beeches, mulberries, locusts, lindens; cut-leaved trees of as many families—crimson and purple leaved trees, variegated leaved trees; conifers; cedars of Lebanon, hemlocks, balsams, spruces, *Wellingtonia gigantea*, &c. Trees with round heads, fastigiate

trees—that seem to wish to hold communion with as few as possible of their fellows and aspire heavenward, Lombardy poplars and Bolleana poplars, pyramidal birch, monumental elm; small flowering trees like the Golden Chain (*Cytisus*), the Japan lilac, the Crimson Double Thorn, magnolias, mulberries, and double-flowering apples. Of flowering shrubs the variety is practically endless. Rhododendrons are seen ten feet high and fifteen feet diameter, a solid bouquet and kalmias almost as large; euonymus, hibiscus, hydrangeas, silver bells (*Halesia*), azaleas, ceonothuses, *Azalea mollis*, &c., to say nothing of the Weigelias, Philadelphus, honeysuckles, spiraeas and lilacs that we know so well here.

HORTICULTURAL EXHIBITS.

One feature of the Horticultural Concours that struck us as somewhat strange was the fact that all the exhibitors were professionals. There were no exhibits from private gentlemen's grounds, nor did there seem to be anything from market gardeners. Large establishments, syndicates, and horticultural societies were the only concurrents or competitors.

The Horticultural Society of France is said to be very rich. The building where its members meet for the transaction of business—a large magnificent affair, said to have cost a half million francs, and which yields an annual revenue of twenty thousand francs—is the property of the Association. The two horticultural pavilions of the late exhibition, two magnificent structures, are also said to belong to this association.

Yet, when all is said of the grandeur of the late exhibition, it must be admitted that, when we consider the wealth of France in everything horticultural, together with its population and wealth, our Ottawa, Toronto, or Montreal exhibitions, are comparatively much better.

Grenville, Que. ROBERT HAMILTON.

QUEBEC FRUIT GROWERS.

THE eighth annual meeting of the Pomological and Fruit Growers' Society of the Province of Quebec was held on the 31st of January and 1st of February at Muir Hall, Huntington, Que. Morning, afternoon and evening meetings were held. The meetings were well attended and a great deal of interest shown, and different subjects were well discussed, many in the audience joining in the discussions.

The meetings was ably conducted by the President, Dr. H. W. Woods, St. Johns, Que. The society was particularly favored by having such a large number of professors to attend their meeting.

Mr. J. M. Fisk, Abbotsford, gave an address on Horticultural Exhibitions and advised the adoption of judging by points. In the discussion that followed single judges were thought advisable, and the system of judging by points was thought to work well on single plates but at times lead to confusion in collections.

Dr. Saunders, director Experimental Farms, Ottawa, gave a very interesting address showing the important position the fruits of Canada have taken in all the large exhibitions of the world from the Centennial at Philadelphia in 1876 to the Paris Exposition of last year.

Dr. Fletcher, Entomologist Central Experimental Farms, in a well chosen address, showed the value of the honey bee to the fruit growers as a pollinizer, and explained why the bee did not injure fruit, and that there had never been a case known where the bee

had broken the skin of the tenderest fruit. Mr. Selwin, of Ottawa, also gave a paper of great value to the bee-keeper. Mr. Hamilton, of Grenville, and Mr. Shepherd, of Como, closed the afternoon meeting of the second day with well chosen remarks on cold storage and the possibilities of the fruit grower as an exporter under more favorable conditions.

The feature of the evening was an illustrated address by Prof. John Craig, Cornell University, Ithaca, N. Y., who showed some excellent lime light views of some of the most profitable orchards in western New York and the views of several packing and evaporating plants, closing with a photo of the Directors of the Quebec Association taken at the time of the first meeting of the board.

Prof. Waugh, Horticulturist, Burlington, Vermont, spoke of the selection of varieties and drew attention to the Fameuse type as being of special value as grown in Quebec.

Mr. R. B. Whyte, of Ottawa, in addressing the meeting showed the advantages to be derived from Local Horticultural Societies being connected with the Provincial Society and cited the benefits gained by affiliated societies in Ontario.

The subject received great attention and was discussed at some length, and it is probable that in the near future steps will be taken to form affiliated societies on the same general plan as in Ontario.

Your representatives were very cordially received and entertained while at the meeting. HAROLD JONES, Maitland.

THE RICE HARVEST IN ONTARIO.

RICE LAKE is one of the larger lakes of the Trent Valley, being about twenty-two miles long and from one to four miles wide. It is between the Counties of Northumberland on the south and Peterboro on the north. A number of small streams empty into it, also some larger, as the Otonabee, Indian and Ouse.

The lake itself looks beautiful from almost any point, especially from Hiawatha, Keene, Foley's and Birdsall's on the north, and from Benally, Gore's Landing, Harwood and McCracken's on the south shore.

There are a number of islands in the lake, some small and others large, Whites having 300 acres of good land.

Then there are bays formed by points of land that jut into the lake and are very beautiful. Perhaps the most interesting point of land is the one known as Desangs or Roaches. It is the one that in the long, long ago the Indians chose as a place for worship, building the wonderful serpent mound that a few years ago was recognized by Mr. David Boyle, of the Canadian Institute.

For years and years the point had been a favorite picnic ground with the inhabitants of the north and south shore; the same beauty of location attracted them that had the aborigines before the time when Champlain and his party camped there when they were exploring the Trent waters. Who will gainsay the thought that localities have

their own spirit, attracting or repelling humanity.

The object of this paper is not to enter into all the beauties of and around Rice Lake, and there are many—for truly the country north of the lake may justly be called the Midlothians of Ontario—hill and valley, no matter where the eye travels. From some of the hills views extending thirty miles are at the disposal of the gazer; from one point on a clear day seven town-



FIG. 2013. GATHERING RICE.

ships can be seen. But this is not the lake, it is lake, stream and land.

Rice Lake is noted for its sport, consisting of fishing and shooting. The fish that are trolled and angled for are bass, black and yellow; the game hunted are snipe, plover and ducks. Of the latter there are the summer and fall ducks, each good in their season.

The food of the fish is supplied largely by the beds of wild rice, or known as black

rice, and it is on these large fields of rice that the ducks feed during the Summer and Fall. These beds or fields of rice, some a few acres, and others of two or three hundred acres in extent, not only supply fish and fowl with part of their food, but also men, women and children with part of theirs.

Many consider the native rice to be superior to the imported in point of flavor.

growing in water from two or three feet to six or eight in depth, if the season is a dry one, the crop is sure to be light, but if showery, then the yield is heavy. Those not acquainted with this fact laugh at it; still, laugh as one may, the fact remains—little rain, little rice; just enough rain, a good yield.

The manner of harvesting is peculiar.



FIG. 2014. THE ENCAMPMENT ON RICE LAKE, SUGAR ISLAND.

The harvesting of the rice crop is entirely in the hands of the Indians, descendants of the ancient Ojibway tribe, there being a reservation at Alderville and another at Hiawatha.

There are two leading varieties of rice, an early and late, the former maturing in August, the other late in September.

Strange to say that the rice crop, though

Being in the water, neither reaper, scythe nor sickle are used, but a canoe and two occupants, generally an Indian and a squaw, the one paddling the canoe through the dense mass of straw, the other pulling the straw over so that the heads of rice are fairly over the canoe, then with a stick the grain is beaten out or off into the bottom of the canoe; this is done from one side and



FIG. 2015. SCORCHING THE GREEN RICE SO AS TO GET THE HULLS OUT.

then the other, then it is push along John for more straw with rice on it.

Of course a good deal spills over the side of the canoe; it forms the seeding for the next year, also is the source of food for the Fall water fowl in the shallower water.

When the canoe is filled by this primitive procedure it is taken to the camp where it is then treated, or manufactured, into an edible shape or state. The first thing done now is to have a large kettle, like a large soap kettle, with a slow fire under it. The rice is put into the heated kettle in small quantities, being continually stirred so as to parch the outer covering but not burn the grain. This requires experience and an adeptness only obtained by patient practice.

grain from the chaff and is accomplished much in the same way as Araunah did on his threshing floor in the period of the undivided kingdom of Israel—i. e., the chaff and grain are thrown into the

The next stage of manufacture is to use another kettle somewhat larger, into which the parched product is placed. Now the brisk time has arrived, for a lusty man or youth steps in and to a humming melody he waltzes to right, then to left, all the time having a firm hold of a limb of a tree, or a pole supported on two forked sticks driven firmly into the ground. This frees the parched and loosened hull from the grain. The last stage of manufacture is the winnowing of the



FIG. 2016. CLEANING THE RICE FROM CHAFF BY TOSSING IN THE WIND.

air; away goes the chaff and down comes the rice.

Not all the gathered rice is manufactured. A large amount is sold as green rice and is shipped to other points to stock small lakes with rice for the water-fowl, and some is exported for the same purpose.

Usually six to seven weeks are occupied in the gathering of the crop. 'Tis said that away from its native place that the wild rice is a shy grower, many finding it difficult to get it accustomed to its new surroundings. After the fall gales in those places in the lake that in summer looked like beautiful meadows, not a speck of rice straw is to be seen, it having all gone to the bottom.

The story is told (of course it was long

ago, all good stories are of the long ago) of a man who was going up Rice Lake in one of the barges, who, seeing the beds or fields of rice, asked what it was. On being told it was rice growing in water he supposed that they were guying him and insisted on the barge going into the edge of the field so he might show them he was not as green as the stuff, for he would walk on that elegant meadow as fast as the old tub could go. He made the essay and was right glad to have a hand to help him on board. While still dripping and the water running down his face he was heard to say, "Who'd have thought it was so deceitful."

DR. HARRISON.

Keene.

SAN JOSE SCALE.—The Committee, sent by our Association, interviewed the Hon. John Dryden on the 2nd of February. There were present Messrs. Murray Pettit, Winona, Chairman; W. M. Orr, Fruitland, Major Hiscott, ex-M. P. P., Niagara; Dr. Jessop, M. P. P., St. Catharines, and Mr. George E. Fisher, Freeman, the Government inspector.

The following recommendations were submitted by the deputation:

(1) That a system of inspection be carried on in all suspected districts, with a limited number of suitable assistants.

(2) That every grower in suspected districts be required to inspect his own trees during the months of November and December in each year, and to report to the inspector, not later than the 1st day of January following, on suitable blank forms to be furnished, that the work has been carefully performed, together with a statement of the condition of the orchard at the time of inspection.

(3) That as the work of treatment is still in an experimental stage the Government should make suitable material, both whale

oil soap and crude petroleum, available to the people on the same terms as supplied to growers last year.

(4) That in isolated sections where the scale is found to a very limited extent the treatment of the trees be carried on by and at the expense of the Government under the direction of the inspector.

(5) That with regard to nursery stock, the most careful measures be continued to properly protect the purchaser from the infestation from this source, and to this end all fumigation be done under the supervision of the Government, and official certificates be issued to accompany each shipment.

Hon. John Dryden, in reply, said he was anxious to do all he could for the fruit-growers. He suggested that in order to secure the enforcement of precautionary measures the association appoint a committee of three to co-operate with the department, particularly in the placing of suitable spraying material within the reach of the public. It is probable that some action will be taken at the Legislature this session to prevent the further spread of the scale.

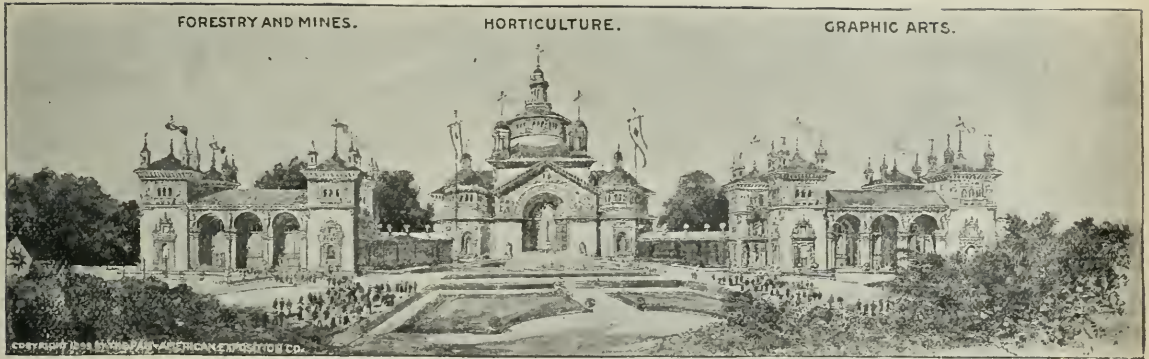


FIG. 2017. HORTICULTURAL BUILDING.

OUR FRUIT AT THE PAN-AMERICAN.

OUR readers will be pleased to learn that the request of our Association for a good exhibit of our fruits to be shown at Buffalo this summer has been granted. Mr. C. C. James, Deputy Minister of Agriculture, Toronto, has been constituted honorary Commissioner for Ontario, and he has already in cold storage in Buffalo 180 bushel cases of choice Ontario apples, in readiness for the opening months of the exhibition. He has also secured a liberal amount of space, and the officers and members of our Association, desiring to furnish fruit for this exhibit, will have every opportunity during the summer. In this connection our readers will be interested in a view of the Horticultural Building, which is truly a fine work of architecture.

The Pan American Magazine speaks of this building as follows :

Horticultural exhibits at Buffalo will have a beautiful setting in and about an exceedingly handsome building 220 feet square. The height of the building is 236 feet to the top of the lantern, and the general proportions are of commanding grandeur. Situated in a position of great prominence on the western side of the ground, the approach from the east is through the esplanade, past

the basins of aquatic plants, the fountains and the great urns containing beautiful tropical foliage effects ; up the curved incline which is bordered by many odd varieties of fruiting trees and shrubs, to the magnificent doorway which is the subject of the accompanying illustration. Probably no horticultural exhibit has ever had such elegant and appropriate surroundings and no former display has been so well worthy of it.

The Horticultural Building is connected by semi-circular conservatories with the Graphic Arts Building to the north and the Mining building to the south. These conservatories are themselves very beautiful architectural features of the Exposition and the fine floral displays in them will enhance their attractions to visitors. They connect the three buildings in this group but are distinct and separate buildings, having their own individual style and their exhibits of entirely different character. The court upon which the three buildings of the group face contains one of the superb Esplanade fountains.

Fruits of all kinds will be placed on exhibition during the summer. Much of the fruit will be preserved in cold storage, though the exhibit will change as the sea-



FIG. 2018. THE ENTRANCE.

son advances and the different varieties ripen. A number of states have made arrangements to provide collective exhibits

that will properly represent the horticultural products of their particular section. California is arranging for a special exhibit of the wonderfully diversified fruit productions of that state. Other states are taking the matter up with the prospect of making the horticultural exhibit the most complete ever attempted. The same care that characterizes other sections of the Exposition will be given the Horticultural division with the view of making it representative as to character rather than exhaustive in detail.

Large as the Horticultural Building is, it will not contain all the horticultural exhibits. A plot of ground has been provided extending across the west front of the building on the opposite side of the grand canal, and extending south as far as the Elmwood gate. This plot has been under course of preparation for many months, and will present a restful attraction in pastoral contrast to the hum of busy, energetic action which will be so characteristic of portions of the Exposition.

POINTS IN PRUNING.

KNIFE or saw should never be used on a fruit or ornamental tree unless there is positively good reason for so doing.

Train all trees while young with a central leader or main shoot, and never allow two main branches to grow in such a way as to have the weight of the tree come upon a fork of the main trunk.

When two branches cross so as to be injured by rubbing together, the weaker of the two should be cut out.

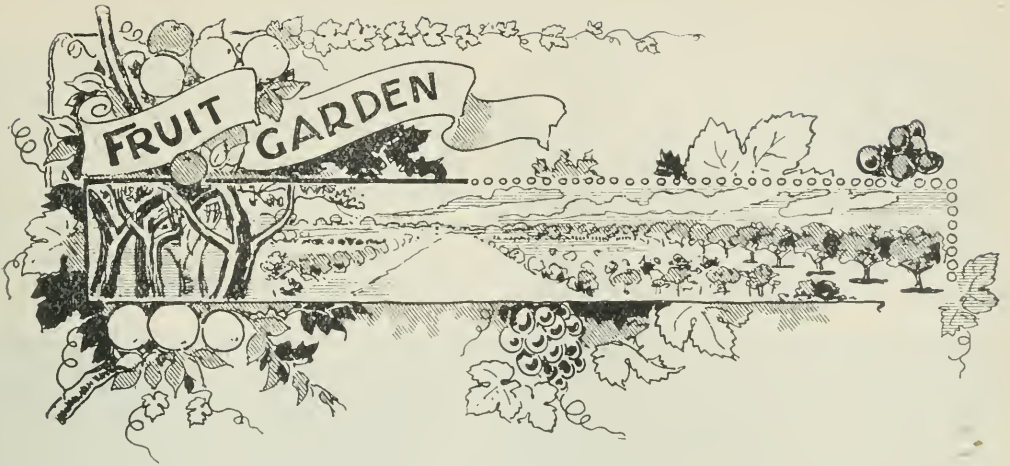
If large branches are to be removed, make the cut on the middle of the enlarged part where it joins the main branch or trunk and not quite in line with the face of the main branch or trunk.

Paint all wounds above $\frac{1}{2}$ inch in diameter with linseed oil paint, gas tar or grafting wax.

Never cut away the main branches of a tree if it can be avoided, but thin out the head, when it becomes crowded, from the outside. This can be quickly done with the pruning hook on a long pole, and little or no injury will result, while if the large branches are cut from the trunk the tree is weakened and soon dies or is broken down.

Cut off dead branches as soon as discovered and cover the wound with paint to prevent further decay.

In training young trees, start the branches low, the trees will grow better, the thinning and gathering of the fruit will be more easily done and the cultivation can be as well and cheaply done with the modern Acme or spring tooth harrow and weeder as if the head was higher, while the trunk of the tree and the ground under it will be better than if more exposed.—*Prof. S. T. Maynard.*



HILLCREST ORCHARDS, NOVA SCOTIA.

SIR,—I have reached Pictou (February 3rd), on my way to Prince Edward Island (where there is a series of meetings next month), after attending the U. S. Fruit Growers' Association last week. The Atlantic Transportation problem, and the proposed Agricultural College were two things which were given great prominence at the meetings.

While at Wolfville I had the opportunity of visiting the fruit farm of Mr. Ralph S. Eaton, which I am sure you have read about. There is no orchard in Canada that I have seen, where, in my opinion, the prospects were so bright and the possibilities so great as in this finely kept orchard; the trees have made wonderful growth in the time they have been planted, and are exceptionally symmetrical. I was informed that this orchard land, which thirteen years ago was valued at \$10.00 per acre, is now considered to be worth \$1000.00 per acre.

Thinking that an account of this orchard might prove acceptable to you for the Horticulturist, I obtained from Mr. Eaton some photos showing some of his trees and the fruit grown on them. I also enclose extracts from newspapers giving some account of the history of this orchard and the way it is laid out.

W. T. MACOUN, Ottawa.

The orchards of Mr. R. S. Eaton of Kentville, N. S. are of interest to fruit growers for several reasons, viz:—(1) There is nothing finer in the whole of Canada: (2) artificial fertilizers, chemicals, clover and tillage have depended upon solely, no stable manure: (3) no attempt is made to crop the orchard: (4) Mr. Eaton has succeeded in making his trees pay their way at a very early age: (5) Mr. Eaton has adopted new methods of tillage: (6) an attempt has

been made to arrange the orchard upon a scientific basis with a view to economy.

Mr. Eaton's plan of orchard is to plant standard apple trees 33 feet or two yards apart, in rows 33 feet apart. In the centre of each square, so formed, another permanent, or standard, apple tree is placed. This brings the rows 46½ feet apart. Again a plum, dwarf pear, quince or other small growing tree is planted in every space bringing the tree 81½ feet apart in the rows, the rows remaining a rod apart.

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S p T p S p T p S p T p S
T p S p T p S p T p S p T
S p T p S p T p S p T p S
T p S p T p S p T p S p T
S p T p S p T p S p T p S

```

In the above diagram of orchard "S" stands for standard apples as Gravenstein, Ribston, Kings or Baldwin, "T" stands for temporary apples of young fruiting varieties as Wealthy, Wagener or Ben Davis; free growing cherries as Governor Wood, Windsor, &c. or free growing varieties of peaches. In the space marked "p" are plums, dwarf pears, quinces, apricots or small growing and non-rotting cherries as Early Richmond,

English Morello, &c. This system gives 320 trees to the acre.

Every 20 rods both east and west and north and south an open space is left for a roadway, dividing the orchard into blocks of $2\frac{1}{2}$ acres each. Instead of planting a standard in every square, as mentioned in the beginning of this description, a plum or peach

Two thousand of Mr. Eaton's cherries were dug up from the woods, and later grafted with improved kinds.

Mammoth clover is sown about the middle of July and there is no tillage until about the middle of next May, when the clover is plowed under. In plowing by trees a long chain is used, with adjusted



FIG. 2019. Average sized Gravenstein apple tree at Hillcrest, eleven years old, planted among stumps in new land. Product for year 1900, three barrels.

may be placed in every third square and the row thus formed be filled in with plums, peaches or other short lived trees. Every sixth row on this plan is composed wholly of temporary trees, which can be cut down in 15 years, leaving a roadway for teaming and spraying. As the trees grow and begin to crowd each other they are to be cut out in the reverse order of their planting, till, when the orchard is fully grown, only "S" will be left.

coupling, and the soil is always thrown toward the trees. From the middle of May till the middle of July the harrow is used once a week, which, with the one plowing, is all the cultivation the orchard gets. In a 60 acre orchard it is necessary to economize time. With this in view Mr. Eaton has widened an ordinary six foot disk harrow to eight feet by adding four disks. The rows being $16\frac{1}{2}$ feet apart, this harrow

only goes one turn for each row of trees, and one team among these rows one quarter of a mile long will do 20 acres in 10 hours. Each half of the disk harrow is at an angle so it draws the earth from the trees at one end, and from a line midway between the rows at the other, thus forming a dead hollow. To obviate this the harrow is widened

Pruning is done in June and July, in order to induce fruit bud formation and to avoid the waste of wood growth which belongs to winter pruning. The stems of permanent apple trees are trimmed five and a half to six feet high, but the temporary trees of all species are trained low and headed in, thus gaining in four years as much



FIG. 2020. Burbank plum tree at Hillcrest, six years from the bud, fifth summer planted; product for 1900, two bushels.

out to 12 feet, and a blank of four feet left in the centre. This secures a level surface and enables the horses to keep entirely clear of the trees. For pulverizing the soil a spring tooth harrow has been widened to eight feet, in the same way as the disk harrow. This plan appears to work admirably, for there is scarcely a weed to be seen in the orchard, and the ground is mellow as an ash heap.

fruiting top as is ordinary obtained in double that time. Young Burbank plums and Ben Davis apple trees, not above seven feet high, in this orchard are bearing two bushels of fruit each. The temporary trees are never allowed to interfere with the growth of the permanent ones, but after they are large enough to bear a barrel each they are kept headed in.

In spraying, as in cultivation, it is necess-

ary to operate on a large scale, and Mr. Eaton has invented apparatus suited to his circumstances. One pump is made to operate two sets of hose, each with double nozzle, thus throwing four streams at once. Extension piece of $\frac{3}{8}$ iron pipe are used and a small saucer shaped piece of galvanized iron soldered around them a few inches below the nozzles prevents any drip. Mr. Eaton this year left one row throughout his orchard unsprayed, as an experiment, and is more than ever convinced of the value of spraying. He usually applies the Bordeaux mixture four times a year and believes it of value as a fungicide and also a protection against black knot in plum trees. It might be noted that the orchard is free from black knot.

As to varieties Hillcrest orchards have in apples:—The Gravenstein, Ribston, Blenheim, Wealthy, Baldwin, Wagener, Ben Davis, Golden Russet, Fallawater and Nonpareil. In plums a specialty is made of the Japanese varieties of which there are 1100 Burbanks, 400 Abundance, 300 Red Junes and 200 Wickson giving a succession of fruit from August till well into October. One thousand other plums are divided among the Lombard, German Prune, Reine Claude, Quackenbos, Niagara, Bradshaw, Monarch, Black Diamond and Grand Duke. Plums have been shipped to London with results that justify the expectation of finding a market for surplus products. Ten varieties of peaches have been planted, seven

of which, the Alexander, Hynes's Surprise, Elberta, Crosby, Hill's Chili, Mountain Rose and Early Rivers, ripening in seven successive weeks, have proved sufficiently hardy. This year Mr. Eaton had 400 boxes of Governor Wood and Early Richmond cherries, and expects to have 1000 of the English Morello. The various kinds of cherries ripen from July to September. In pears there are Bartlets, Clapp's Favorite, Duchess, Louise Bonne, Flemish Beauty, Anjou and others. Three kinds of apricots are grown and also several hundred quince trees.

How rapidly the value of the land multiplies is seen from the fact that thirteen years ago the oldest part of this orchard was in forest, and six years ago much of it was in stump and worth about \$10 per acre. To-day it could not be bought for less than \$500 per acre.

NOTE BY EDITOR.—We are much interested in this account of Hillcrest orchard, and must certainly compliment Mr. Eaton on his wonderful enterprise, and also on the excellent assortment of fruits he has planted. Such a plantation, cultivated and fertilized in a proper manner, is certainly a valuable piece of property, but surely Prof. Macoun's wide of the mark in his figures. We have heard of fruit orchards in the Niagara district of Ontario, valued at \$1000 per acre, but always thought such valuation very misleading, and surely Hillcrest, with all its excellent points, is not worth any such value per acre. Possibly, in some seasons, when the crop is good all around an orchard might yield ten per cent income on one thousand dollars, but what of the years when the crop fails, or the market prices drop to such a point that all the income is eaten up in expenses? These conditions sometimes prevail with us in Ontario, and surely Nova Scotia fruit growers are not exempt from such seasons of discouragement.

STANDARD BASKETS.

FOR a long time the fruit business has been in an unsettled condition for want of uniform packages. Many shippers seem to think that by putting up their goods in smaller packages than their neighbors, and charging the same price, they would make more out of their fruit crop; a trick that succeeds for a time, but by and by

defeats its own end, for soon all baskets sell for the price of the smallest.

At the recent meeting of the Ontario Fruit Growers' Association, held in Brantford, the following gentlemen were appointed a committee on uniform packages: W. M. Orr, A. H. Pettit, L. Woolverton, D. J. McKinnon, C. W. VanDuzer, S. M. Culp, W.

J. Andrews, W. H. Bunting, Robt. Thompson, E. D. Smith, Murray Pettit, T. H. P. Carpenter, W. F. W. Fisher.

This committee met at Grimsby on Wednesday, the 20th of February, 1901, having invited representatives of the local societies at St. Catharines, Winona, Stoney Creek and Burlington to meet with them.

After careful consideration the following resolutions were carried unanimously,—

1. That, in the opinion of this committee, legislation should be enacted prescribing certain standard sizes of fruit baskets for use in the home markets and that all baskets of other sizes be branded indelibly with the minimum capacity in quarts.

2. That this meeting would recommend that the following be adopted as the standard sizes of baskets used in Canada,—

No. 1—Capacity, 15 or more imperial quarts.

No. 2—Capacity, 11 imperial quarts, depth $5\frac{3}{4}$ inches.

No. 3—Capacity, $6\frac{2}{3}$ imperial quarts, depth $4\frac{5}{8}$ inches.

No. 4—Capacity, $2\frac{2}{5}$ imperial quarts, depth 4 inches.

No. 5—Berry box, 1 Winchester quart.

No. 6—Berry box, 1 Winchester pint.

3. That the branding with the minimum capacity of baskets and berry boxes not of standard sizes be made compulsory in the case of imported as well as Canadian fruit.

4. That the Bill regulating the size of the apple barrel, to hold 96 imperial quarts, should be made effective from June 1, 1902.

FEEDING THE ORCHARD.

WHEN an orchard, of apple or pear trees, begins to bear fruit, the land should be enriched at least once in two years. It is a mistaken idea to suppose fruit will grow to full size unless the trees are well fed, and to grow fruit at the present time requires a constant watchfulness from the first opening of the spring to the closing of the autumn. In regions where the canker worm is found the trees should be protected by a strip of tarred paper as soon as a warm day in spring appears, unless this enemy is to be destroyed by spraying the trees after the worm hatches out. The tent caterpillar makes its appearance as soon as the leaves begin to grow, and should be attended to by spraying the trees or by using a light pole with a rag wound round the end of it, saturated with kerosene, and drawn through every nest

as soon as the worms are all hatched. Do not let them get large before employing some means of killing them. Following the tent caterpillar and canker worm is the codling moth, which, unless destroyed, will lay eggs on almost every apple and pear, producing the worms so destructive to the fruit.

The peach should not be overlooked by those who have land adapted to its growth. A light loamy soil with a northern exposure seems to do best for this fruit, and while the tree should be kept growing, it should not be forced so as to make an excessive growth. A tree that makes a large growth is so full of vigor that after the leaves drop in the autumn, if a few warm days come, the blossom buds start so much that the first cold weather kills them.—*American Agriculturist*.

CENTRAL EXPERIMENTAL FARM NOTES.—XIV.

THE past month has been one of unusual severity, and while the temperature has not been very low there have been many days when it was below zero. It has not been above freezing point since the 22nd of January, and since November there has been no thaw of any consequence. The snow has continued to increase this month, but there have been no heavy falls. The coldest day of the winter, up to February 20th was January 20th, when the temperature fell to 25.5 F. below zero. The lowest temperature in February, so far, was 11.8° F. below zero, on the 3rd.

It was my privilege recently to attend the annual meetings of the Nova Scotia and Prince Edward Island Fruit Growers' Associations. The meeting at Wolfville, N. S., was well attended and the discussions lively. Two subjects, which received special attention there, were the proposed Agricultural College for the Maritime Provinces and the transportation of fruit across the Atlantic. The fruit growers of Nova Scotia appear to have as much complaint regarding the manner in which their fruit reaches the other side as the fruit-growers of Ontario; although it was clearly proven that, as in Ontario, bad and dishonestly packed fruit had often been shipped. Spraying received considerable attention at this meeting. Many of the fruit growers in the Annapolis Valley now appear to be in doubt as to the value of spraying, as the results last year were not satisfactory. However, the value of spraying was clearly proven at this meeting and it is hoped it will be done more thoroughly than ever in the future. Last year was an unfavorable one for spraying and favorable for the growth of the apple scab fungus, which probably explains the failure to get good results.

Owing to stormy weather, the meeting at Charlottetown, P. E. I., was not as well attended as it would probably have been if the weather had been better. However, there was a good representative gathering of the most interested in fruit growing in the province.

The importance of preserving the forests, and their great value as a protection for fruit and farm crops, were thoroughly discussed and much useful information was given to the meeting.

The variety question is one in which the fruit growers of Prince Edward Island are most interested. Fruit growing is quite a new industry there and everyone is uncertain as to just what to plant. Judging by the exhibit of apples, in which were represented many of the best varieties, it was quite evident that most of the best apples grown in Ontario will succeed well on Prince Edward Island. The importance of planting only a few of the very best varieties was impressed upon the meeting. It was recommended that the varieties which were giving the best satisfaction in Ontario for export purposes should first be considered, and then out of these the sorts which were succeeding best on Prince Edward Island should be chosen. The advantages of planting the trees from 35 to 40 feet apart were also given much emphasis. With some government aid the Fruit Growers' Association of Prince Edward Island should become one of the best in the Dominion, as there are many practical and intelligent men who take an interest in it.

At present experiments are being carried on at the Central Experimental Farm in grafting. A large number of new varieties of apples, of which scions have been procured in different places, are being crown and root grafted. The small Siberian crab

(*Pyrus baccata*) is being quite largely used this winter as stock, on account of its extreme hardiness. Some of the grafting is done on the crown and some on the root, for comparison of results. Where root killing is liable to occur, varieties crown grafted on this stock will probably give the best results, as, when root grafted trees are planted, the the scion often throws out roots and in time the tree becomes on its own roots and is liable to suffer from root killing, if not a very hardy kind. The Paradise stock is also being used to obtain dwarf trees and ascertain how they will succeed at Ottawa. More care should be taken in choosing stock for apple trees in the colder parts of Canada, as if the stock is tender the tree may be root killed. Several kinds of stocks are being used for pears this winter, including European Mountain Ash, Hawthorn, and two wild Asiatic pears called *Pyrus betulaefolia* and *Pyrus sinensis*. Pears have not proved successful at Ottawa, as they have either been killed by blight or winter, and hence every effort is being made to overcome these diffi-

culties. The European or *Domestica* plums have not proved a success when grafted on American plum stock, as the former outgrows the latter. The best results are obtained by grafting the American on the American, and the European or *Domestica* on Domestic stock. The ordinary stocks used for cherries, such as Mahaleb and Mazzard, did not prove hardy enough at Ottawa, and hence the native Bird or Pin cherry, *Prunus Pennsylvanica*, was used for this purpose, with excellent results. The union is good, and being very hardy there is comparatively little danger from root killing.

The season will soon arrive when top grafting may be done. Judgment should be used in choosing the varieties to be grafted on the trees. Strong growing varieties should not be top grafted on varieties like Duchess or Wealthy, as the trees will become top heavy and probably break down. The stock should be as vigorous, or nearly so, as the top.

Central Experimental
Farm.

W. T. MACOUN,
Horticulturist.

A SHIPPING TOMATO.—A number of years ago I mentioned in these columns, with words of praise, the Honor Bright tomato, calling especial attention to its wonderful keeping qualities, which seemed to make it particularly suited to long-distance shipment; as, for instance, to England. I also liked it for a canning sort and for very late use. "American Gardening" now says:—"We have been able to discover more good points in it than our previous records showed. . . . Its yield of medium-sized perfect fruits compares well with any tomato grown. Its flavor is also acceptable to many people. . . . It takes a tremendous time to ripen, which largely accounts for its marvelous shipping qualities. There is no doubt but

that the variety can be grown in this country and successfully shipped to Europe, for if picked at the right stage it will ripen on the voyage." As Mr. W. W. Tracy (of the firm of D. M. Ferry & Co.) had pointed out, the coloration begins at the centre instead of at the skin, as is the rule with other varieties. Fruits that are yellow on the exterior may be cut, and it will be found that the flesh in the centre is beginning to become red. The variety can be readily distinguished by the yellowish, rather sickly appearing foliage. The weakness is only apparent, however, and I have had no reason to complain much about the Honor Bright showing blight or disease on the fruit.

CLASSIFICATION OF APPLES.

IN a recent bulletin, Prof. F. A. Waugh, horticulturist of the Vermont Experimental Station, discussing apples of the Fameuse type, says, regarding the classification of apples :

The second revision of Downing's "Fruits and Fruit Trees of America," which is the standard work on descriptive pomology for America, names 1,856 varieties of apples. This list was published in 1872, since which time there have undoubtedly been some hundreds of varieties introduced. In 1892 Bailey made a list of the apples offered in nurserymen's catalogues in the United States and Canada, and found that there were 878 varieties then named, propagated and held for sale.

Besides the varieties sold by the nurserymen at any given time, there are always many more not generally distributed but kept, coddled and prized in private collections, in small neighborhoods, or in out-of-the-way places. It seems a very moderate estimate, therefore, to say that there are 1,000 different kinds of apples in commercial circulation on this continent to-day, and there are over 2,000 varieties described in contemporary literature, and that there have been more than 3,000 separate sorts named and propagated in America within the period covered by our brief pomological history.

The impossibility of any man's knowing all the varieties of apples will be evident from the foregoing considerations. These thousands of varieties are separated from one another by infinitesimal shades of difference. Some of them can hardly be told apart by the most expert pomologists and after years of acquaintance. The cultivated apples are remarkably homogeneous. They are (with very minor exceptions for certain

crabs) derived from one original species. Compare this with the cherries,—two or three hundred varieties derived from two species,—or with the plums, where a thousand varieties are derived from ten or fifteen original species. In no class of fruits, unless it be possibly the strawberries, are varietal distinctions so thin and vexatious as in apples.

But while the characteristics of varieties of apples, taken all together, are so confusing, there are a few pronounced *types* which the horticulturist may fix in his mind, and around which cluster certain *groups* of varieties. The Fameus presents such a type. There are several different apples of the Fameuse group, all differing measurably from Fameuse, but all conforming closely enough to the Fameuse type so that their close relationship with one another and with Fameuse may be readily recognized by the pomologist.

If the reader will consider the foregoing paragraph closely he will see what is meant by the important terms "type" and "group." They present the essentials of pomological classification. If our multitudinous varieties are ever to be classified, it must be by putting them into groups; and these groups must cluster about the more conspicuous, permanent and recognizable types.

In common language these groups are sometimes called "families," and some men speak of the "Fameuse family," the "Ben Davis family," etc. The idea is the same; but the terms "type" and "group" are more precise and convenient, aside from the fact that the word "family" has been preempted in plant study with another technical meaning.

MEETING OF NOVA SCOTIA FRUIT GROWERS.

THE 31st annual meeting of the Nova Scotia Fruit Growers' Association has passed into history. In point of attendance and in the interest shown in the discussion, it was one of the best ever held by this association, though there was great diversity of opinion on most of the subjects considered. The transportation problem, spraying and agricultural education were the three principal questions discussed, though there were a number of others of considerable importance.

President J. W. Bigelow, in his annual address, stated that he could find no record of any export of fruit grown in North America in 1801, which has developed in the last century to a product now valued at over four hundred million dollars a year. In Canada the annual value of fruit grown may be safely estimated at eight million dollars, and in Nova Scotia it has passed the one million dollar mark annually. The past year has been one of the most disappointing and unprofitable for fruit culture in Nova Scotia ever recorded. Starting in June, with abundant blossoms, our apple crop developed unfavorably, with a yield of less than 300,000 bbls. of inferior fruit, one-half of which never should have been marketed, and one-third of which was lost in drops and culls; and having to compete with a good crop of superior fruit from U.S. and Ontario, as well as Europe, in foreign markets, the price has ranged from 0 to \$2 per barrel, and in many cases money has been remitted to pay expenses. A number of unfavorable conditions conspired to render this year's fruit business unfavorable: 1st—An unusually mild winter, with frequent cold changes, injured the fruit buds; 2nd—A cold, wet May produced an increased fungous and insect development; 3rd—A terrific wind storm, on the 12th September,

destroyed one-fourth of the best of the fruit, and injured both trees and fruit; 4th—An unusually severe frost, early in October, injured the fruit and produced a skin rot; 5th—The worst class of steamers ever employed in the carrying trade, cooked and practically destroyed the fruit during the 15 to 20 days cargo was in transit. The plum crop, where carefully cultivated, was abundant, and is estimated at twelve thousand baskets (10 lbs. each). Pears were a good crop, and of fair average quality. Peaches, strawberries and other berries were a good crop, and brought remunerative prices.

The 200 bottles of fruit in acid, and 80 boxes and 30 barrels of Nova Scotia fruit sent to Paris Exhibition, and exhibited in cold storage by the Canadian Government, proved to be one of the most important and attractive exhibits of food products of the world there shown, and our Nonpareils and other long keepers were shown, after being twelve months in cold storage, perfect in flavor and keeping quality. The exhibit of food products from Canada at Paris has developed our trade to all parts of the world, and orders for Canadian apples are now being filled from almost every country. The bottled fruits shown at Paris, supplemented by 65 Cochran cases of this season's crop of apples, will be staged in the exhibit at Glasgow, Scotland, from May 1st to Nov. 1st, 1901.

The School of Horticulture is progressing most favorably under the able direction of Prof. Sears, with 64 students, representing nearly every county in the province, and many from N. B., P. E. I., and England. Prof. Sears' lectures through the province, on practical points of fruit culture are developing an interest in fruit culture of great value, and the fact is being demonstrated that every county can raise superior fruits in

favorable localities. It has been found necessary, in order to successfully conduct experiment work, to extend the grounds, and C. R. H. Starr, Esq., has donated a piece of land joining the school grounds, for ten years, at the nominal rental of \$1.00 per year, with the privilege of purchasing. By careful management the expenses of this work have been kept within the income, and when the government fully realizes its value and importance to the whole province, it will be induced to increase the grant and extend the work. Most of the graduates of this school are either successfully prosecuting fruit culture on their own account, or are receiving large salaries in horticultural work—noticeably, E. Higgins, C. Blair, S. Hooper, S. Morse, Miss Watts—and there is an increasing demand for graduates at the highest salaries paid any profession.

Transportation—This difficulty is now more disastrous to the N.S. shipper than at any time in twenty years. The following important facts may assist us in removing the difficulties: 1st—That the Halifax and St. John merchants have had and always will have sufficient influence with any government to subsidize a line of boats to London for their own benefit even if they are totally unfit to carry apple cargoes, or whether they carry any apples or not,—hence fruit-growers need no longer contest the subsidy question; 2nd—The line subsidized this year by petition from and for the benefit of fruit-growers, from Annapolis, has given the worst service of any in the trade for twenty years; 3rd—All attempts to combine fruit-growers to form a shipping company for their own interests have failed. A commissioner appointed by the government to inspect all steamers carrying apples, with power to prevent shipment of inferior fruit in unsuitable vessels, improper stowage, etc., would remedy much of the wrong complained of, and would this year have saved fruit-growers in N.S. over \$100,000.

The president suggested establishing branch associations in every county (the first branch is now being organized in Antigonishe), as has been successfully accomplished in Ontario and the U.S. To carry out this and other useful work, it is necessary to increase the government grant from the paltry sum of \$300 to at least \$1,000.

We have estimated the value of the fruit industry to N.S. as follows:

1. Annual value of fruit crop, average about.....	\$1,000,000
2. Net receipts for apples sold in G.B., 1899 crop....	500,000
3. do. do. do. 1900 do.	200,000
4. Value of orchards now bearing, 9,000 acres, at \$500 per acre.....	4,500,000
5. Annual additional value to permanent wealth of province by young orchards, 5,000 acres, at \$200 per acre.....	1,000,000
6. Number of men employed in fruit culture 7,000.	
7. do. do. in barrel and box factories, nurseries, fertilizer and other industries required by fruit culture, 4,000.	
8. Freight paid for fruit to railroads.....	60,000
9. Freight paid steamboats for do.	200,000

In the matter of *transportation*, the fruit-growers feel that two points should be remedied: First, they consider that the rate paid on apples is too high, owing largely to the place which apples are given in the present classification of freight. The meeting took action upon this phase of the question by passing the following resolution, which was introduced by Mr. Peter Innes, vice-president of the association: "Whereas the freight classification of apples by the railways of Canada was fixed at a time when the production was small and prices high; and whereas since that time production has enormously increased, while prices have been continually falling; and whereas in Western Nova Scotia apple-growing has become a great staple industry, averaging 500,000 barrels a year; and whereas the said classification has to be submitted to and approved by the Governor-in-Council, therefore *Resolved*,—That this association, recognizing that the present classification does not suit the altered circumstances, and is oppressive to the apple growers and shippers of the province, do respectfully memorialize the Governor-in-Council to take the subject into early and favorable considera-

tion, it being suggested that, in the opinion of this association, apples should be placed at least on an equal footing with flour." The second matter of transportation which received attention was in reference to the character of the steamers which are allowed to carry freight upon the subsidized lines running between London and points in Nova Scotia. It was shown beyond any question, that the vessels which have this year been carrying apples from Halifax and Annapolis have, in some cases, been unfit for such a purpose, and have furthermore been allowed so free a hand in the matter of when they should leave port, how the fruit consigned to them should be handled, and how other freight, such as deals, should be stowed in connection with the apples, that great damage has been done to the fruit. Secretary S. C. Parker said he had personally examined the account of sales of more than one thousand barrels of Gravensteins, and they would not average 10c per barrel net. It was felt by all that some action should be taken which would remedy this state of affairs in future; that steamers which are subsidized by the Government should be rigidly inspected, and so supervised as to insure the proper handling of the fruit, and such a system of ventilation as should give the greatest possible assurance of the apples carrying satisfactorily; and, furthermore, that the failure of the steamship companies to meet the above requirements should be deemed sufficient reason for the withholding of the subsidy. Prof. Robertson said that this plan had already been adopted by the government to a certain extent, but that our difficulty had been, the present season, that freight rates were so high and suitable vessels so scarce that steamship owners were not as amenable to this form of moral suasion as in ordinary years. Some of those present favored the abolition of all subsidies

to steamship companies, while others thought that poor and dishonest packing was the great cause of the difficulty; but the great majority, while admitting that some of the first was not packed as it should have been, considered the steamships as largely responsible, and favored the appointment of an inspector for each port from which apples are being exported, who should have power to see that fruit was properly handled, properly stowed in the vessels, and to examine fruit which he had reason to suspect was fraudulently packed and condemn it if necessary.

The subject of *spraying* was given an entire session for discussion, and even then the interest was not exhausted. No particularly new features were brought out, but it was evident that in many cases spraying had not given as satisfactory results in 1900 as could be desired. Yet every one who took part in the discussion expressed himself as determined to continue the practice; one man saying, in reply to the question whether he intended to persevere, "Yes, or go out of the fruit business." But it was very evident that during such a season as last year, when there is so much rainy weather during the early part of the season, the early spraying is all-important. An example illustrating this fact was given. Two men sprayed their orchards; one twice, the other three times. The first man sprayed once before the blossoms opened, the other not till they had fallen. The result was that the man who began early and only sprayed twice had better fruit than the man who sprayed three times, but didn't begin till after the blossoms fell. Doubtless different weather would have modified this result, but it seems probable that the early spray is always of great importance.—*Farmers' Advocate*.

THE KIEFFER PEAR.

[Gist of the discussion before the recent meeting of the N. J. Hort. Society.]

PICKED early, when two-thirds grown, and ripened in dark with quality at its best, the Kieffer pear brings highest price, but is too tender to ship to any distance. In the fall of '99 a great demand was had from canners. Many of these to save expense of sugar used a chemically prepared sweet having 50 times the strength of sugar. When first canned it was a perfect success, but later the acid employed in the preparation discolored the fruit and also dissolved the tin coating of can, causing syrup in can to have a metallic taste, and eat holes in the iron plate, resulting in total loss of the canned fruit; one canner lost \$50,000. Where sugar was used in canning the result was financial success, yet too few put up to test the market. In 1900, while in some sections a slight demand was had for canning, no sales were made in the heavy producing sections.

Prof. Smith said the San Jose scale is here to stay and that hereafter only careful growers could raise Kieffer. Both scale and oriental pears come from Japan, but the scale does not thrive on them, but on American crosses it is at home. The scale can be kept in check with care, but the man running the sprayer must use judgment in spraying. Crude petroleum rightly applied will kill scale.

Rust or clouding of fruit, Prof. Smith said, is not caused by an insect. Prof. Halstead, state botanist, was not prepared to say what the cause was, as it might be one of several. It might be inherent. All Japan pears had a natural discoloration of skin—skin very thin and tender, easily discolored. Excessive spraying and any spraying for cloud was excessive, as it does no good. It is a corky growth on the surface of fruit, when skin has been injured, and is favored by shade, lack of ventilation, want of sunshine and heavy

dews, as oriental pears originated in a dry, hot sunshiny climate.

As to the advisability of planting more trees, D. D. Denise, one of the largest pear growers in the state, said this is a difficult problem to solve. The tree is a nice, rapid grower, bears early and quality is better than when first introduced. Quality now equal to many other varieties of pears now marketed. It is more proof against insects and blight than most other varieties. Local markets are over crowded, yet there is plenty of demand from more distant markets. Mr. Denise's little Kieffer orchard of from 1200 to 1500 trees has netted him more money than all the rest of his farm. In 1900, \$100 p. a. net yield 200 bbls. p. a.; price no lower than best apples, and yield much greater. He keeps heads of trees open for air, sunlight and ventilation, to guard against cloudiness of fruit. Trees succeed best on sandy soil not too rich, but they must be taken care of. An orchard 10 miles from Mr. Denise's from which ungraded fruit was sent to market, netted owner only 7c. p. bbl.; "not a paying crop."

John S. Collins, the heaviest Kieffer pear grower in N. J. said crop of 1900 did not pay. No sale for surplus, as canneries did not want them and those placed in cold storage were doing no better. Pears for cold storage should be picked before they color, and as soon as the stem separates readily from limb. Manure sufficiently to give size, color and quality; a starved tree never gives good quality fruit.

In the light of all that can be gathered, I consider the future of the Kieffer pears an open question, but let no one plant it unless he is prepared to watch and care for them. The season of 1900 has not been a fair test so far as N. J. is concerned as to its future.—*J. B. Rogers.*

THE CHAMPION PEACH.

Among the first trees planted, the first to ripen good specimens, and the earliest in its season, was the Champion. Little trees only three years from the bud matured a few handsome peaches about Aug. 1, whose beautiful color and white juicy flesh gave excellent promise. At four years they bore a moderate crop, which rotted badly on the trees. This year, for the first time, a full crop has been gathered. The trees, now doubtless at their best, were cut back fully half their growth for the first three seasons, forming low, well-branched heads, and during the past two years when the fruit buds were killed by cold, they have reached a large size. In common with most of the peach trees grown, they were loaded, this year, to their full capacity.

The Champions began to ripen—and a pretty sight they were, for no rose is redder—the 30th of July. The last peaches held on in good condition the 12th of August. For two full weeks an ample family supply was enjoyed, the fruit of two and a half (one half grown) trees. The largest quantity picked in any one day was a full bushel. The whole yield, not exactly measured, was perhaps three to four bushels. No fruit is handsomer to the eye. Of good medium size, regular and nearly round in form, and flushed with an extraordinary fullness and delicacy of color, these early peaches give one a fresh impression of the actual beauty of this peerless fruit. But, like other beautiful things, the Champion falls short of perfection. It has the primary disadvantage of being a clingstone. It shows some tendency to rot. It has a very thin, tender skin, which makes transportation difficult. After a day of rain, when the peaches were fully ripe, this tenderness of the skin was more marked. The ripe peach is juicy, fragrant and full of flavor, so that its attrac-

tive appearance does not deceive. As it is the first native peach fit for market, it commands a ready sale and good prices if offered locally.

It appears, therefore, in summing up the results of this small trial, that while it is probably too perishable for ordinary market growing, the Champion Peach has a decided value for the home orchard in its earliness, good quality, and, in favorable seasons, abundant productiveness. It lengthens, at the end most generally appreciated, the season of an unrivalled fruit, and no one who loves to grow fine fruit need grudge the care of a few trees that mature so quickly, even should they yield no more than a single full crop. With peach trees, at the North, it is well to have a row of seedlings always in the garden to keep up the supply. But it is a mistake to trust to mere seedlings, when the choice varieties are so easily reproduced by the simple process of budding.

In the plat considered, the Crosby was the variety relied on for the main planting, its "iron-clad" qualities, as to hardiness and general reliability for a cold-climate peach, being much urged at that time. So far, the result has failed to justify expectations. At the present time the trees are hanging heavy with half-grown peaches. The Elberta, though some what more advanced, is still hard and green. The Lemon Free will precede it a little in ripening, and this has proved, with us, a fine peach.

All these trees are included in the general plan of a large mixed orchard or fruit garden, in which room has been found for a considerable variety of pears, plums, cherries, grapes, etc. The situation gives room for quite a variety of choice in location, as it includes a gravelly knoll, sloping gradually to a moist meadow bordering on wet

land. The general character of the soil is a warm, sandy loam, easily tilled and productive. A considerable portion of the space occupied comprises an old garden, rich in humus and heavily manured before planting. Wood ashes is the only dressing

applied in growing the peach trees, most of which occupy the well-drained slope of the knoll. All have made a fine growth and are in thriving condition.—Country Gentleman.

GROWING AND EXHIBITING FRUIT.



All dessert fruits to be of value for market or attractive for home use must be handsome in color and form. Cooking fruit, to be of the best quality, must be fair and fine grained. So we have several things other than size to consider in the fruit exhibits, and I think it important that the judges of fruit at our larger exhibitions should try to encourage the growing of fruit of the best quality as well as of the largest size; for instance, a very large apple of poor color or quality is of but little value, and a small strawberry of fine color and quality is equally undesirable, from a commercial point at least, so we should consider that size and color must go together to make a perfect fruit.

Very many varieties of fruit are shown, especially at our agricultural fairs, long before they should be ripe, and there is an endeavor to get a color similar to what the fruit should have when ripe, but this is all wrong, because we do not want Baldwin apples ready for the table in September, or Northern Spy in October.

Judges who consider color the most important quality in fruit are likely to do more for the good of the fruit interests than those who consider size of the fruit of the first importance; but the ideal fruit is one of good size and color.

There is a difference of opinion among fruit

judges in regard to imperfections. Some claim that a plate of fruit is no better than the poorest specimen, and they will often throw out a plate because of a defect in a single specimen, when those remaining are much better than any other whole plate. Other judges claim that if the eleven are better than any other twelve they should have the prize.

While size and color are in general the two most important qualities in the fruit exhibition, when we consider the peach we should use a great deal of care, or we may encourage the exhibition of the product of disease. Perhaps there is no other fruit that is increased in size and color as is the peach by disease. It has been so that there was no use in showing sound peaches at some exhibitions, as the prizes were all given to prematurely ripened fruit. I have seen prizes for Crawfords, Early and Late, given to peaches between which one could hardly tell the difference. It is not uncommon to see the prizes given to ripe Elbertas and Crosbys early in September, when the sound fruit shows no signs of ripening. These displays of diseased peaches may take better with the public and are certainly more of an attraction than good sound fruit, but I believe they are against the promotion of horticulture.—*H. R. Kenny, before Mass. H. Society.*



TIMELY TOPICS FOR THE AMATEUR.—XIII.

IN the February number of the Horticulturist a list was given of what may be very properly termed iron-clad and easy-to-grow varieties of herbaceous perennials, or permanent border plants, as well as a short list of annuals suitable for young beginners, or those inexperienced in plant culture. Many of the varieties there mentioned are possibly well-known to readers of the Journal, and may, perhaps, have been grown by them, as with a few exceptions most of them can be fairly classed amongst what are generally styled as old-fashioned flowers. But this is no reason for discarding or rejecting them from our gardens of the present day, more especially as this class of plants are again becoming popular with the flower-loving public, chiefly for ornamenting lawns and flower gardens. The production of a better type of plant and flower than the originals, as well as the introduction of new species and varieties, has doubtless aided greatly in bringing these pretty and useful plants into deserving popularity again, after a period of apparent neglect.

Some of the plants mentioned may not, perhaps, be as suitable for town or city gardens as the more choice greenhouse

plants, but a judiciously selected and well-grown collection of herbaceous perennials is an acquisition to any lawn or flower garden, whether in town or country.

To the list of plants already referred to may be added a few low-growing flowering shrubs, provided there is room in the border for them. The double flowering *Spirea prunifolia*, *Kerria Japonica*, *Wigelia rosea* and *W. alba*, *Deutzia gracilis*, *Deutzia parviflora*, *Spirea bumalda*, *Spirea Anthony Waterer*—one of the premiums for 1901—and a plant of the herbaceous hibiscus (*Crimson Eye*), will be found suitable for planting in a mixed border of plants.

The taller growing deutzias, forsythias, lilacs, spireas, etc., might possibly be used in a border of large dimensions, but for use on small lawns these latter are better suited for planting as single specimens, or to hide from view some unpicturesque feature in the back-ground, such as fences or out-buildings.

No mixed border, however, would be complete without a few hardy garden lilies. One of the best of these is the grand old *Lilium tigrinum* (tiger lily), a variety seldom seen in gardens at the present time. *Lilium candidum*, *Lilium superbum*, and *L. Canadense*, are also among the best kinds



FIG. 2021. *CAMPANULA MEDIA*.

for flower gardens. The Japanese lilies such as *L. rubrum*, *L. speciosum* and other varieties, are not so hardy as those before mentioned, requiring careful protection in winter, and are besides very liable to disease. A clump of lily of the valley should also be planted where they will not be disturbed, and in a position that is not too much exposed to the hot sun in summer. A north or east aspect suits these sweet little gems of the lily family the best.

A rose bush or two of the *rugosa* type, or some of the hardiest varieties of the hybrid perpetual roses, cannot possibly be dispensed with. This completes a list that will, with very little care and attention give pleasing and satisfactory flowering results, from early spring until late autumn.

And now a word or two as to the lay-out and preparation of the border. It is very difficult to do justice to this subject except in a very general way; as the surroundings of different residences and sites are of such a varied nature and character.

Most suburban, or even farm and country residences, however, usually have a small plot of lawn or garden attached to them, where a mixed border of plants would be a decided acquisition, and lend a cheerful and home-like appearance to the surroundings.

The most suitable place for a border would probably be either on the east or west side of the lawn, leaving the more central part occupied by a walk, flowering shrubs, a bed of greenhouse plants perhaps, or of plants from the window. A shade tree or two will also be necessary somewhere on the lawn. Shade trees are indispensable in summer time for the thorough enjoyment of a lawn. It will be necessary to keep clear of these trees in planning out the border, and also avoid getting too near to pine trees, and hedges of pine or cedar, as the roots of these would rapidly absorb all nutriment from the plants growing near them.

A directly south aspect is not a good position for a border, especially if it is immediately in front of a dwelling house or a high close wall or fence. The reflected heat of the sun, and an imperfect circulation of air, would scorch the plants up very quickly during the heat of summer. An open situation, having an east or west aspect, leading out and away from a picket or wire fence would be a good position.

A north aspect is not objectionable if the position is not too heavily shaded from the south.



FIG. 2022. LILY OF THE VALLEY AND NATIVE FERN.

An average width of six or seven feet gives room for a nice display of plants ranging in size from quite dwarf plants, to those five or six feet in height. The size of the border, either in width or length must be determined by the number and size of the plants it is to contain, as well as the space that these will require when they have fully developed their growth. Most of the dwarf shrubs mentioned would require to be about three feet away from any other permanent plants. The perennial plants and lilies should have about two feet clear of space from other plants of a like nature. The annuals and gladiolus bulbs and any other plants considered desirable, could be placed between these, so as not to crowd or over grow them. (In mentioning gladiolus on page 65 of January number the word "perennial" was inadvertently inserted.)

The most desirable kind of soil to succeed best with almost all kinds of garden flowers, is without doubt soil of a rich loamy nature. The latter kind however is not by any means really necessary, as many shrubs and perennials succeed splendidly in heavier soil. It is very essential that the border should be well drained, as there is nothing more detrimental to herbaceous perennials or shrubs than badly drained ground.

The border should have a good coating of well rotted stable or cow manure, and be dug thoroughly and deep. This should be done the previous fall, or quite early in the spring if possible. Every vestige of roots of perennial grass and weeds should be carefully picked out when digging, especially twitch or spear grass, as this latter is very troublesome in herbaceous borders if not kept under control. The best time for planting

or transplanting herbaceous perennials is about the first week in May, just as the plants begin to show signs of new growth.

The iris, paeonies, dielytra, and hemerocallis could be planted in the autumn to advantage. A light coating of well rotted manure and the ground around the plants lightly forked over every spring, besides keeping free of weeds, will be about all the attention most of these plants require, when once they become established. Some of the herbaceous plants may require to be divided up and transplanted once in every two or three years. Varieties of the iris and perennial phlox (*Phlox paniculata*) are amongst those that may benefit by being transplanted as often as mentioned. Most of the other herbaceous plants will not require to be disturbed for perhaps six or seven years. The little care and labor that herbaceous perennials require in their culture, and their general adaptability to grow and flourish, in

spite of drought in summer or frost in winter, make them particularly adapted for planting in gardens where very little care and attention can be given them.

If a mixed border of plants containing all of the varieties mentioned is not desirable, a small bed or border with a plant or two of Iris, Dielytra, *Hemerocallis flava*, *Phlox paniculata*, *Campanula persicifolia*, *Rudbeckia* (Golden Glow) a clump or two of *Lilium superbum* or *Lilium tigrinum*, and a few of the annuals mentioned in the February number of Journal will be found to be a desirable and profitable selection.

These will with only ordinary care, assist materially in brightening up the garden, besides giving a fair supply of cut flowers far the house during a great part of the summer, especially in a year or two when the perennial varieties have become well established.

Hamilton.

W. HUNT.

A LILY POND.

ANY one who has a nice lawn should, by all means, have a lily pond. It is easily made and a thing of beauty. There are many ways of making these ponds, either of stone, brick or masonry, but as these are all expensive, we will give our attention to another sort that will cost but a few dollars and at the same time last for years. Have a wooden tub made similar to a wooden cistern or water tank, with straight sides and about four feet deep. It can be made round or square, and as large as you wish, but should not be smaller than six feet across. This size will hold six or eight bulbs. One foot from the bottom have a hole two inches in diameter, and a plug to fit it, which must be put in from the inside, and project far enough to make its removal easy. Mark the top of the tank

exactly above this plug, so that you may know where to find it when the time comes to let out the water. This tank should then be sunk in the ground to within two inches of the top, and then make a gravel border around it of about eighteen inches. When preparing the hole in which to put the tank, determine upon which side will be the place where the plug is to come and dig a space about eighteen inches across, and as deep, and fill it with small stones. This is done in order that the water will have a place to drain into when the plug is removed.

Give your tank a coat of waterproof paint on the inside, and of tar on the outside, before sinking it in the ground. This preserves the wood from decay, and the tank will last much longer. When your tank is all ready, fill it up to the plug with pond

mud, or any rich earth which has at least a quarter of cow manure, and put in your lily bulbs. Run in the water gently so as not to disturb the soil, and fill but a few inches above the bulbs. When they show signs of growing, add more water, until at length it is almost or quite full.

When the water freezes to the depth of a half inch, reach down and remove the plug,

and fill the tank full to the top with dry leaves or loose hay, and lay boards over the top. Any tender lilies like callas, should be removed and either placed in the cellar in a pail of mud, or dried off. When the hard frosts are over in the spring, remove the litter, add a little well rotted cow manure, and any new bulbs you wish, and gradually refill with water.—*Vick's Magazine*.

GREENHOUSE, WINDOW AND GARDEN.—III.

THE greenhouse and conservatory will require extra care as the spring approaches. Close attention will have to be given to watering all plants thoroughly that are in full vigorous growth, as well as those in flower. Shading and ventilating will also be features of routine work, and the fires must on no account be neglected during the treacherous weather often experienced in March. Roses in pots and those growing on benches will require plenty of water, liquid manure once a week, and syringing with clear tepid water once a day, if possible, to keep them going.

Azaleas, that have done flowering, should be kept in a warm but not too sunny part of the house. They require to be kept quite moist at the roots and syringed daily, after flowering, to encourage the new growth. If necessary they should be re-potted after the flowering period.

Greenhouse ferns should be re-potted at once, if not already done. It is always advisable to re-pot ferns before the young fronds have made much growth. An inch of drainage in the pots, and a compost of equal parts enriched loam, sand, and leaf soil (or peat) suits nearly all ferns.

Varieties of Rex Begonias may be propagated now from mature leaves; or the thick fleshy stems, or rhizomes, can be cut into lengths of about two inches, and struck in

sand. The base of the mature leaves with about an inch of the stem attached—and the latter inserted in sand so that its junction with the leaf is just under the sand—will strike readily and make much better plants than those grown from the thick stalks.

Winter flowering begonias, when out of flower, such as *B. incarnata*, *B. fuchsiaoides*, *B. foliosa*, can be cut back a little; cuttings of these can be struck as soon as the cuttings can be secured. Young plants of these succeed better, as a rule, than old plants kept over. *Begonia rubra* rebels against much pruning, it needs liberal treatment as to soil, potting, etc., but does not like cutting back.

The new begonia, "Gloire de Lorraine," promises to be a valuable addition to winter flowering begonias. It is inclined to be a little fickle, and requires care in growing; but its large clusters of bright rose-pink flowers, that it produces in such profusion, gives even a small plant when in flower a most beautiful appearance. It requires very similar treatment to *B. incarnata* but is not quite as robust as that variety, being more of the habit of *Begonia Bruantii*.

Tuberous begonias and fancy caladiums may be safely started now. Barely cover the tubers, or bulbs, in sand in a warm part of the greenhouse. Water them thoroughly once, and never allow them to become quite

dry afterwards. Caladiums like equal parts of sand, leaf soil and loam, and plenty of drainage in the pot. Tuberous begonias succeed very well in ordinary potting soil, enriched sandy loam.

Cuttings of allamandas can be taken now with every prospect of their striking root easily.

There is still time for cuttings of coleus and similar plants for bedding purposes.

Chrysanthemum cuttings started now will often do better than if taken earlier, especially if grown steadily on all summer. If the plants are to be grown on benches in the greenhouse all the summer—which seems to be the popular and most successful method of growing them now—the cuttings can be taken as late as May and will give good flowering results. In fact bench grown plants seems to be the only method of growing them, to successfully avoid the destructive fungous disease (*Puccinia Hieracii*) commonly called "rust," that has played such havoc of recent years amongst these popular autumn flowers. Spraying the young plants with a solution of sulphide of potassium, made by mixing one-half ounce of sulphide with a gallon of water, seems the best remedy at present known for checking this destructive disease. Picking off and burning the leaves on the first appearance of the minute rusty-brown spots on them, will also help to check its ravages. The introduction of new seedling varieties, the use of preventives, and careful culture may perhaps be successful in eradicating what promises to banish chrysanthemums from our greenhouses as pot plants, unless some remedy can be found that is more effectual than any known to plant-growers at present.

Carnations and violets suffered very badly a few years since from a similar disease; although not quite eradicated it is not as destructive as it was.

The many new and really grand varieties

of carnations recently introduced have brought these ever-popular flowers into even greater prominence than at any time before in their history. The immense and sweetly perfumed flowers of these new varieties cannot help but make them acceptable to all flower-lovers. Any of the following standard and well tested varieties would be suitable for the amateur grower, viz.: Mrs. Lawson and Mrs. J. Dean, pink; Flora Hill or White Cloud, white; Gen. Maceo, crimson; Gold Nugget, yellow; and Mrs. Bradt, red and white striped.

Cuttings of carnations should be potted into 2½ inch pots as soon as rooted.

Sow a packet of primula obconica grandiflora seed, and grow the plants on in the house all the summer; they are easy to grow, and one of the most remunerative of all the primula family.

Seeds of annuals required for early flowering should be sown now. Cosmos seeds are best sown early to ensure getting full returns from them before frost sets in.

Ventilators at the top of greenhouse or conservatory should be opened as often as the weather will permit, so as not to allow the temperature to get too high. A temperature of 75° to 80° in the day time, and 50° to 60° at night, is suitable for a mixed collection of plants. A higher temperature than this is not only injurious to many plants but it induces a rapid increase of insect pests.

A slight shading may be necessary for palms, ferns, etc., on hot sunny days, to prevent scalding.

Keep the floors well dampened, syringe and water the plants early in the day.

If you have room in the greenhouse, sow some mustard seed, pressed slightly into the top of some soil in a shallow box. Water the seed and not cover it with earth, it will give you a nice salad early in the season.

WINDOW PLANTS.

Plants in the window will require to be watered thoroughly at this season of the year, so that all the soil in the pot is moistened.

Pots of the hardy varieties of narcissi, such as Von Sion, Horsfieldii, etc., should not be allowed to dry out after flowering. If kept growing they can be planted out in the border in spring. If left undisturbed for a year or two they will make a useful and permanent addition to the border. These bulbs may perhaps flower the second year in the window, but they are uncertain. Tulips and Dutch hyacinths can be treated the same as recommended for the narcissi; cuttings of fuchsias, geraniums, lemon-scented verbena, and similar plants, will strike readily in pots in sand now, if young vigorous growth can be secured for cuttings. Begonia cuttings had better be left until April or May before attempting to strike them. A few pots of petunias, verbena, cosmos and lobelia, should be sown,—if these are grown—as they require to be early to give good flowering results.

Nasturtiums for window boxes should be sown now, two or three seeds in a 3-inch pot, is better than sowing them thickly in a large pot, as they do not transplant as well as many other varieties. Mignonette should be sown eight or ten seeds in the same sized pot as for nasturtiums, to secure early flowers.

Watch out for sudden dips of cold weather in March.

Canna roots may be potted early in April and grown on until it is time to plant them outside at the end of May or early in June when all danger of frost is over. Hydrangeas, oleanders, and similar plants can be brought out to the light, and started into growth. Pot these into larger tubs now if necessary, before they have made much growth.

THE GARDEN.

Pruning should be finished up as early as possible, especially grape vines and goose-berry bushes. These require to be done early to secure the best results from them, but currant bushes and all fruit trees should not be left too late before pruning.

The material for a hot-bed should be in course of preparation. If the manure is fresh from the stable, throw it into a heap for a week or ten days. It should be turned over once during that time if possible before making up the bed. A hot-bed, even if ever so small, is very useful for a few pots of early tomatoes, peppers, cauliflowers and cabbage seed. If about six inches of good soil can be put on top of the manure, some lettuce, radish, and mustard can be sown in rows. These will give a few dishes of salad that will be both acceptable and healthful.

Place an apple or sugar barrel, from which the top and bottom ends have been removed, over a clump of the earliest rhubarb. Cover the top of the barrel over at night, or during cold days; this will probably give you a dish of rhubarb a week earlier than unprotected roots will.

Hardy roses should be pruned early in April as soon as the buds show signs of growth.

If you have any tender perennial or biennial flowering plants that are not protected, more especially hollyhocks and biennial campanulas, sprinkle a little long strawy manure over them. It often happens that these and similar plants are well protected by snow during winter, but during the early spring months are often exposed to severe frosts at night, and hot sun in the day time. This alternate freezing and thawing is very trying to plant life. Many garden plants that have pulled through the winter splendidly under the snow, are killed out by the fickle and varied weather that

often prevails during March and early April.


A portion of the covering on beds of Dutch and other bulbs may be removed toward the end of the month, if the weather is favorable. Put the lightest portion of the covering back on the bulbs for a short

time, this can be removed when all danger of frost is over. This allows the tips of the growth that are often peeping above the ground, to harden gradually, so as to be able to resist any light frost that may come later on.

Hamilton.

W. HUNT.

FLOWERS FOR ENTHUSIASTS.

 FEW flowers always awaken my enthusiasm. Among them are hollyhocks. So capable is this flower of improvement and endless variety, that it pays us for every effort at careful culture. But it is sure to run back if neglected. I find it essential to select seed of the best varieties, and plant them when ready in beds somewhat closer than needed; then I dig out the poorer sorts when they come to bloom. Better yet, when you get a fine strain, divide the roots and so multiply it. I grow this flower along my fences, and border my fields with it. It is grand at a distance, running from purest white to nearly black. One strain of white hangs down its semi-double flowers like lilies. Sow in September or October for next year's planting; but if sown late it had best be in a cold frame. No flowers should be grown without special attention be paid to improvement. If we are slovenly enough to allow the fruits or flowers to retrograde on our hands, we are retrograding also.

Another flower that I am never tired of is the lily. It is a constant wonder that, cheap as these bulbs now are, they are not more generally in cultivation. I find hyacinths everywhere, but not lilies, except coarser sorts. I expect that one reason is that the very soil and richness that suits a Hyacinth kills a lily. Manure is death to most of them. The Longiflorum or Easter sorts are generally classed as hardy, but are not abso-

lutely so. An open winter generally puts an end to them.

It is best to cover all lilies with some coarse litter, leaves or evergreen boughs. The Candidum is so superb that it should be grown in masses everywhere. The fragrance is superb. I have had Auratums in bloom for nearly three months. I think this fine lily is sporting in its habit. The early flowering have shorter stalks and smaller flowers but richer colors. The Speciosum is for general planting about as valuable as Candidum, being quite hardy and noble in colors and fragrance. I hope thousands will invest this fall in a bed of lilies. Select Candidum, Speciosum, Auratum, and the little Siberian lily, with a plenty of native meadow lilies.

I heartily recommend still more attention to gladioli. The flower is magnificent in coloring, and of endless variation in flakes and stripes and selfs. The Gandavensis stock offers us thousands of truly fine varieties, and any one can with attention raise for himself choice seedlings as good as the best. For five years past these have been rivalled by a strain of Gladiolus Lemoinei. Now we have a very fine set of crosses from Purpurea, Auratus and Gandavensis. These will stand a good deal of attention. So far these flowers are scentless. This is a great drawback. It may be in time remedied by farther efforts in the way of selection and crossing. Turicensis is a new cross offered this spring.—*Popular Gardening.*

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE—II.

THE PROTECTION OF SHADE TREES IN TOWNS AND CITIES.

IN the February, March and April numbers of the *CANADIAN HORTICULTURIST* of last year, the writer called special attention to the care of shade trees, and dealt somewhat fully with some of the main causes which were operating to produce the diseased conditions so commonly met with in our towns and cities. The causes were grouped as *physiological*, such as lack of air, water, and food; *insects*; and *fungi*. It is evident that there is an awakening in several quarters in the matter of care of shade trees, if one may judge from the reports of some of the horticultural societies. The planting and protection of shade and ornamental trees have been left too much to the individual who has made no special study of the conditions under which trees attain their best development.

The citizens of New Haven, Connecticut, have already taken this matter in hand, and as a result of their action a bulletin has been issued on "The Protection of Shade Trees in Towns and Cities," which deals with some of the causes of the present condition of the shade trees of that city, and makes certain recommendations to the authorities. A summary of the causes stated in the bulletin may be interesting to our readers.

Briefly stated they are, (1) Old age; (2) Lack of water and air about the roots; (3) Lack of plant food; (4) Mutilations of the trees; (5) Poisoning by illuminating gas; (6) Insect injuries; (7) Lack of knowledge and care in planting; (8) Electric currents from wires.

The recommendations made for the removal or abatement of these causes are valuable, and should be studied carefully by all interested in shade tree protection.

1. "For old age there is no remedy," although the life of the trees may be lengthened by proper care.

2. Trees would grow better if they were planted on the lawn side of the walk instead of near the curb. The space for the growth of the roots would be greater, watering could be done just as well, and the trees would be out of the reach of mutilation by horses.

3. To supply plant food, an annual spring dressing of an odorless fertilizer is recommended. The composition of the fertilizer is given as follows:

50 lbs. nitrate of soda.

300 lbs. cotton seed meal.

100 lbs. acid phosphate.

100 lbs. muriate of potash, and costing about \$8.00.

This is sufficient for an acre.

4. City By-laws, if enforced, would soon prevent many of the mutilations of trees, and all trees near the curb should be protected by frame or by wire netting.

5. The damage done to trees through poisoning by gas could be lessened by compelling the gas companies to pay for the injuries done.

6. Against insect attacks, spraying with some poisonous substance for leaf-eating insects, and with kerosene emulsion or whale-oil soap solution for sucking insects is recommended.

7. The cause of unsymmetrical trees is usually poor nursery stock, or poor judgment in selecting the species, or unwise location of trees, or improper planting, or lack of care after planting. A town or city forester is a necessity if the foregoing defects are to be remedied. The forester's

duties would be to take the entire care of the trees in the streets, to apply remedial measures wherever necessary, to remove dead trees and plant new ones, and to es-

tablish and manage a city nursery, which would supply the new trees when required.

W. LOCHHEAD.

O. A. C., Guelph.

CHERRY TREE ON THE TABLE.

SOMETHING new is promised in the way of a society fad, and the very wealthy New York set, which is always looking out for fresh opportunity to squander money, is pleased greatly by the novelty of the idea, says the Boston Transcript.

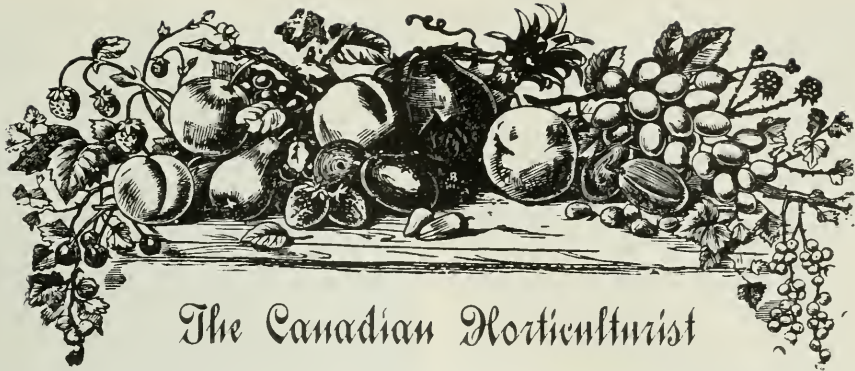
During the present winter no really swell and properly-equipped dinner table has been considered complete on a festive occasion in the house of any fashionable millionaire unless there is a dwarf cherry tree for an ornament—at least one cherry tree, that is to say, though there may be as many as half a dozen. These trees will bear actual fruit, ruddy ripe, which the guests are expected to pluck for themselves when dessert time arrives. Not more than 100 cherries will be on each tree, but, inasmuch as they will be of extraordinary size and delicious quality, besides being so unusual a luxury, this number should suffice for a small dinner party at all events—one of those ideally managed entertainments at which, in accordance with accepted theory in such matters, the persons present are not fewer than the graces nor exceeding the muses numerically.

These dwarf cherry trees have been evolved by the ingenuity of French gardeners, and during the last winter they have been the vogue in gay Paris. That they cost a good deal of money goes without saying, inasmuch as the fruit has to be forced by special processes in the greenhouse, and, the little crop once picked, there cannot be another until a twelvemonth

later. The French are wonderful at this sort of thing, having developed the art of horticulture along certain lines to a point undreamed of on this side of the Atlantic.

The cherry trees, as they appear on the dinner-table, are four or five years old, but have trunks only about an inch and a half in diameter. They have never been permitted to grow more than three feet high, being kept cut down to that point, while most of the branches are lopped off, so that the little tree has a wholly artificial aspect. At the proper time it is set in a pot and placed in the hothouse for the purpose of forcing it to fruit. And finally, when the fruit appears, most of the cherries are removed, while as yet immature, with a pair of scissors, only 100 or so being allowed to ripen. As a result they have a size and quality far superior to the best of ordinary cherries.

Rich people in Paris are not less reckless of money expenditure than are those of the smart set in New York, and there is probably no place in the world where fruits of rare or exceptionally delicious varieties command such extravagant prices. The first cherry that was offered in the Paris market this year brought 20 francs, or \$4—not a cherry tree, mind you, but a single cherry. But then it was the only cherry for sale on that day, and so it may be said to have been relatively cheap. It was purchased by Count Boni de Castellane, or, more correctly speaking, was bought for him by his order.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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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 it 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.

NOTES AND COMMENTS.

OUR HORTICULTURAL SOCIETIES will be pleased to learn that arrangements are now being completed by the Department of Agriculture for the sending of a lecturer to visit each affiliated society at an early date. We have great expectations of the results that will be gained by the regular visits of such a lecturer, for he will familiarise himself with the possibilities before such societies, and encourage them in working out the greatest usefulness. Gathering large numbers is not the aim in sending out the lecturers, but rather to gather together the few in each place who wish instruction, if it be only a baker's dozen of people in somebody's parlor.

cultivation and utility should be studied, that we may learn how and when to use the different varieties to best advantage. Their roots penetrate deep into the soil, making it more porous, and decompose more or less of the hardest substances with which they come in contact. The roots also support bacteria which have the power to change the free nitrogen of the air into plant food. The thick epidermis of the leaves prevents rapid evaporation from their surface. The heavy foliage shades the ground checking the loss of moisture by the direct action of the sun and wind, at the same time keeping the temperature of the soil at a lower point through the hot months than if clean cultivation was used.

FOR FERTILIZING ORCHARDS, says Farm and Home, leguminous plants have great value. The details of their growth, cul-

MR. WARREN H. MANNING, in a report recently made to the park commissioners of

Des Moines, Ia., summarizes briefly the advantage of parks to a city as follows: "They preserve for all time beautiful landscapes that would eventually be mutilated or destroyed by private ownership. They provide a place where the native flora and fauna may be preserved and perpetuated. They have a sanitary value in removing noxious gases from the air and in preventing the contamination of water courses. They promote public health by providing a place where nervous and sick people can frequently go to enjoy quietly a complete change of scene and surroundings, as well as a place where energetic and youthful persons can frequently engage in all active forms of recreation. They have an educational value by providing a place where growing plants and animals, geological, topographical and soil conditions and methods of propagation and cultivation may be studied. They add to the value of adjoining private property by giving an assurance of permanently attractive conditions. They make a city more beautiful and desirable as a place of residence, conditions that add to the pleasure and comfort of all citizens, and tend to keep in and draw to a city people of wealth, influence and leisure."



FIG. 2023. FLEMISH BEAUTY PEARS.

OUR friend, Mr. W. G. Ross, of Picton, the energetic Secretary of the Picton Horticultural Society, kindly sends us the accompanying photograph, showing two Flemish Beauty pear trees raised in the Custom House garden. The two trees bore, last fall, about fourteen bushels of fine fruit.

QUESTION DRAWER.

The Best New Grape.

1202. SIR,—Please say what you consider the best and newest grape out for size, flavor and earliness of ripening.

HENRY LAMBERT, Ottawa.

The finest grape of those recently introduced is the Charlton, so far as quality and the size of fruit is concerned. It is being introduced by John Charlton & Co., Rochester. We do not know how hardy or productive the vine itself is. Campbell's Early is another excellent variety of the Concord type, as early as Moore's Early and superior to that variety. The vine is a

strong grower and hardy. It may be purchased from any of our nurserymen.

Trees For a Small Lot.

1203. SIR,—Please advise me as to how many plum, pear and cherry trees and grape vines I can plant on a city lot fifty feet wide and two hundred feet deep. The house and shrubbery would take about one-half, leaving about 50 x 100 for trees.

M. E. B., Toronto.

In a city lot the trees could be kept well headed in and planted a little closer than in the country orchard, but for standard pears, and for plums and cherry trees, twenty feet apart is close enough. If our correspondent

were to plant four rows lengthwise, one along each border, and two rows in the interior, the rows would of course be about sixteen feet apart, a little close but possibly allowable if the trees in the rows were 20 feet apart. Planted this way, twenty-four trees could be planted in the space under consideration, or eight trees of each kind of fruit. If dwarf pear trees were used, they could be planted about twelve feet apart. Grape vines are usually planted from eight to ten feet apart in a row, with a wire trellis, or they could be made to climb upon a fence or woodshed.

Apples for Export.

1204. SIR,—I have fifty trees of Russet apples which are not doing well on my land, heavy clay, and I wish to top graft them. Will you please say what sorts you would recommend for export, and what is your opinion of the York Imperial.

R. McINTOSH, Newcastle.

The York Imperial is highly valued as an export variety, where it succeeds, but we know of no one who has tested it in Canada. The varieties most valued with us for export are—Summer: Duchess, Astracan and Alexander. Fall: Blenheim, Gravenstein. Winter: Cranberry, Spy, King, Ontario, Baldwin and Ben Davis.

Kieffer Stock for Top Grafting.

1205. SIR,—I note in your issue of January 1900, page 21, an address from Mr. G. T. Powell, of New York State, on top grafting. He says Kieffer is good stock for "Anjou" and "Bosc," and he is apparently speaking from experience. Four years ago I grafted five Duchess d'Anjouleme on good healthy Kieffer stocks, and one Duchess on seedling stock. The union was perfect and the growth healthy and luxuriant, but the following year one of the Kieffers died, root and branch. The other trees have kept up good healthy rapid growth in the tops, but the trunks are gone with dry rot. The Duchess on seedling stock is all right. This is my experience with Kieffer stock for top grafting. Have seen Kieffer recommended as the best of stock for grafting in a good many articles in the periodicals. Would like to hear from others on the subject, and would feel obliged for an expression from yourself.

W. B. STEPHENS, Owen Sound.

The writer has an orchard of bearing Kieffer pear trees, the fruit of which is evi-

dently to be very soon in disfavor in all markets on account of its poor quality. He is therefore determined either to root out the orchard or top graft with some other variety. A year ago the writer begun by setting scions of Anjou and Bosc, as directed by Mr. Powell, and hopes soon to be able to speak from experience upon the suitability of this stock. In the meantime we would be glad to have others relate their experience.

Pears on Apple Stock.

1206. SIR,—I find it necessary to either remove some Northern Spy trees or graft them to other fruit of less luxuriant growth. Can I top-graft with Keiffer pears on Northern Spy, and would the Bosc succeed if grafted on apple stock?

Yours, etc.,

MEAFORD.

We have tried apples on pear stock, but not pears on apple stock. The union was good, and has remained healthy for the past twelve or fifteen years, but the scion never was very vigorous nor very fruitful. We do not think Keiffer would succeed at all on Spy, and is not of any value even if it did; Bosc would be more likely to do well, but some variety of apple would succeed better.

Hybrid Plums.

1207. SIR,—I am thinking of doing a little experimenting on a small farm I own, by planting out a number of stones of hybrid plums, in the hope that in this way possibly some really good ones may be obtained, hardier than most of the Europeans. I wish to obtain as many of these stones as possible, but do not know where to get them. Can you help me by putting me in communication with persons who grow such plums? I refer particularly to such as America, Climax, Gold or Golden, Gonzales, Juicy, Apple, Wickson, etc. I know I am late for this year (unless some can be found under the trees), but I wish to make arrangements for next year. I will gladly pay for the seeds.

M.

Would any of our readers who have pits of these plums on hand, or who expect to have them next season, please write to M., care of CANADIAN HORTICULTURIST, Grimsby.

Sutton Beauty Apple.

1208. SIR,—The apple called Sutton Beauty is highly spoken of by name as a valuable sort. Do you think it safe to plant largely for growing fruit for winter shipment to Europe, in a district where

Baldwin, Golden Russet, and Ben Davis give good results? Please describe it and its good and bad features, both tree and fruit, and oblige
Georgetown, P. E. I. F. G. BOKYER.

This apple has proved valuable in the United States, but is not grown commer-

cially in Canada, and not yet tested long enough to say whether it is adapted to our country. It is rather large, roundish in form, yellow, with crimson check. It ripens in December.

Open Letters.

Export Packing and Bills of Lading.

SIR,—On my return home to Guelph I gave Mr. Hutt my name and membership fee of your Association. I would like very much to be kept posted of any meetings you may have, although I did not say much at your meeting. I have been very much interested in the business, and have been trying to get this act about long before your association had the matter up.

You remember I suggested that our ocean bills of lading should be made out so that should the fruit miss the boat originally intended, for the Foreign Freight Agent of the delivery Railway Company would hand the apples over for the next steamer sailing, the ocean bills would be made out so as to go per any line of steamer—Allan, Dominion, Beaver—so that the insurance policy would be made out accordingly for any of the three lines to Liverpool, and in the same way to other ports, and this would save our apples from laying over in the box cars and hot wharf in Montreal over a week sometimes.

If you have any printed reports of our meeting with the Hon. Sydney Fisher, I would like to get two or three copies so as to send them to receivers interested.

I would like the Bill to deal with size of the so-called Apple Bushel Box for export; the California box is one size, and the Australia box another size, and the Ontario varies from that of the United States box.

The Ontario apple case for export, inside measure is 21 inches long, 10½ inches wide and 11 inches deep.

The Australia apple case is made 20 x 9 x 15, outside measurement, ½ inch side, top and bottom and ¾ inch ends.

I believe if the barrel was made 28½ inch stave, we would get much better barrels, as that is the size of the stave used for flour for the West Indies, etc., and I think the flour trade in Canada will come to the 28½ inch stave bye and bye.

R. A. BUCHART, Guelph.

A Good Beginning.

SIR,—I am starting a fruit garden; of course it is on a small scale, but you know, sir, that from the little acorns the big oaks grow; and so a few rods of ground planted to fruit now, may in time be increased to acres. Last fall I planted about 400 berry bushes and intend to plant 500 more this spring; and I intend to plant 40 plum trees next fall. The few plum and pear trees I planted

some time ago are doing nicely. Besides the fruit garden, I have started a Ginseng plantation; I have 500 seeds planted in the forest and about 2,000 small plants ready to transplant this spring. It takes some time to get stocked with Ginseng, as the seeds require eighteen months to germinate, and then a period of five to eight years before the roots are ready for market. I tried an experiment with peanuts last summer on three different kinds of soils, and I had very good success. I planted a small paper of seeds and had two quarts of peanuts when dried. I cannot raise them here for profit, but with care can grow a few in the garden for home use. I am the first one in the township of Franklin that has started a combined garden stocked with fruit, ginseng and peanuts.

HERBERT FRIER.

Franklin Centre, Province of Quebec.

Too Many Varieties.

A subject which is of great importance to apple growers of this country, particularly at this time of the year when many are ordering trees for spring planting, and one which I intended bringing before the meeting at Brantford had there not been such an amount of other business, is the fact that the number of varieties of apples grown generally in Ontario is decidedly detrimental to our export and home trade. A few of the leading varieties are known in Great Britain, and while many other sorts may be equally as good in themselves, the fact that they are not generally known to the public makes them less valuable to the dealer.

Straight lots of one variety, or carloads containing not more than three or four, always make the best returns. For example, I had at that meeting two sales sheets from Liverpool, one lot was a load of Canadian apples of thirty varieties, and the other a shipment of Maine Baldwins; the former of course was an exceptional case, but as Messrs. Woodall & Co. wrote me recently, if our growers would get rid of 90 per cent. of the outside sorts they would all make far more money.

While I would not wish to say anything to disparage the enterprising efforts of our fruit-growers by seeking new varieties by way of improving on the old, I would ask them to bear in mind that Canada has now many varieties which suit our climate, are well known products of our country, are good carriers in their various seasons, and meet with a good demand, and until some varieties are established as improvements on these, it is advisable to stick closely to the old sorts.

Among the leaders, I would submit Baldwin, Ben Davis, Blenheim, Canada Red, Colvert, R. I Greening, Bottle Greening, King, Stark, Ribston Pippin, Golden Russett, Rox. Russet, Spy and Snow.

While the British market has generally shown a preference for red fruit, this year it has especially shown its appreciation of good Greenings; and it is often the case that when reds are plentiful, good Greenings in season command as good prices as most others.

We look upon the Baldwin as the King of Fruit, as an all-round apple from every standpoint, but the others in their season often sell higher, so it is well to have a proportion of them all.

Many apple growing sections of the U.S., especially Maine, are noted for shipments of straight varieties, and while it is not advisable to plant one sort only, it is well to limit the number of varieties.

Yours faithfully,

Toronto.

EBEN JAMES.

Origin of Scarlet Pippin.

SIR,—I saw in the report of meeting of Fruit Growers' Association, you said Mr. Jones was the originator of Scarlet Pippin apple. I wish to tell you he is not. The Scarlet Pippin apple originated over forty years ago at the back door of the residence now occupied by H. B. Heathers, Florist, about one mile west of Brockville, and near the St. Lawrence river, where part of the old tree can still be seen. I have known it for over thirty years, and can say it is one of the best selling apples on the Ottawa market.

Brockville.

ALBERT ABBOTT.

Report on Plants and Trees Received.

SIR,—I will at this late date give you a report of the trees, plants, etc., received from annual distribution by the Ontario Fruit Growers' Association. I have not kept a list of dates when received. First on the list is Simon's plum, which, with me, is tender, and has died down to ground. The Russian apricot, of which I received two at different times, both died below where budded. The Pearl gooseberry has done fairly well, giv-

ing small crops of fruit. Conrath raspberry is hardy, and bears a fair crop. The Sand cherry is very tender, and has died out. The Siberian pea tree is perfectly hardy, and has blossomed last two years. I also received two Oregon pines and two Douglas firs. The firs were small and neither grew. One pine is growing, and is perfectly hardy. Crimson Rambler rose is doing nicely; it has bloomed twice, but was badly used up last summer with thrip. The gladiolus bulb sent out was very fine. The wistaria did not grow, it was dead when received. In 1899 I received two Columbian raspberry bushes; they had started from the tops and dried up when received; neither of them grew. I also had two varieties of Russian apple trees, but accidents happened to both and cannot report on them. I have a scion from one, growing in another tree, and may report later. Two years ago last autumn I received three crowns of club-form mammoth rhubarb from our friend, the late Charles E. Brown, of Yarmouth, and last summer had a stalk weighing two pounds, and several others nearly as large. I have experimented with several varieties of grapes, but the Early Amber is the only one that ripens here. I have also tried peaches, but the blossom bud always winter-kills. I tried laying them down, and that fixed them outright. Nearly all varieties of apple do well here. For fall use the Gravenstein is by far the best; the Baldwin, Golden Russett and Greening are hardy. I had two Wealthy trees; one bore well for three years, and then the bark came off all around the tree, and it died; the other is growing. Ontario is hardy and a good bearer but the fruit is quite sour. The Oldenburgh is all right but will not compare favorably with Gravenstein either in tree or fruit. Hubbardson's Non-such, I think we have two varieties of, one corresponding to plate in vol. xiii, Canadian Horticulturist, April number, the other came from Yarmouth, and was said to be true to name by the late C. E. Brown. The tree is tender and inclined to canker. The fruit is more conical and not as red, but fine grained and of beautiful flavor.

HENRY C. SABEAN.

New Tusket, Dec. 28, 1900.

Our Affiliated Societies.

CAYUGA.—The county has granted us \$50.00 and the town, \$20.00. We hope to have a public garden or two; keep Arbor Day by planting out 500 trees; make the beginning of a hedge about Court House Grounds; while there will be a more or less enthusiastic rival among the individual members over their private gardens. At our High School we have one tulip bed of 1500 bulbs; it was magnificent last season.

With a considerable expenditure ahead of us for a new society will you kindly send us a list reliable houses to whom we may write for price lists and discounts.

Yours truly,

Cayuga Society.

A. K. GOODMAN.

COBURG.—The annual meeting of the Horticultural Society was held in the Council Chamber on Wednesday, Jan. 9th. The Treasurer's report shows that the total receipts were \$294.44, expenditure \$255.88, leaving a balance for 1901 of \$34.56.

For the year 1900 each member received "The Canadian Horticulturist," and a premium from the same. In addition to this, our society distributed the following premiums: 6 gladiolus, 1 peony, 2 anemones, 8 hyacinths, 3 lilies, (candidum) all of 1st quality, which retails for not less than \$2.50. Such liberality on the part of the Directors should be an incentive in securing a

large membership for the present year. Will the old members kindly renew the subscription before the 15th of Feb., and select their premium for the year 1901, and all who wish to become members will please call on the Secretary, Mr. A. W. Pringle, as soon as convenient, so that they may have their names on the list and thereby secure the full benefit of the premium to be distributed for the present year. Mr. C. Waite is authorized to receive subscriptions.

COBOURG HORTICULTURAL SOCIETY.—The annual meeting of the Cobourg Horticultural Society was held in the Town Council Chamber according to statute.

The Secretary, H. J. Snelgrove, read the report of the Directors. The society last year purchased their flower bulbs in Holland, and the Directors recommend that the same be done this year, as the experiment had proved very successful. The Secretary was representative to the Ontario Fruit Growers' Association, and succeeded in securing the meeting of the Association at Cobourg next year.

On motion of Mayor Huycke, seconded by Mr. Barker, the report was adopted, and a vote of thanks tendered to the Secretary.

Mr. D. Denton, Treasurer, reported receipts for the year, \$223; expenditures, \$221.42.

The Society then proceeded to the election of officers.

The Secretary said he had received a communication from Mr. Woolverton, stating that the Fruit Growers' Association could not yet promise

to send out lecturers this year. But Mr. C. C. James, Deputy Minister of Agriculture, had kindly promised that he would address the Society at an early date.

Mr. Denton spoke about the spring distribution, and he thought each member should report upon the plants received by them. Instead of getting all they could for the money, they should get the rarest and latest varieties.

Mr. Snelgrove gave a short report of the Ontario Fruit Growers' meeting at Brantford. He said the convention was composed of about 200 of the best men in the province. He wished to get the names of the fruit growers of this county, so as to invite them to attend the meeting, which will be held in November.

Major MacNachtan said it would be well to appoint a deputation to wait upon the Counties' Council, and get them interested. This was a matter that interested all fruit growers' very much.

The President, Vice-Presidents and Secretary were appointed a committee to wait upon the Counties' Council.

The following officers were elected by the Directors:

Secretary—Major Snelgrove.
Treasurer—D. Denton.

NOTE—Since the above meeting at which my letter was read, arrangements have been completed with the Department of Agriculture by which a regular lecturer, and perhaps two of them, will be sent annually to address our affiliated societies.

L. WOOLVERTON.

OUR BOOK TABLE.

BOOKS.

THE PRINCIPLES OF VEGETABLE GARDENING, by L. H. Bailey, pp. 458, New York. The McMillan Co., 1901. Price, \$1 25.

This is another addition to that excellent Rural Science Series, edited by Prof. L. H. Bailey, of Cornell University. Science is progressive, and books written years ago upon fruit and flower culture are now becoming antiquated in many particulars. Prof. Bailey's works on the other hand are fresh and up to date; besides they classify all information in such a manner as to be of the greatest service to the cultivator. The book is divided into two general parts: Part 1st, General View; part 2nd, Vegetable Garden Crops: Part 1st includes the layout of the plantation, glass, soil and treatment, tools, seed, management, working and storing; part 2nd, Root crops, Tuber crops, Bulb crops, Cole crops, Pot Herb crops, Salad crops, Pulse crops, Solanaceous crops, Cucurbitous crops, Sweet Corn, Sweet Herbs, Perennial crops.

We highly commend this work to our readers.

FARMERS' GUIDE to Fertilizers and their services, published by German Kali Works, 91 Nassau street, New York.

REPORTS.—Michigan Horticultural Society for 1899. Missouri Horticultural Society for 1900.

Central Experimental Farm, Bull. 36. Results obtained in 1900 from trial of plots of grain, fodder corn, field roots and potatoes, by Wm. Saunders, L. L. D., Director of Experimental Farm.

CATALOGUES.

FRUITS, ETC.—The 1899 supplement to New Creations in Fruits and Flowers, Luther Burbank, Santa Rosa, Cal. Horticultural Establishment, Baltet Bros., Troyes, (Aube) France. Emerald Plum, History, Description, etc., E. D. Smith, Winona. Dominion Nurseries and Fruit Farms, St. Catharines, Ont., 1901, Smith & Reed. Graham's Annual Wholesale Price List, A. W. Graham, St. Thomas, Ont. Northern Grown Fruit and Ornamental Trees, J. H. Wismer, Port Elgin, Ont. Central Nurseries, 21st Annual, A. G. Hull & Sons, St. Catharines. Choice Strawberry Plants, Chas. H. Snow, Cumming Bridge, Ont. Grape Vines, Lewis Roesch, Fredonia, N. Y. Green's Nursery Co., Catalogue, Spring, 1901, Rochester, N. Y. R. M. Kellogg's Great Crops of Small Fruits, Three Rivers, Michigan. J. G. Harrison & Sons, Nurseries, 1901, Berlin, Md.

ORNAMENTAL TREES AND PLANTS.—Thos. Meehan & Sons, Germantown, Pa., nurserymen and landscape gardeners. J. Gammage & Sons, London, Ont., Plant Novelties. Gladiolus Trade Price List, Geo. E. Dickson, 1 Broadway, N. Y.

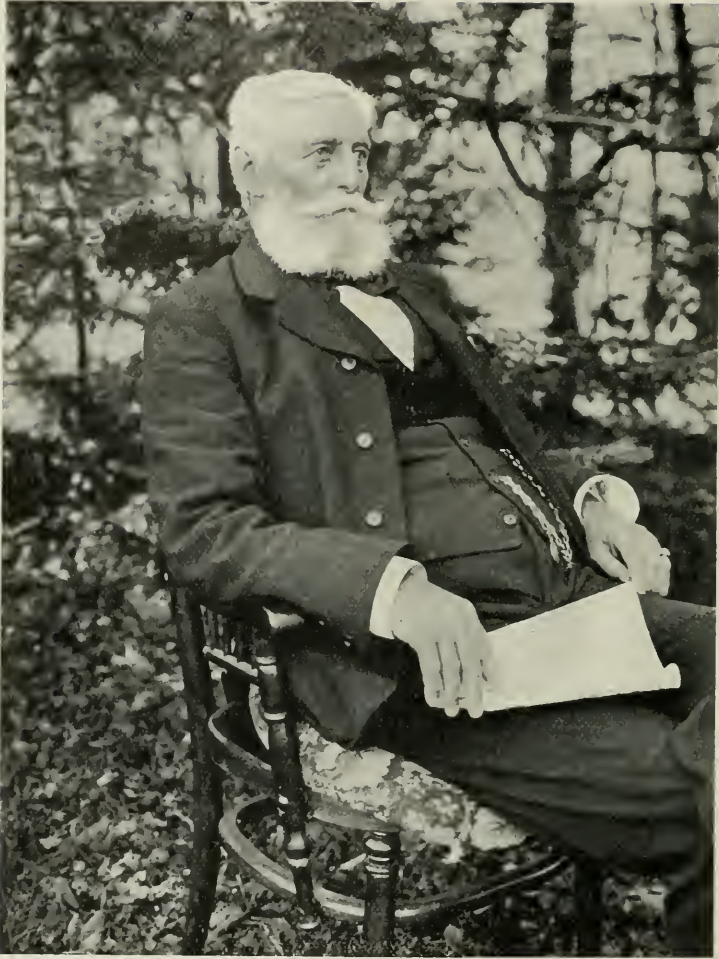


FIG. 2024. MR. J. W. BIGELOW, PRESIDENT N. S. F. G. A.

THE CANADIAN HORTICULTURIST



** APRIL **

NOVA SCOTIA' FRUIT GROWERS.

AT the especial request of the editor, Mr. Bigelow, the time honored president of the Nova Scotia Fruit Growers' Association, has forwarded us his cut for use in our journal. We had the pleasure of an acquaintance with him at the World's Fair, in 1893, when he was in charge of Nova Scotia's fruit exhibit, and we learned to appreciate his genial manner and eminent ability.

Mr. Bigelow has done much towards the development of the fruit industry of Nova Scotia, both by example and by precept. Ever since 1890 he has deservedly held the position of president. Through his efforts an excellent School of Horticulture has been established at Wolfville, and efforts are being made to introduce into the legislature a scheme for the establishment of a model orchard of six acres in extent, in every county of the province. This is somewhat after the scheme of our fruit experiment stations, only a little more ambitious, for a model orchard is not easy to make, and its name would bring plenty of criticism.

In Mr. Bigelow's annual address before the association at Halifax, on Wednesday

evening, Feb. 13th, he drew attention to the excellent provincial exhibit made at Paris, and regretted that no steps had been taken for a display of Nova Scotia fruit at the Pan American; and, referring to the value of her fruit crop, he gave the following as an approximate estimate of the same :

Annual value of fruit crop, average about.....	\$1,000 000
Net receipts for apples sold in Great Britain, 1899 crop.....	800,000
Net receipts for apples sold in Great Britain, 1900 crop.....	200,000
Value of orchards now bearing, 9,000 acres, at \$500 per acre.....	4,500,000
Annual additional value to permanent wealth of province, by young orchards, 5,000 acres at \$200 per acre.....	1,000,000
Number of men employed in fruit culture, 7,000.	
Number of men employed in barrel and box factories, nurseries, fertilizers and other industries required by fruit culture, 4,000.	
Freight paid for fruits, railroads.....	60,000
Freight paid steamboats for do.	200,000

The report of the N.S. School of Horticulture was presented to the association by Mr. W. C. Archibald, of Wolfville, chairman of the Board of Control. Mr. Archibald lives at Wolfville, and has made himself widely known throughout the province, for



FIG. 2025. W. C. ARCHIBALD.

his success in fruit growing, having transformed a piece of unimproved land into the well known Earncliffe fruit gardens. He has been foremost in trying plum growing for profit, and has proved that this fruit is more successful even than the apple in Nova Scotia. Last season he marketed 50,000 lbs. of plums off twelve acres of a plum orchard. Peaches, pears, cherries, quinces, etc., have been grown by him on the same land between his apples and plums.

Mr. Ralph S. Eaton made a vigorous and eloquent speech in favor of a union of the Agriculture School, at Truro, and the School of Horticulture, at Wolfville, into one first-class Agricultural College for the maritime provinces.

Mr. Peter Innes introduced a resolution for better ocean transportation of apples, seeking the appointment of a commission that would look into present abuses in this trade and see that they were corrected.

The same gentleman also introduced a resolution looking to an improvement in

railway freight classification which reads as follows :

Whereas the freight classification of apples by the railways of Canada was fixed at a time when the production was small and prices high, and—

Whereas since that time production has enormously increased while prices have been continuously falling, and

Whereas in Western Nova Scotia apple growing has become a great staple industry, averaging 500,000 barrels a year, and

Whereas the said classification has to be submitted to and approved by the Governor-in-Council;

Therefore resolved, That this association, recognizing that the present classification does not meet with the altered circumstances, and is oppressive to the apple growers and shippers of this province, do respectfully memorialize the Governor-in-Council to take the subject into early and favorable consideration, it being suggested that in the view of this association apples should be placed at least on an equal footing with flour.

The Standard apple barrel was also mentioned by Mr. Innes and the following extract from the amended Weights and Measures Act was given :

Chap. 37, 1900—An act to amend the Weights and Measures Act. Assented to 7th July, 1900.

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

1. The section substituted by section 2 of chapter 28 of the statutes of 1899, for section 18 of the Weights and Measures Act, chapter 104 of the Revised Statutes, is repealed, and the following is substituted therefor :

18. All apples packed in Canada for export for sale by the barrel in closed barrels shall be packed in good and strong barrels of seasoned wood, having dimensions not less than the following, namely ; twenty-six inches and one-fourth between the heads, inside measure. and a head diameter of seventeen inches, and a middle diameter of eighteen inches and one-half, representing as near as possible ninety-six quarts.

2. When apples, pears or quinces are sold by the barrel as a measure of capacity, such barrel shall not be of lesser dimensions than those specified in this section.

Another clause provides for a penalty of 25 cents a barrel for breaking this law.

Of the English apple markets, Mr. J. H. Burgess of Canniny spoke as follows :

While in England this season I made inquiry as to the prospect for disposing of evaporated and canned apples, and found there was an unlimited demand for this product. I interviewed a number of firms dealing in these goods, and found them ready to do business. They like canned apples, as in this form they are always ready for use. The

early shipments of Gravensteins this year were really not good for anything when they arrived in London. I saw the Mediana's cargo, and the apples were utterly useless. When the Gravensteins commenced to arrive in these bad steamers it corroborated the opinion that they entertained over there, that our Gravensteins were a failure. There are some Gravensteins that came out of the barrels which looked fairly well, but the flavor was gone. I firmly believe eight days is the proper time to deliver them: the high temperature in the ships' hold causes the apples to decay rapidly. To successfully ship soft apples we need a 15-knot service. Last spring apples brought fabulous

prices—as high as 32s. per barrel—from twenty-four to thirty-two shillings per barrel, I saw Fallawaters selling at thirty-two shillings, and Golden Russets at thirty-four shillings. There is no danger of Canada producing more apples than is demanded.

I was in Paris a month, and I took particular notice of our apples sent over there in cold storage for the Exposition, and I asked the man who had charge of that exhibit if there was any danger of our supply of apples exceeding the demand. He replied there was not. He said he could sell eight hundred thousand barrels in Germany alone if the quality was guaranteed.

PRUNING OF FRUIT TREES.

THE PEACH.—This tree requires special pruning to keep in a compact and stocky form, as it tends to grow largely at the ends of the branches, and to produce few laterals on the main branches. While the trees are young, at least one-half of the last season's growth should be cut off during the latter part of the winter, varying the amount cut from different parts of the trees so as to produce a regularly formed head. As the trees grows older, this pruning reduces the number of fruit buds, and thus lessens the cost of thinning and improves their growth. It also often becomes necessary to cut back some of the main branches well into the centre of the tree to force a lateral growth of new wood, without which the long branches would soon break down when heavily loaded with fruit, or with foliage wet with rain in a high wind.

THE PLUM AND CHERRY.—The special pruning required by these two fruits is the heading in of strong leading shoots, while young, to cause a stocky and compact growth that can be easily cared for. Pinching the shoots while young will often accomplish the same end.

THE GRAPE.—The grape vine will stand more pruning without injury than any other fruit crop we grow, and, by the modern method of training, the whole vine is practically renewed every two years. The fruit is grown on the vigorous young wood of the last season's growth, and the more vigorous

and well ripened this wood is, the better will be the product. Pruning may be done at any time after the leaves fall up to March 1st. Summer pruning, or pinching is practiced to force the growth where desired, that is, into the fruiting canes and into the next season's fruit, and no surplus canes should be grown that must be cut and thrown away at the end of the season.

RASPBERRY AND BLACKBERRY.—The fruiting canes of these fruits should be cut out as soon as the crop has been harvested, that all growth may go into the new canes that are to produce fruit next season. Such new canes as are to be preserved for next season's fruiting should have the end taken off when they reach three feet in height, and all weak canes and those not needed to make a well-stocked field should be treated as weeds and be hoed or pulled up.

CURRENTS AND GOOSEBERRIES.—An annual pruning is generally given these fruits, cutting out all wood over three years old, keeping the bushes in a compact and stock condition that will hold the fruit up from the ground, where it will not be splattered by the soil during heavy rains, and leaving a limited amount of strong wood two or three years old, which produces larger fruit than will grow on old canes. All canes looking sickly, which generally indicates a borer in them, should be cut out and burned as soon as discovered.—*Prof. Maynard, in Massachusetts Experiment Station Report.*

PRINCE EDWARD HORTICULTURAL PARLIAMENT.

WITH us here in Prince Edward Island, horticulture is making steady and substantial progress. It is true there are some who feign to have no faith in scientific methods and still adhere with a tenacity worthy of a better cause to the rule of thumb in horticulture as well as other matters, but their number is growing smaller and smaller, and beautifully less. Ignorance dies hard anywhere but especially in high places, and it is really wonderful how sometimes one has to fight for ordinarily advanced methods with those who should be formally engaged in forging forward along those lines. The exigencies of the times project some people into positions for which they have not a single qualification. It takes time to smother all those things out; it will do so finally. The true friends and lovers of horticulture must be persuaded to be patient and unselfish and on no account allow their enthusiasm to cool on account of certain incongruities in organization, no matter how thrilling.

The year that has just closed has been a fair fruit year in Prince Edward Island. It has not been by any means a full year, however. There was a considerable yield of early apples thrown upon the market even earlier than the season by the great gales which swept over the province in August. We have no way of handling a glut of this kind. The later varieties were also affected by the winds—blown off where not protected and rendered valueless. In some cases, however, and with some varieties, the harvest was satisfactory, both with regard to quality and quantity. Spraying as well as thinning, when necessary, undoubtedly makes far superior quality in wet years, like last especially.

The annual meeting of our F.G.A. took place at Charlottetown on the 6th and 7th

of February. We had the great pleasure of having Professor Macoun, horticulturist, of the Central Farms with us. In order to get him we had to hold our meeting immediately after that of the Nova Scotia association which he was attending. February, on account of its boisterous nature, is no month to hold meetings here, but we sometimes have to make shifts to suit circumstances. The weather was anything but favorable for a large attendance of country horticulturists, and therefore they did not come out in such numbers as we could have desired, but a number of citizens filled up the places and all the sessions were fairly well attended.

At the first session, after the reading of the minutes, the president delivered a well written and carefully thought out address on the general purposes of the fruit industry under his presidency. He asked for action to prevent the introduction of the San Jose scale and pleaded for government assistance to carry out the schemes of the association. The members of the government, including the Premier, were present. His address was unanimously received and ordered to be printed.

The first paper—that of the writer on "Forestry and Horticulture"—was then read and elicited a discussion which was carried on through all that session. This important question of Forestry is doubly important to P. E. I., "scarcely 100 years ago," said the paper, "and Prince Edward Island was one insular forest; to-day not enough lumber could be found on it to keep one good steam mill agoing the year around; many of our farmers cannot secure wood enough on their holdings for the kitchen stove alone; a majority of the holdings are absolutely without protection from the sweeping winds; the springs and streams which once watered the meadows

have dried up and disappeared with the forest, and sunburnt fields, once laden with luxuriant crops, scarcely render any return to the husbandman's toil. The climatic influence arising from these changed conditions, although not so marked as in inland countries, are altogether against us."

It is not strange that an island like Prince Edward with such a coast line should be a great loser by floods and freshets as the great woods which covered it are cut away. The loss to the fruit growers has been extensive, too, and if measures be not taken to repair the general removal of the forest, there may well be grave doubts entertained as to the island's future as a fruit country. This feature professional horticulturists have been quick to grasp, as will be seen by another excerpt from the same source.

"Writing to me last summer just before taking passage for Europe, Professor Macoun, whom we are all glad to have with us here to-day, said :

"Whenever and wherever you can, preach the preservation of your woods. If the protection afforded by your fine woods is removed, I fear that fruit growing there will not be nearly so successful as it promises to be.' Nobody doubts the truth of this statement. But without a healthy public sentiment, an awakening to the knowledge and needs of the case, as well as proper action on the part of the government, what can be done? Prof. Macoun, no doubt, believes that our province will lose its adaptability for fruit raising, not only by the fact that the loss of the forest may bring adverse climatic conditions, but also because we must also protect our trees from the summer gales to mature good fruit, no matter how well they may do otherwise. This question of protection enters very largely into the economics of fruit-growing. The past year has demonstrated that, beyond the peradventure of a doubt. Ontario alone lost millions of

dollars by her storm-swept orchards, the other provinces were also heavy losers, and here those who had no proper windbreaks have lost their entire crop. I remember well asking an enterprising tree agent from New Brunswick, where proximity to the United States makes men veracious, if it wasn't necessary to get up a good windbreak in this country before attempting to grow apple trees. 'If our apple trees won't stand it out in the open I won't ask any man to plant them,' was his answer. They might stand it in the open, but stand is about all they would do. We want fruit—and to produce fruit in this country, apart from all other considerations, we must protect it, after it has formed on the trees. I have a windbreak on the N., N. E., and N. W., the exposed points of my situation, and while my neighbors' trees were swept early in August, I harvested my entire crop. The importance of forest protection to the fruit growers of the country cannot then be overestimated."

The Government which owned all the land originally has never moved to preserve any portion of our beautiful forest. We might be receiving a big revenue from our timber lands to-day, when revenue is so much needed, had some prudent system of reserve been adopted. The timber is gone and monetarily the country has not benefited to the extent it ought, while in every other way the wholesale slaughter of trees has been a great curse to it. The practical question is, what are you going to do about it? The representative men of the country, the Governor, Premier and ministers of the local government, Sir Louis Davies and the visiting professors and the press declared the discussion most timely and no doubt it will be productive of much good. This resolution crystallized the whole matter :

Moved by A. A. Moore, seconded by D. P. Irving, and

"Resolved, That the Government be asked to give its serious consideration to the

vital question of forestry by making reserves of the public lands wherever possible and encourage private afforestation in every way possible."

The next session was taken up principally with Prof. Macoun's masterly address on horticulture with special application to the condition of our province, and the general discussion which followed, as well as the questions with which it was punctured, proved how practical the gentleman had made himself. In this province we have been planting too close, pruning too scantily, spraying too rarely and not getting rid of objectionable stock by top-grafting or otherwise quickly enough, and, young as we are in the business, we have developed dishonest packing. The professor took up the samples of apples on exhibition and spoke most learnedly on their adaptability to our soil. From his examination of tree, fruit, our soil and climate he would recommend the following apples to be grown here :

Fall and early winter—Wealthy, Alexander, Wolf River, McIntosh Red, Fameuse, Gravenstein.

Winter—Ontario, Baldwin, Stark, Ribston Pippin, Ben Davis.

Sir Louis Davies, Minister of Marine and Fisheries, being present, delivered a very encouraging speech. He had long since convinced himself of the suitability of upland soil for apple culture. Indeed we could grow some varieties better than any place else. He knew that everybody marvelled at the expansion of the cheese industry on the island, and the amount of money it brought into the province. The apple industry would, he verily believed, do better if directed and fostered. He was delighted with the Fruit Growers' Association and the previous discussions he had listened to, and while it appeared that when any question, such as the proper package of fruit or the matter of marking and inspecting packages, came up on the floor of the House of Commons it was the signal for the greatest divergence

and variety of opinion, and it did sometimes appear as if it were next to impossible to have members reach common ground. He would promise to give the weight of his voice and vote every time on the side of the recommendations of the Fruit Growers' Association.

All this was very encouraging and the association, after considerable discussion on these important matters, adopted the following general resolution and named Rev. A. E. Burke, D. P. Irving, M. L. A. and A. A. Moore to carry out its provisions :

"*Resolved*, That a committee from the Fruit Growers' Association correspond with committees from the Nova Scotia and Ontario Fruit Growers' Associations with a view to secure a uniform package in which to pack fruit, and a uniform mark, as well as competent inspection, for its contents."

It was the general opinion that steamship space, properly fitted with cold storage, should be secured for the autumn months, at least for the consignment of fruit to Britain. The shipments made last year, although rolled about and not specially handled, turned out well; this year not much fruit awaits shipment, some Ben Davis from Mr. Boyer's orchard being the only considerable consignment I know of, and they will take almost any handling. Among those who are giving the question any study there seems to be a very marked preference for the Hanrahan system of cold storage, so successfully employed by the Ontario government, and it is hoped that it will come more generally into use.

The other matter which engaged the attention of the meetings, especially the splendid paper of Mr. John Johnson, on "Some phases of Island Horticulture," although of an entirely local nature, were full of interest and profit for those present, and merited and received their unstinted praise.

The Association elected Mr. Edward Bayfield, who was its first president after incor-

poration, again this year, and he no doubt with the old Board will do much to advance its interests in this opening year of the century. There is much to be done to fully

develop the fruit growing possibilities of Prince Edward Island, and we must earnestly bend our energies to the task.

Alberton, March 1, 1901. A. E. BURKE.

CENTRAL EXPERIMENTAL FARM NOTES—XV.

ALTHOUGH the weather has been less severe during the past month than during the previous one, the temperature has rarely risen above the freezing point. The coldest day in March up to the 14th was on the 3rd, when it was 9.5° F. below zero. There have been no heavy falls of snow this month. On March 10th heavy rain fell for a few hours and this, freezing on the trees, caused them to become thickly coated with ice, and they were so weighed down that many trees had large branches broken off them. Owing to the heavy covering of snow this winter there has been practically no frost in the ground, a most unusual occurrence here.

By the time the April number of the Horticulturist is published it will be time to think about tree planting and garden making, and as it is often difficult for a fruit grower to decide on what varieties of fruit to plant, the following list of those which have been found to succeed best at the Central Experimental Farm may prove helpful to those who live where the climate is much the same as at Ottawa.

APPLES—Summer—Yellow Transparent, Red Astrachan, Duchess of Oldenburg. Sometimes the Red Astrachan is a shy bearer. Autumn—St. Lawrence, Wealthy, and Alexander. Of these, Wealthy is the most profitable if well grown. It is inclined to overbear, and the fruit should be thinned, if necessary, to increase its size.

Early Winter—McIntosh Red, Fameuse, Scarlet Pippin, Shiawassee Beauty, Wolf River.

Winter—Scott's Winter, Gano, Red Ca-

nada, Salome, Golden Russet, Pewaukee, Ben Davis. Gano resembles Ben Davis somewhat, but is much more highly colored than that variety.

PEARS—Pears do not succeed well at Ottawa. The better varieties are not hardy, and the Russian sorts, though quite hardy, are poor in quality and much affected with blight. If there can be any discrimination made among the Russian varieties, Bessemianka is probably the best to plant. Flemish Beauty appears to be the hardiest of the better pears, and has fruited at Ottawa. Clapp's Favorite, also, may succeed under very favorable conditions.

PLUMS—Neither the European nor Japanese plums are safe to plant at Ottawa as a commercial investment. Under especially favorable conditions they may bear heavy crops, occasionally, but as a rule the fruit buds are killed. Of the European plums, Early Red, Richland, and Glass Seedling have proved the hardiest, the Early Red being probably the hardiest of the three.

American plums do very well, and some of them are so fine that they are well worth growing for market, especially where the European sorts do not succeed. If a judicious selection of varieties is made, the ripening period of these plums may be extended over a month.

Seventy-six varieties have now been tested here, and the following, given in their order of ripening, have proved the best :

Cheney, Bixby, Gaylord, New Ulm, Wolf, City, Silas Wilson, Stoddard, Hawkeye, Wyant, American Eagle, Hanmer.

CHERRIES—Practically no cherries are

grown in the vicinity of Ottawa, except at the Experimental Farm, the reason being that they will not succeed when treated in the ordinary way, as they are frequently root killed. Cherries propagated on Mahaleb and Mazzard stock have been, as a rule, root killed at the Experimental Farm. Cherries grafted and budded on the native Bird or Pin cherry—*Prunus Pennsylvanica*—have succeeded well. It is doubtful if cherry trees, even grafted stocks, will live to be very old at Ottawa, but by planting them closer than is the custom in the best cherry growing districts more fruit will be gathered while the trees are in their prime. The following varieties, covering a ripening period from the last week of June to the last of July, are some of the best suited for this district :

Amarelle Hat ve, June Amarelle, Shadow Amarelle, Heart-shaped Weichsel, Griotte du Nord, Orel, Cerise d' Ostheim, Brusseler Braun, Koslov Morello.

GRAPES—A large number of varieties of grapes have ripened at Ottawa, but many of these are uncertain, and it is not advisable to plant more than a few kinds. The following are the best of the varieties which ripen nearly every year :

White—Green Mountain, Moore's Diamond.

Red—Moyer, Delaware, Brighton, Lindley.

Black—Moore's Early, Rogers 17, Wilder. And to these may be added Campbell's Early, should it prove as satisfactory.

RED RASPBERRIES—Marlboro, Cuthbert, Loudon; also Clarke, Heebner and Sarah for home use.

BLACK CAP RASPBERRIES — Older, Hillborn, Progress.

PURPLE CAP RASPBERRIES—Shaffer, Columbian.

BLACKBERRIES—Agawam, Snyder.

RED CURRANTS—Wilder, Fáy's Prolific,

and for great productiveness, though small in size, Red Dutch and Raby Castle.

WHITE CURRANTS—White Grape.

BLACK CURRANTS—Victoria Black, Success, Standard, Lee's Prolific.

GOOSEBERRIES — Downing, Red Jacket. European varieties have not done well here.

STRAWBERRIES — For general market : Clyde, Glen Mary, Williams, Beder Wood, bisexual ; and Warfield, Haverland and Buster, pistillate.

For special or home market—Marshall, William Belt, Nick Ohmer and Brandywine, bisexual ; and Greenville and Bubach, pistillate.

There are few good herbaceous perennials, with the exception of bulbs which bloom in April and the early part of May, and thus it is important to know the few there are. By referring to the Horticulturist for May, 1900, there will be found, in the Central Experimental Farm notes, a list of the best early flowering species of flowers, many of which can now be obtained from Canadian nurserymen. Lists of one hundred of the best ornamental trees and shrubs, and one hundred of the best herbaceous perennials have been published at the Central Experimental Farm, which will be found very useful in making a selection to cover the whole season.

LIST OF BEST VEGETABLES FOR FARMERS.

As all the experiments which are conducted with vegetables cannot be published every year on account of want of space, a list of the varieties of all the principal kinds which have proved the most satisfactory after several years' test was published in the report for 1899 under the heading "List of best Vegetables for Farmers." This gave in a concise form much valuable information as to the best varieties to plant and must prove very helpful to those who studied it. As the annual reports are very liable to be mislaid during the year, and as one is apt

to forget the name of a variety, it has been thought advisable to again publish this list with what changes another year's experience warrants making.

Asparagus.—Conover's Colossal is the best all-round variety.

Beans.—Golden Wax or Wardwell's Kidney Wax, for early crop; Early Refugee, for medium; and Refugee or 1,000 to 1, for late crop, are the most satisfactory dwarf varieties. Southern Crease-back and Asparagus (early) and Golden Andalusia (late) are the best pole varieties.

Beets.—Egyptian Turnip, Eclipse and Bastian's Blood Turnip are three of the best varieties.

Borecole or Kale.—Dwarf Green Curled Scotch is the best.

Broccoli.—White Cape.

Brussels Sprouts.—Improved Dwarf is the most satisfactory.

Cabbage.—Early Jersey Wakefield (early), Succession (medium); Late Flat Dutch, Drumhead Savoy (late), Red Dutch (red), is a select list of the best varieties of cabbage.

Cauliflowers.—Extra Early Dwarf Erfurt and Early Snowball (early); Kronk's Perfection (medium) and Large Late Algiers are among the best.

Carrots.—Chantenay and Guerande or Oxheart are two of the best carrots, but if a good extra early sort is required, the Early Scarlet Horn can be planted with advantage. It is a small variety.

Celery.—Golden Self-Blanching, Paris Golden Yellow, Improved White Plume, White Walnut (early); London Red, Perfection Heartwell, White Triumph (late) are among the best.

Corn.—Early White Cory, Crosby's Early, Henderson's Metropolitan (early); Perry's Hybrid, Stabler's Early, Early Evergreen (medium); Stowell's Evergreen, Country Gentleman (late). In planting, the Country

Gentleman should not be omitted, as it lengthens the season very considerably, and is of fine quality.

Cucumbers.—Peerless White Spine or White Spine, Cool and Crisp, and Giant Pera are three of the most satisfactory slicing varieties. Boston Pickling is a good pickling sort.

Egg Plants.—New York Improved and Long Purple succeed best.

Lettuce.—Black Seeded Simpson, New York (curled), Tennis Ball, Salamander and Golden Queen (cabbage); Trianon and Paris Cos lettuce make a good list.

Melons, Musk.—Long Island Beauty, Hackensack and Montreal Market, of the Nutmeg type, and Surprise, Bayview, Paul Rose and Emerald Gem, of the other types, are all good.

Melons, Water.—Cole's Early, New Imperial, Ice Cream, and Phinney's Early are early water melons of excellent quality.

Onions.—Yellow Globe Danvers and Large Red Wethersfield are two of the best onions in cultivation.

Parsnips.—Hollow Crown and Dobbie's Selected are both good sorts.

Parsley.—Double Curled is as good as any.

Peppers.—Cayenne, Cardinal, Squash and Golden Dawn are four of the best.

Pease.—Gregory's Surprise, Gradus, Nott's Excelsior and Premium Gem (early) McLean's Advancer, Improved Stratagem and Heroine (medium). None of these are tall growing varieties. June (dwarf), Telephone, Veitch's Perfection (tall) (late). Nott's New Perfection is a promising second early sort, and Dwarf Telephone and Starter two promising late varieties.

Potatoes.—Extra Early: Early Ohio and Early Andes (pink), Bovee and Burpee's Extra Early (pink and white). Early: Everett and Rochester Rose (pink), Early Puritan (white). Medium: Carman No. 1

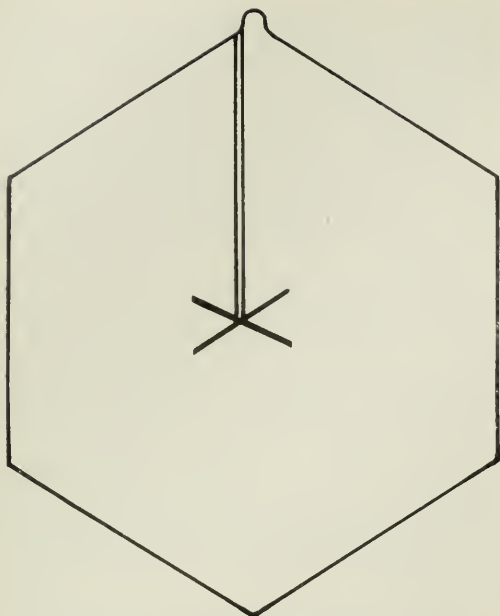


FIG. 2026. DISCS OF TARRIED PAPER.

(white), Empire State (white).
Late: Late Puritan (white),
American Wonder (white),
Rural Blush (pink).

Radishes. — Early: Rosy Gem, French Breakfast, Red Rocket (red) and Icicle (white).
Late: White Strasburg, Long White Vienna. Winter: Long Black Spanish, Chinese Rose-colored.

Rhubarb. — Linnæus and Victoria are the most satisfactory.

Salsify. — Long White is the best.

Spinach. — Victoria and Thick-leaved are the best.

Squash. — Early: White Bush Scolloped and Summer Crook Neck. Late: Hubbard.

Tomatoes. — Early: Conqueror, Dwarf Champion, Canada Victor and Early Ruby. Main Crop: Brinton's

Best, Livingston's Favorite, Matchless, and Baltimore Prize Taker.

There are many varieties of this vegetable which are almost equal in excellence and productiveness. Spark's Earliana is a promising early sort tested this year.

Turnips.—Early: Extra Early Milan and Red Top Strap Leaf. Swedes: Champion Purple Top, Skirving's Improved.

The maggots which attack the roots of cauliflowers and cabbage often make these vegetables very difficult to grow, as there are few practical and satisfactory remedies. As long ago as 1889, tarred-paper cards, or discs were used as a preventative against these insects, and although they have proved very successful when properly handled, they have not come into general use in Canada. They are known as the Goff tarred-paper cards, as they were first described by Prof.



FIG. 2027. CAULIFLOWER AT CENTRAL EXPERIMENTAL FARM.
Goff tarred paper cards used. No cards used.

Goff, of Madison, Wis. These cards were described by Dr. Jas. Fletcher, Dominion Entomologist and Naturalist, in his annual report for 1898, and were found by him to give good satisfaction. The cards are made of a thinner grade than the ordinary tarred paper, so that they will be more flexible, are three inches in diameter, and are six-sided. There is a slit from the circumference to the centre, where there is a star-shaped cut. As soon as the plants are set out the discs should be put on. The slit to the centre permits of slipping the card on the stem of the plant, the star-like cut in the centre making it fit very closely. After this is done it is pressed flat upon the ground, the surface of the latter having been previously levelled, so that the fly can not crawl under

to lay her eggs. As the insect will, as a rule, not lay her eggs on the card, the plant is practically safe if the disc is put on at the proper time and in the right manner. If the card does not fit tightly about the stem of the plant there will be room for eggs to be deposited. It is very important to put on the discs when setting the plant, as the eggs are usually laid immediately after the plants are set. The photo showing a cauliflower plantation at the Central Experimental Farm, on part of which the discs were used, showing clearly the great advantage of using them.

W. T. MACOUN,

Horticulturist,

Central Experimental Farm,
Ottawa.

BRIEF SKETCH OF LIFE OF JAROSLAV NIEMETZ.



FIG. 2028. JAROSLAV NIEMETZ.

IN THE year 1895 we had a visit from an eminent Russian horticulturist, Mr. Jaroslav Niemetz, of Winnitza Podolie, Russia, who was sent by the Russian

Department of Agriculture to report on horticulture in Canada. We visited the orchards in the Grimsby section with him, and then we went to Toronto to visit the Industrial, a place of great interest to Mr. Niemetz, for it gave him an opportunity of comparing the fruits of Ontario with those of his own country.

Mr. Niemetz was for many years a regular paid subscriber to this journal and frequently contributed to its pages. The following outline sketch was written by his nephew, Mr. Vaclav Niemetz, of Odessa :

“Russian fruit growers have lost in Mr. J. Niemetz one whose public addresses were always received with close attention. He was the second son of the eminent Bohemian author, B. Niemetz, and he inherited from his mother the highest qualities of heart and mind. Left early an orphan, he was unable to finish his course of study, and supported himself by topographical drawing at Prague, where his remarkable abilities in this line were observed by some admirers of

his mother. Those friends collected the necessary means and the young man went to Munich to take a course in the Academy of Fine Arts. After this he was invited to teach drawing in a rich Russian family. At the close of his sixtieth year we find him again in Odessa, earning his living by teaching, and soon after he was admitted as teacher of drawing in Real College. His moral qualities and his successful methods of teaching led to his appointment as inspector in the same college.

"About this time he purchased at Winnitza a small garden and shortly developed a passion for fruit growing, and he became such a specialist on small fruits and wine that all his friends were surprised at the vast extent of his knowledge.

"From Odessa he was removed to Rovno, in Wolinia, and finally, to his great satisfaction, to Winnitza, in Podollie. Here he was able to devote all his leisure to his beloved occupation. He procured plants, cions and seeds from many countries, such as Bohemia, France, Germany, England, Canada and the United States, and in such quantity that his garden had the appearance of an experiment station. He conducted quite extended correspondence with many eminent fruit growers of both the Eastern and Western Hemispheres, sending them

in exchange, grafts, plants and seeds, and taking considerable care to acquaint foreigners with the excellence of Russian varieties. Frequently he suffered serious personal loss and met with disappointing failures through carelessness of Customs officials, loss of precious grafts, by reason of their long journey, so that recently he had sold some trees and cions in his collection to cover some of the enormous expenses incurred in securing them.

"His work was brought to the notice of the public by the Russian Minister of Agriculture, who proposed that he be sent to America to learn the methods of fruit growing adopted there; so in 1895 he made the tour of the United States and Canada, especially the fruit-growing sections.

"After returning home he suffered very much with his eyes and was ill with inflammation of the lungs, which causes delayed the publication of his report, which did not appear until the summer of 1898 and was most highly valued by fruit growers.

"Wishing to consult a specialist about his eyes, he set out for Berlin, but at Prague he was again taken ill and died two weeks later. He was buried by the side of his mother at Prague, but his name will ever continue to live among fruit growers."

"THE CUT-LEAVED BIRCH is one of the very best trees for small lawns," writes Eben E. Rexford, in the April Ladies' Home Journal. "It is entirely hardy. It is easily transplanted and it requires as little attention as any tree I know of. And it is very attractive, with its finely cut foliage, which is always bright and healthy, no matter what the season may be. The Mountain Ash is another good tree for a small place. It is a strong, rapid grower, of utmost hardiness, fully equal to taking care of itself after it gets a start. It has very pleasing foliage, and great drooping clusters of scarlet fruit. The Japanese

Maples are lovely trees, in all stages of growth. Most varieties have delicately cut foliage, a broad, spreading habit, and the merit of rapid growth combined with great hardiness. Some varieties have slender, drooping branches, and make extremely attractive specimens for use on an open lawn where their beauty may be fully displayed.

The Negundo or Ash-leaved Maple (Box Elder) is of extremely rapid growth, and on this account many persons who are impatient of results select it for lawn use. It is a clean tree, has attractive foliage, is as hardy as an oak, and become quite a good-sized and a hardy specimen in five or six years."

THE ASPARAGUS RUST (PUCCINIA ASPARAGI, D. C.)

With stealthy pace,
With Tarquin's strides, towards his design
Moves like a ghost. —SHAKESPEARE.

ABOUT four years ago a stranger appeared on the Atlantic coast of this continent manifesting an unusually marked partiality for asparagus. Clad with invisibility he entered gardens, without arousing resistance, and proceeded quite leisurely to make himself at home while he feasted at the expense of the owner's asparagus beds. The precise date of his arrival, by what steamer he came, the port at which he landed are all unknown. Unheralded, unseen, he went from garden to garden, leaving all untouched save his favorite asparagus. At length his voracity made such havoc with the asparagus beds of some of the cultivators of this valuable esculent in New Jersey that they became alarmed lest their crop should be utterly ruined. Specimens were sent to the State Experimental Station showing the work of the devouring marauder. This was in August, 1896. The station sent out circulars, setting forth the cause of the injury, to the several Experimental Stations and to the agricultural press of the country, and found that the asparagus destroyer had just been discovered to be at his work in New England, Long Island, and the State of Delaware. In 1898 he was as far west as Michigan, and in 1899 had arrived in North Dakota. It is therefore possible, even probable, that the marauder has entered Ontario and is now "with stealthy pace moving towards his design," the ruin of our asparagus.

This destroyer is a parasitic fungus, named by botanists *Puccinia Asparagi*, one of the Rusts, a near relative of the Wheat Rust, the *Puccinia Graminis*, which in one form of its life cycle infests the berberry ;

but unlike it the *Asparagus Rust* completes its life cycle solely on the asparagus. That our readers may the more readily detect the presence of this rust should it appear we give a short account of its life history.

In the autumn dark lines will be found upon the stalks quite visible to the naked eye as shewn by Fig. 2029. These lines are composed of spores of this fungus, which are analogous to the seeds of flowering plants. These are the winter or final spores, formed



FIG. 2029.



FIG. 2030.

at the end of the season, in which form the plant, the fungus, passes the winter. Botanists have named them Teleuto-



FIG. 2031.

spores (Greek, teleute, the conclusion.) A part of one of these dark lines magnified twenty-five times is shewn by Fig. 2030. The black portion is composed entirely of teleutospores, which appear only as a black mass, but, when magnified 175 times, their form becomes more distinct as shewn in Fig. 2031. Two teleutospores, separated from the mass and magnified 300 times, are represented by Fig. 2032.



FIG. 2032.

When the "winter is past, the snow melted and gone, flowers appear on the earth, and the time of the singing of birds is come," then the teleutospores put forth slender filaments upon which are formed small bodies called *sporidia*; into these the contents, the protoplasm, of the teleutospores is transferred. The sporidia are very easily detached, and, borne on the wings of the wind, are carried far from the place of their birth. Such of them as happen in the course of their aerial journey to be dropped upon growing asparagus plants, when the requisite temperature and moisture are present, throw out thread-like growths called *hyphae* which enter into the stalk and there grow, ramifying into a network to which has been

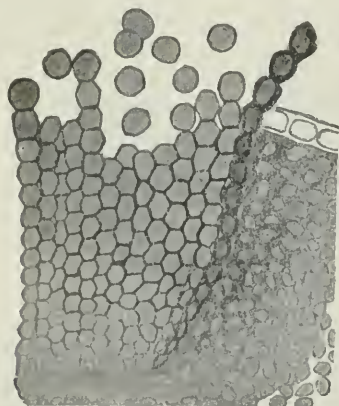


FIG. 2033.

given the distinctive appellation *mycelium*. This is the vegetative portion of the fungus, here in the tissues of the asparagus it feeds on the food which the asparagus has elaborated for its own use. When the parasites have attained a certain state of maturity the organs of reproduction appear upon the surface of their host plant, often the first intimation to the cultivator of their presence.

In the case of this Asparagus Rust we are informed that in America it usually omits the second stage, known as the aecidial stage; yet it sometimes is seen upon asparagus growing in uncultivated places, and in beds not cut. It is also known as the cluster-cup form—Fig. 2033 is a representation of part of a section of the cluster-cup form of this rust magnified 175 times showing the rows of decidial spores; Fig. 2034 shows the spores after they have been taken from the cup magnified 300 times.



FIG. 2034.

When the cluster-cup stage is present the spores shown in Figs. 2033 and 2034 are distributed by the wind, and, becoming deposited on asparagus, penetrate the epidermis, rob the plant in the same manner as the sporidia formed from the teleutospores, and, throwing up the reproductive organs, present to the observer the uredospores, the rust, (*ureda*, Latin, the blasting of plants). When the aecidial stage is omitted then the fruit, borne by the reproductive organs of the teleutospore sporidia, is the Rust, the uredospores. These as shown by Fig. 2035 as they appear to the naked eye, are seemingly mere lines on the surface of the stalk. A part of one of these lines is represented in Fig. 2036 as it appears when magnified 25 times, and in Fig. 2037 when magnified 175 times. A few of the uredospores magnified



FIG. 2035.

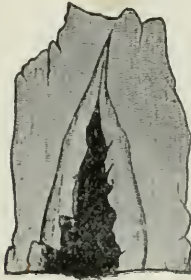


FIG. 2036.

fungus plants, apparently aware of the necessity of providing a thicker walled spore for the winter, cease to grow uredospores and instead produces a crop of teleutospores. In the Asparagus Rust the uredospores are not multiplied by reproduction ; that is, they do not become plants producing more rust, more uredospores, but, shortly after the yellow rust appears on the stalks, the black teleutospores are to be found in the same pustules, thus completing the cycle.

What this parasite accomplishes in the way of mischief is done by the power of

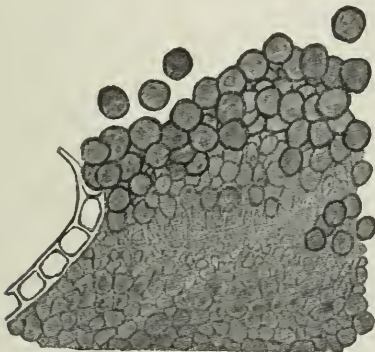


FIG. 2037.

300 times are shown by Fig. 2038.

In the Wheat Rust the uredospores are multiplied rapidly, by reproduction of the same form many times, until near the time of ripening of the grain ; then the

numbers. Shall we count the spores to be found on a piece of asparagus stalk not more than three inches long as presented in Fig. 2035 and interpreted by Fig. 2037, and tell how many they be? Such is the host with which we have to contend now on the war path : infinitesimal in size, infinite in number, "horsed upon the sightless couriers of the air" it comes as destructive, if not as "terrible as an army with banners," and we are powerless to stay its coming. Spraying with fungicides is in this instance of doubtful utility, for such is the foliage and smoothness of the epidermis of asparagus that it is well nigh impossible for the fungicide to effect a lodgement. Nevertheless we should be able to stamp out the enemy by united action of asparagus growers in cutting off

at the ground every affected stalk, as soon as, by its change of color it is shown to be no longer of service to the plant, and burning them forthwith ; for, if the teleutospores are destroyed before they are dislodged

from the stocks where they are formed, then there can be no sporidia in the spring to breed Rust. The importance of *united action* should be apparent to all, and the importance of burning the teleutospores *while yet in the stalk* will be seen when it is understood that the teleutospores produce sporidia without reference to any particular place, but do so wherever they chance to be if only there be the requisite atmospheric conditions.

The writer desires to acknowledge his indebtedness to Professor Byron D. Halsted, of the New Jersey Experiment Station, whose valuable paper on the Rusts of Horticultural Plants has been largely drawn upon, as published in the Transactions of the Massachusetts Horticultural Society for 1900, and the accompanying figures copied to illustrate this paper.

D. W. BEADLE.

207 Givens Street, Toronto.



FIG. 2038.

THE DISTRIBUTION OF AGARICS.

SOME REMARKS ON THEIR EDIBILITY.

DR. Hare's paper on edible Agarics (Feb., 1901) is interesting as showing the irregularity of the distribution of species of this class of plant, than which no other is more cosmopolitan. Besides the "fairy-ring," (*M. Oreades* Bolt), there are seven other species of Marasmius not rare in this part of the province, but I have never seen a living specimen of the acrid one (*M. urens* Bull.) against which Dr. Hare cautions the collector of "fairy-rings." Prof. Peck does not report it in New York State; Mr. Morgan finds it in Ohio.

The other species which collectors of "fairy-rings" are cautioned against, *Naucoria Semi-orbicularis*, Bull., and which Dr. Hare says he has not found around Whitby, is common here. It may be seen in almost every old pasture in warm damp weather in June and is quite likely to be found near to or among "fairy-rings." Its gills are rust-colored, its cap is quite thin and its taste is suggestive of stale beech nuts.

Dr. Hare's paper is interesting also as being the first Canadian record of St. George's mushroom (*Tricholoma Gambosum* Fr.) The tricholomas are numerous in our latitude; Prof. Peck reports over fifty species in New York State, three of them being recommended as edible—indeed none of them are known to be poisonous—but his lists do not include *T. Gambosum*. It ought to be easily recognized from Dr. Hare's description. Dr. M. C. Cooke says of it that its odor is so strong that workmen employed in cleaning it out of English lawns have been obliged to desist, "overpowered by the heavy disagreeable odor." It would be interesting to discover how the species reached the Whitby College grounds. Possibly the mycelium may have

come among the roots of shrubs or plants from Europe.

In speaking of the properties of fleshy fungi, a distinction, if possible, should be made between those that are merely disagreeable or indigestible and those containing some poisonous alkaloid which enters the circulation. The same species seems to vary in the strength of its deleterious and other qualities according to soil and situation and probably age. I have received from Galt and Woodstock samples of *Lepiota naucinoides* Pk. taken from collections of that species alleged to have caused very serious nausea and vomiting. Most eaters of that species, so far as I know, have always enjoyed it. Again, certain fleshy fungi that are innocuous to most persons act, by a sort of auto-intoxication, as a poison in other stomachs. As an example of this, a woman at Aylmer was fatally poisoned a few years ago from eating *Gyromitra esculenta* Fr. while at the same time several other persons who had eaten more freely suffered no ill effects. As its name implies this species is regarded as esculent the world over and it is one that cannot be mistaken for any other. These and other instances that might be added teach the lesson that it is wise to partake sparingly at first of any new kind of mushroom or toadstool. It is better to leave them all severely alone than to eat an amanita verna for example by mistake.

In his future papers it is to be hoped that Dr. Hare will add after the account of each species such culinary notes as the one with which he closes the paragraph on the meadow mushroom. "Fairy-rings" may be cooked so as to be very delicious or they

may be brought on the table resembling so many bits of baked fowl's skin. *Armillaria mellea* Vahl., a very abundant species in Western Ontario, is recommended by some

mycophagists. I should like to see a receipt for cooking it that would produce a palatable dish.

JOHN DEARNESS,

London, 16th Feb. 1901.

CITY STREET SHADE TREES.

CITY improvement is the watch-word of the city to-day. Next to good, clean streets, nothing improves the appearance of a city and makes it more attractive than fine shade trees. Even a stately mansion looks naked without them. London is very well supplied with shade trees, but they are not all that they might have been; and there has been a liberal expenditure of denunciation as to their treatment, with a bewildering diversity of opinion as to what that should be. Much of that has arisen from a failure to distinguish between things that differ. There are a diversity of trees, and there are a diversity of purposes for which trees are planted, therefore there should be a diversity of treatment; but my subject is city shade trees exclusively.

Shade trees are not for ornament only; utility is combined. During our hot summer months shade becomes a necessity for the comfort and well being of the citizens, hence it ought to be regarded as a public duty by every one owning land facing on streets to plant trees as soon as the conditions will permit. And when once planted they should never be cut down if it can be avoided. As it takes trees a long time to attain to their best, they should be guarded with the greatest of care. An abundance of foliage in a city is well known to be conducive to the health of the residents of that city but the free circulation of pure air is a necessity for the attainment of vigorous health. All know how agreeable shade is on a hot day when travelling the street, and every one instinctively makes for it when the op-

portunity presents itself, and it matters little to the pedestrian what kind of shade it is so long as it is dense. Yet to the residents in that locality it may of the greatest consequence, as health is more important than shade, and the one is often secured at the expense of the other. If we take a glance at the treatment usually given to city street shade trees we will get a forcible illustration of how it is done.

When a treeless lot is bought and a house erected thereon, trees are planted to relieve the present nakedness and secure future shade and ornament. Our wide boulevards require two rows, and more are often planted between these and the house, as suits the fancy of the owner. The saplings grow and send out branches seven or eight feet from the ground. These are allowed to remain, and receiving the first flow of sap, grow most rapidly, which checks the growth of those above and causes the trees to grow in width more than height, which in young trees is thought to be an advantage, as it forms a fine round head, giving more shade and that sooner. But trees if they live, will grow and keep growing, and in time their lower branches become thicker than the trunk of the tree above them, the foliage becomes more dense and closer to the ground. No air circulates beneath them. Sun and air always excluded, the soil becomes cold and sour, so that grass cannot grow, and is given over to moss, moulds and fungus. The house is affected by its surroundings, and the health of its inmates suffer. Attention is directed to the cause, when it is dis-

covered that the trees have become a nuisance and must be dealt with accordingly. So the large lower branches have to be cut off, and the trunks thereby disfigured for all their future life and their death hastened. The tops have been dwarfed and deformed, and good shade, combined with the free circulation secured, has been postponed for years whilst they and beauty of form have parted company forever. That is but a picture drawn from what is taking place around us.

The future of trees, their suitability for and their effect on the situation should be taken into consideration at the time of their planting, and kept in mind for their treatment after. To obtain the best effect, the trees on each street should be all of one kind, so as to secure regularity in form and manner of growth. Planted at regular distances apart, and no branches allowed to remain permanently on the trees until a stem of eighteen feet from the ground has been secured. This requires yearly attention, yet will give but little labor, as the branches removed are small and will leave no scar to mar the trunk. The effect of such treatment is to cause the trees to grow rapidly tall, and when once a stem of proper height has been attained a spreading top will soon follow. When the branches meet and begin to crowd, the growth will be forced to the open sides. Then there would be luxuriant shade for the pedestrian, whilst the roadway also will receive the benefit.

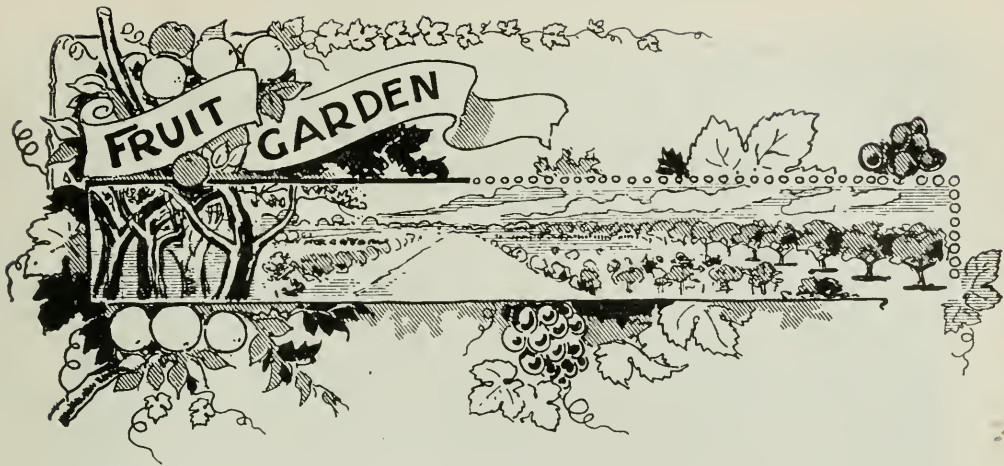
Now let us consider what the reward would be of such a course of care and forethought. Rows of trees with smooth and

stately trunks, themselves a pleasure to look at, bearing aloft their leaf-laden branches, which secures the much-desired protection from the fierce rays of the summer's sun; and also secures the delightful and health-giving sensation of unobstructed currents of fresh air circulating beneath. Vaulted corridors roofed with verdure, and a vista of charming perspective as far as the eye can reach, an inducement for the lively choristers of the forest to take up their abode and give animation to the scene—a consummation all should help to secure and preserve. The busy workers in the city cannot readily obtain the opportunity to enjoy the delights of the country, but in this way these might be in a measure produced in the city for the benefit and enjoyment of all.

But there are more than merely physical gratifications to be obtained from such surroundings. There are mental and moral improvements made possible to every one within their influence. Nothing could more powerfully contribute to the cultivation of the artistic sentiment, stimulate the love of the beautiful in nature, expand the mind, elevate the thoughts and refine the feelings of all that is susceptible. If such a course as indicated had been adopted 25 or 30 years ago, and consistently adhered to, London, which is noted for its abundance of excellent shade trees, would have good cause to be much more gratified with them than it can be, and call forth from visitors an acknowledgment that it was indeed a city pre-eminent for its magnificent avenues—*London Free Press*.

GET THE BEST SHRUBS FOR THE LAWN—
In selecting shrubs for the lawn, quality should be considered first of all. There cannot be many used on small grounds, therefore those selected should be the best. Let me say right here that it is a serious mistake to scatter shrubs over the surface of a lawn. To do so detracts from its dignity. A lawn

as a lawn, should be given a chance to assert itself, and stand on its own merits. If it is broken up by shrubbery it loses its individuality, and is no longer a lawn in the best sense of the word. Shrubs should therefore be kept to the rear of it, or to each side, and the lawn be left perfectly clear.—*April Ladies' Home Journal*.



NOTES ON STRAWBERRIES UNDER TEST AT THE ONTARIO AGRICULTURAL COLLEGE.

TWO hundred and sixty varieties of strawberries have been under test here during the past five years. Careful notes have been taken upon the habit of the plants and the character of the fruit of each variety, and every picking has been carefully weighed and recorded. This has required a great deal of attention and careful work, but it has put us in the position of knowing definitely just what each variety has done, and we can speak with some assurance upon the relative values of varieties which have been subjected to a test of this kind for five years in succession.

In arriving at a conclusion as to which are really the best varieties of strawberries there are quite a number of points besides productiveness to be taken into consideration. With reference to the plant we must take into account its vigor and freedom from disease, its ability to reproduce itself by good strong runners, its ability to fertilize its own blossoms or those of other varieties, and also its season of bloom and fruiting. With reference to the qualities of the fruit, note must be taken of the size, shape, smoothness, and color of the berries, and also of the color, firmness and flavor of

the flesh. Flavor is one of the least variable qualities in the strawberry, and is usually least considered. The qualities most sought in a market variety are large size, smooth round shape, and firmness of flesh. The color may vary from a bright red to a dark crimson, but a dark rich color, enlivened by bright yellow seeds and a varnished appearance makes a variety not only attractive in the market but the most desirable for canning.

Notwithstanding all the many varieties that have been tried we are still looking for the ideal strawberry. There are among those tried many excellent varieties, but even the best are wanting in one or more desirable qualities. In the brief summary here necessary we can only name a few of the leading varieties, mentioning their most prominent good qualities and defects.

In making a selection of varieties, either for home use or market, we do not think it is well for a grower to restrict himself to less than half a dozen kinds. He is then more certain of having both quantity and quality, no matter what the soil or season. Such a collection should include not only a few of the best midseason varieties, which



FIG. 2039. STRAWBERRY EXPERIMENTAL PLOT, O. A. C., GUELPH.

are usually the most productive, but a few of the best early and late kinds, that the fruiting season may be extended as much as possible.

Among the early varieties some of the most desirable kinds are Sadie, Anna Kennedy, and Van Deman.

Van Deman is in many respects an ideal berry. It is very early, of uniformly good size, smooth round shape, firm flesh, and a very handsome dark crimson color, with bright yellow seeds and a varnished appearance. The plant, however, lacks vigor and requires a moist soil and favorable season to do its best. For three years in succession this proved to be our most productive very early variety, but during the last two seasons it has been surpassed by Sadie and Anna Kennedy. It is a perfect flowered

variety and an excellent pollenizer for other early pistillates.

Sadie is a newer variety that has made an excellent record for the three seasons it has been under test. It excels in vigor and productiveness, just those qualities in which Van Deman is lacking. It is also very early and a good pollenizer, but the berries are rather small, although shapely, firm, and of a good color.

Anna Kennedy is also a new variety producing firm fleshed, good sized, very handsome berries of a dark crimson color. All it requires is the productiveness of Sadie to make it an ideal variety. It is a pistillate variety requiring an early blooming bisexual variety, such as Sadie or Van Deman near at hand to furnish the necessary pollen.

When both quantity and quality of fruit

are considered we would mention Clyde, Irene, Warfield, Tennessee Prolific, and Jucunda Improved among the best mid-season varieties.

Clyde comes nearest to the ideal variety in everything but the color of the fruit, which is hardly dark enough. For the three years Clyde has been fruited here it easily ranks first for productiveness. The plant is vigorous and healthy, the fruit large, shapely and moderately firm.

Irene has now fruited with us for three years, and it has proven to be well worthy of a place in any collection. The plant is vigorous and healthy and makes plenty of runners. The blossoms are pistillate. The fruit is of fairly good size, shapely, and of a dark crimson color and handsome appearance. Last year this variety ranked first for total yield, but on an average of the three years' crop it does not equal Clyde.

Warfield is an old standard that has had its ups and downs. In showery seasons it makes a grand yield, but in times of drought its leaves curl up and the plants wither in the sun. It is an excessive plant maker, and throws out too many runners. The flowers are pistillate, the fruit is of medium

size, shapely, firm, and of the dark rich color so much desired for canning.

Tennessee Prolific is a vigorous grower and makes plenty of plants. The flowers are perfect and the fruit is large, shapely, firm, and of a bright color. This is a reliable variety that has on the whole made a good record, ranking near the head of the list among those varieties that have been fruited for five years in succession.

Jucunda Improved.—If yields only were considered this variety would hardly appear in so short a list, although on the average of five years' crop it has made a very fair showing. In everything but yield, however, it ranks among the best. The plants are healthy and make just runners enough to fill the rows nicely. The flowers are perfect, and the fruit is large, shapely, firm, of a dark crimson color and very attractive.

Among the late varieties Saunders is still entitled to first place. In both plant and fruit it possesses as many of the good qualities, and as few of the defects, as any other variety on the list. The plants are healthy and vigorous and the flowers perfect. The berries are large, well shaped, firm, and of good color.

O. A. C., Guelph.

H. L. HUTT.

SOME OF THE NEWER FRUITS.

ABOUT two years since I reported on some new fruits. Two more years of experience have not much changed my opinions.

I see no reason why Dwarf Juneberries should not be found in every garden. They are entirely hardy, and flourish with less cultivation than any fruit that I know of. A mass of white bloom in May a sure crop of sweet fruit at the end of June. The fruit resembles huckleberries, and is just suited to mix with sour red currants in canning or cooking otherwise. Most persons would prefer a few currants with the Juneberries as the latter have no acidity. They are in

size about the same as black currants. Many like them raw; some object to them.

Japan wineberries froze down in the hard winter of 1899, but they promptly recovered and gave a moderate crop of fruit in 1900. They have a peculiar flavor, more acid than red raspberries. The fruit is smaller than red raspberries, and very bright and beautiful. We have planted a row of them for home use. We like them.

Japan plums have a future in front of them.

Ogan, a round white plum, ripens in July and drops promptly to the ground. Answers to cook, but is not very good.

Abundance is not a success with us. Fruit

overbears, and much of it is small and fails to properly mature.

Burbank usually bears immense crops of good sized fruit which it perfects. The tree at the same time makes rampant growths. It is a mid-season variety. The drooping, sprawling growth of the tree is very inconvenient. The quality of the fruit is equal to that of the average European plum.

Wickson is a larger late variety, which may be an acquisition. The fruit often drops before ripening, but some of it is held till quite late.

I have another variety that ripens and holds its beautiful delicious fruit quite late. Fruit varies much in size, and is covered

with bright carmine dots and a white bloom. Quality very good, but there is a flavor in the skin of Japan plums that is rather objectionable. Curculios also fail to flourish in these plums.

Satsuma is a mid-season Japan plum which, externally and internally, resembles a blood beet; fruit is sour, but may in time be in demand for cooking purposes. Japan plums seem to be about as hardy as the European varieties.

The winter of '98-'99 killed some of both varieties where the ground was kept clean. A cover crop or some kind of mulch would in this climate save both kinds.

E. MORDEN.

Niagara Falls, South, March, 1901.

SEASONABLE ORCHARD WORK.

I THINK it the duty of every fruit grower to attend to the needs of his orchard at once; for if neglected now, ten chances to one if the work will be done so effectually after spring work begins. In our own orchard I have no evil results from pruning trees the latter part of March, but if I had only a few trees I would prefer to prune a month later. Then there is the manuring and top-dressing of the orchard that can be accomplished better now than at any future time. There is also a better opportunity of securing the nests of the caterpillars, which are on the twigs or small branches, for they are readily seen before the buds swell; also the cutting out of dead or decayed branches, scraping old and rough bark, thereby destroying hundreds of moths that have made the rough bark their winter quarters.

The fruit grower who is up to the times must attend to these matters promptly if he intends to have a paying crop of fruit. He will also see to it that his spraying apparatus is in perfect working order, and if not in possession of a good spray pump

he will secure one without waiting till half of his crop is injured with insects, and then conclude that spraying is no use. My experiences tell me that two sprayings before the blossoms open is better than four after, except for fungi alone, and even then it is most beneficial.

Owing to the low price of fruit last fall, some growers will be discouraged, and thereby neglect to care for their trees; but let such remember that for strictly first-class apples there was no time, after the fruit was gathered, when a good paying price could not be obtained, and I am sure no reasonable grower would complain at the prices at the present time. I am shipping some apples this week at \$3.00 per bbl., and a full car load left our station last week for Winnipeg at \$2.80 per barrel.

My advice to fruit growers is, keep up the fertility of your orchards; keep them well pruned; keep them well sprayed and free from insects, and your orchards will well reward your efforts.

Whitby.

R. L. HUGGARD.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE—III.

THE ORIGINAL HOME OF THE SAN JOSE SCALE.

ANY attempts have been made in recent years to fix the original home of the San José Scale. California, China and Japan, each in turn, have been honored in this connection, but no evidence of a definite trustworthy nature has been produced to determine for a certainty the nativity of the Scale.

The real object of all such investigations was to ascertain what are the natural enemies which kept the Scale in check in its native home, for it must be evident that some influence must be at work there, holding in check this most prolific insect, which has spread so rapidly in America when free from its usual enemies. Many are of the opinion that if these enemies could be discovered it might be possible to import them, and propagate them among the scale infested orchards of this country.

While it is true that very few successful experiments in the importation of the enemies of injurious insects have been carried out, yet there is no reason why we should become discouraged in the case of the San José Scale. Much has been learned by the failures regarding the conditions which are necessary for the successful importation of predaceous insects. In the first place, the climate of the native country of the predaceous or parasitic forms should not differ very much from that of the country to which they are taken; and in the second place, the parasitic forms should find insects in their new country with which they are already acquainted. To induce foreign parasites, etc., to prey upon insects altogether unfamiliar to them would require an adjustment of conditions which is usually only possible in nature after a long period of time. The success of the *Vedalia* introduction into Cal-

ifornia in checking the *Icerya* or *Cottony Cushion Scale* resulted from the fact that the *Vedalia* found the identical species of scale with which it was quite familiar in Australia.

Last summer, Mr. Krwana, a Japanese student of Entomology in Stanford University, California, returned to Japan for the purpose of collecting and studying the scale insects of his native land. He found the San José Scale widely distributed in most of the islands, in the interior as well as along the coast. He observed, moreover, that it was doing comparatively little injury in the orchards, where it was found on plum, pear, apple, Japanese quince, currant and willow.

Several enemies of the scale were quite common, among which were three species of lady-beetles, a chalcid fly, and the larva of a moth; and it is the opinion of Mr. Krwana that these are the agents which keep the scale in check. Curiously enough the scale was not found on any wild, uncultivated tree or shrub, an observation which may be explained by the fact that orchard cultivation has been in existence in Japan for many centuries; and that the pest has taken more kindly to the cultivated trees and shrubs than to the uncultivated wild forms. Subsequent examinations, however, may discover the scale on the wild trees.

It is to be hoped that experiments in the importation of these enemies of the scale may be tried, and that another brilliant success may be chronicled in the annals of economic entomology.

SPRAYING.

Experience has shown very conclusively that the great secret of success in spraying is spraying early, spraying several times during the season, spraying every year, and spraying intelligently. When we know that

some insects pass the winter in the adult stage, and are ready at the earliest opportunity to begin egg-laying, or that others winter over as half-grown caterpillars, ready to begin eating the tender parts of the young buds with the first glimpse of spring weather, we can readily understand the importance of early spraying with paris green. But early spraying is of even greater importance in preventing the growth of fungi which reproduce by spores. Frequently winter spores are formed in the fall, and live over in the fields, and in the crevices of the bark or in other places on the trees. When the fruit and leaves form in the spring and summer, the spores are often blown on them, and soon give rise to diseased conditions. Early spraying with copper sulphate (3 lbs. to 40 gallons of water) while the trees are dormant and with Bordeaux mixture when the leaves are unfolding, will kill many of the wintering spores. It is necessary to spray several times during the season, for insect pests are continually appearing and no month of the summer is free from their attacks. Moreover, some leaves develop much later than others on the same tree, and escape the first spraying with copper sulphate or Bordeaux mixture. These leaves should be sprayed to prevent spores developing on them. The fruit would also escape the first spraying, hence the necessity for spraying them to prevent the attacks of fungi.

Many owners of orchards are probably asking themselves the question, "I sprayed my orchard well last year, shall I spray it

again this year?" There should be no hesitation whatever in this matter. Spray every year, for it is impossible to get rid of fungi entirely, and the season may be very favorable for their spread and development.

Many people spray who do not know the reason why they are spraying. They think that fungous diseases may be cured by the application of Bordeaux or some other fungicide at any stage of the disease, whereas the real purpose of spraying is to prevent the germination of the fungous spores that have been blown upon the leaves, branches and fruit. Masee says: "The old maxim, 'prevention is better than cure' embodies the keynote to success in combating plant diseases." When once the spore has germinated and the thread of the fungus has obtained an entrance into the interior of the leaf, it is impossible to cure the disease, but it is possible to prevent the disease from spreading to other plants, by killing the spores produced by the fungus.

It will be seen how important it is to spray intelligently. The operator must study the weather conditions, and watch carefully the effect of rains on the previous spraying. He must note the time to spray with ammonia-copper carbonate instead of Bordeaux so as not to spot the fruit. He must suit the solution to the plant so as not to injure tender forms; and he must study the various kinds of spray pumps on the market, secure the best, make the solution properly, and spray thoroughly.

W. LOCHHEAD.

WATER-LILIES ARE EASILY GROWN.—All that is needed to grow water-lilies is a tub, sunlight from six to eight hours a day, some rich garden soil, and a little water. The easiest way to grow them is from seed, and the prettiest varieties are the African, or Zanzibar; they are purple, blue and red. To sow them take a common bowl and half fill with finely sifted soil packed down level and

hard. On the surface scatter the seed evenly and cover with not over a quarter of an inch of fine sand; then very gently fill the bowl with water so as not to disturb nor wash away the sand. Place where the water will be kept at a temperature of about eighty degrees. In two weeks they will be ready for transplanting. — *April Ladies' Home Journal*.



TIMELY TOPICS FOR THE AMATEUR.—XIV.

GARDEN ANNUALS AND BIENNIALS—
 The many beautiful species and varieties of these two classes of plants are more particularly suited perhaps for the amateur flower-lover than for the commercial or professional florist. With the exception of a few that may be termed staple or standard kinds, such as sweet peas, asters, mignonette, zinnias, phlox drummondii, nasturtium, antirrhinum, and perhaps a few stocks and cosmos, very few of the remaining varieties are of sufficient merit or attractiveness to warrant their being grown to furnish a supply of cut flowers. The latter feature is however, as a rule, a secondary consideration with amateurs, as the bright and pleasing appearance of the flower garden or lawn is usually their first consideration.

The list of annuals, etc., mentioned in the February number of this journal was selected mainly with a view of furnishing varieties of easy culture, and that would also give a successive supply of cut flowers, as well as to assist in brightening up the flower garden in summer. One omission in the list cannot however be overlooked, viz., that of the sweet pea. The value of the sweet pea, especially for cut-flower purposes, can hard-

ly be over-estimated, as so many beautiful varieties and types of these sweet-scented favorites can be so easily obtained, and the fact that cutting the flowers regularly and not allowing any of them to seed, not only adds to their effectiveness as decorative plants, but also prolongs considerably their period of flowering.

One objectionable feature with annuals is, that unless early sowings are made either in the greenhouse, hotbed, or perhaps in a window, the flower border is almost bare and devoid of foliage and flower during the spring and the greater part of the summer. This plan of raising garden annuals under glass is a comparatively difficult and delicate operation with most of the varieties. There are few, if any professional gardeners or florists, but will frankly acknowledge that a collection of early garden annuals are more difficult to succeed with, if started under glass, than a collection of orchids or exotic plants. Unless the seedling plants are attended to very carefully, more especially as regards watering and transplanting them, partial or total failure is sure to be the result. The most critical period perhaps is when the young plants are transferred from the almost tropical climate of a greenhouse

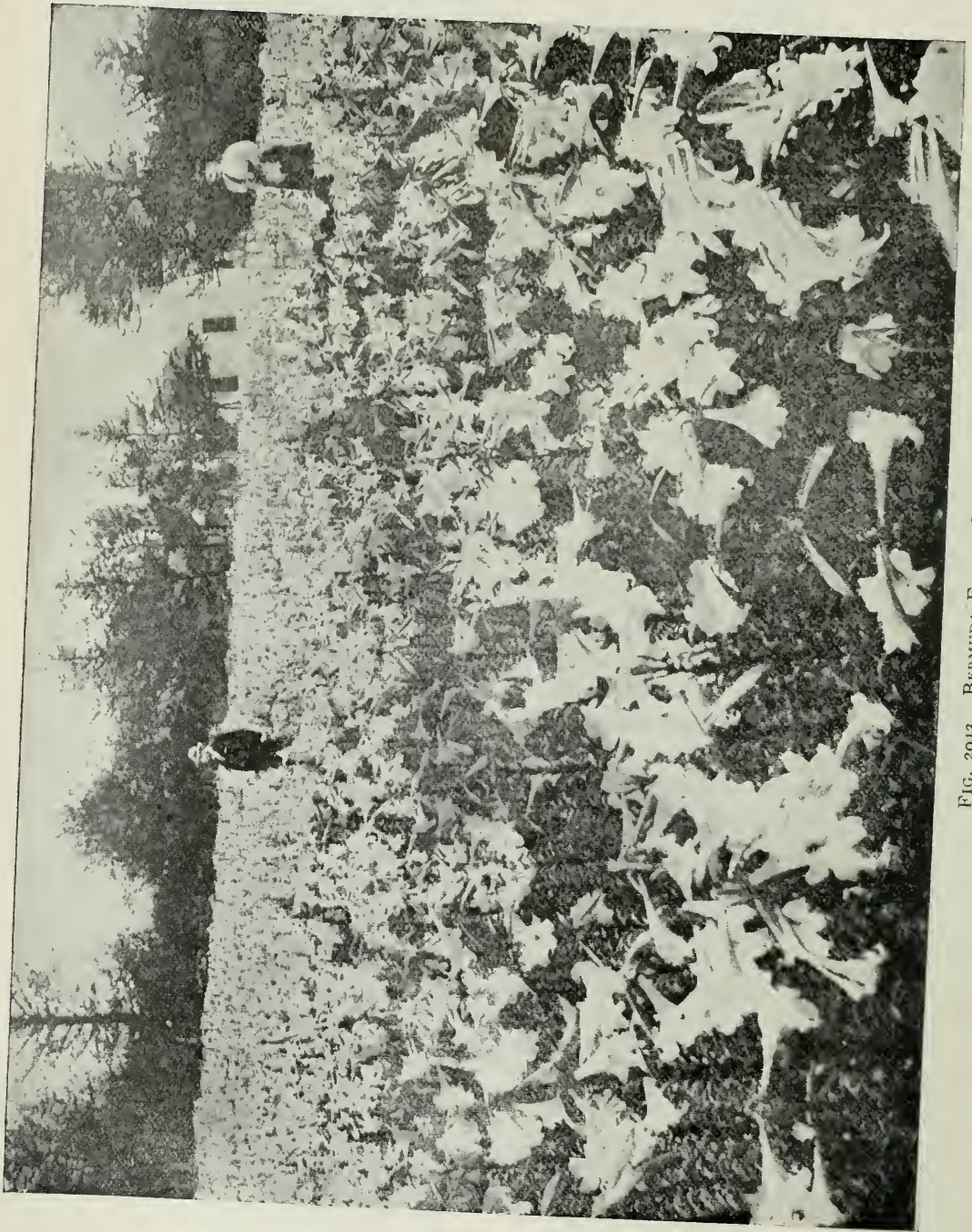


FIG. 2043. BERMUDA EASTER LILIES.

or hotbed, to the uncertain and variable temperature usually experienced out of doors in spring and early summer. Careful watering and shading the young plants from the hot sun for a few hours at mid-day, is generally necessary for a day or two after bringing them from the greenhouse or hotbed. A little protection on cold nights is also advisable for a time, until the plants have become accustomed to the changed condition of their surroundings. This hardening-off process as it is termed, is not however as a rule quite as difficult with plants raised in pots in a window, as it is with those raised in a greenhouse or hotbed.

The most natural, and probably the most certain methods to grow annuals is either to sow the seed in the open border, or to sow them in a cold-frame or seed bed specially prepared for them out-of-doors. The latter method is probably the best, as the young seedlings can be better attended to in the first stages of their growth in a small frame, than if sown in the open ground. A few varieties such as stocks, mignonette and nasturtiums should be sown in pots, a few seeds in each pot, and grown on in these until ready for transplanting into the border, as these varieties do not transplant as successfully as many others if the roots are disturbed in transplanting them. Castor oil beans (*Ricinus*) should be planted singly in three inch pots. These latter succeed best started in a warm place either in a hotbed or greenhouse, or in the window. Early in June is soon enough to plant the ricinus out of doors, and even later than that in late seasons, as a slight chill ruins these tender plants very quickly.

The cold frame mentioned for raising annuals can be easily made by nailing some pieces of 1 x 12 inch board together, so as to make a frame of the required size. Quite a quantity of seedling annuals can be raised in a very small space in this manner, as a bed two or three feet square will provide an

ample supply of plants for an ordinary sized garden. A sash is not necessary except perhaps on very cold nights or days. Some slats laid across the frame and covered with thick matting in cold stormy weather will answer almost as well as a sash, and is very much safer. Unless the sash is carefully shaded and either lifted off or tilted up on hot sunny days, it is a source of danger. Neglect in attending to shading and ventilating frames where sash is used, has accounted for the sudden destruction of many promising batches of young seedling plants.

About the middle or end of April, or perhaps early in May will be soon enough—if the season is late—to sow most annuals and biennials out-of-doors as before mentioned.

The frame should be placed in a warm, sheltered sunny position of the border, and about six inches of light rich loamy soil put into it. Banking up the frame on the outside with manure or soil will not only assist in keeping out the cold, but also prevent the soil inside from drying out around the edges. As soon as the soil is sufficiently dry and friable to work easily without clogging, the seed can be sown. Drills of the required depth and about two inches apart will be found to be the most convenient for sowing the seed in.

Aster, zinnia, stock, and seeds of a similar size to these should be sown $\frac{1}{4}$ of an inch deep, whilst smaller seeds such as *campanula media*, *antirrhinum*, etc., should only be barely covered with soil. Use a watering pot having a very fine rose or sprinkler for watering these small seeds so as to prevent rinsing.

The pots of stock and nasturtium seeds, should be plunged up to the rim in the soil. This plunging process will prevent them from drying out too rapidly, a condition that is dangerous to the young seedlings; and one that is hard to avoid unless the pots are plunged so as to prevent it. Mignonette is best sown in the open ground where it is

to flower, unless sown very early in pots in the house or greenhouse.

The seedlings should be planted out from the frame as soon as they are large enough to handle. Choose dull showery weather if possible for this operation. Water and shade the plants as required for a few days. For shading, a few pieces of shingle or slats of wood placed so as to break the rays of the sun for an hour or two at mid-day, is better than shading the plants too closely with a close covering. When once well established the plants will require very little attention beyond watering in very dry weather. Even when sown in the open ground, young seedling annuals will benefit by being partially shaded for a few hours during the hottest part of the day. The most critical period with seedlings is just when the seeds are germinating. Allowing the seed to become dry, and a few hours' exposure to the hot sun at this time will prove fatal to most young seedling plants. Water should be given early in the morning before the sun is very powerful.

Among biennials there are only a few species really adapted for successful culture in our gardens; hollyhocks and the various double and single types of the *campanula media* being about the most remunerative and attractive of this class of plants. Even these are difficult to bring through the winter in many localities, unless well protected during very severe weather, and early in the spring when the snow has melted, leaving the plants bare and exposed to severe frosts at night, and the blistering sun in the day time. The *campanula media* will however come through the winter successfully some seasons without any protection whatever. The spike of bloom as represented in the March number of journal was taken from a plant that had not had any artificial protection during the preceding winter. The position it was growing in was however fairly well sheltered from the west by a

cedar hedge. Even if only a few spikes of the uniquely shaped flowers of this *campanula* are obtained, they well repay any extra care and attention bestowed on their culture.

The *antirrhinum* or snap-dragons are generally classed and treated as biennials. It is impossible however to winter these over in our gardens without the aid of a sash or frame, even this latter method is risky. They succeed splendidly, however, treated as annuals, as seed sown in March or even in April will produce plants that will flower as early as July or August, and continue flowering until early winter. Some of the newer types of *antirrhinums*, more especially the dwarf varieties, are very pretty and useful, not only to furnish a supply of cut flowers, but their dwarf and compact style of growth and their profuse and continuous habit of flowering, recommend them highly as decorative plants for the flower-garden or mixed border.

Seeds of the hollyhock and the *campanula media* can be sown either in doors in pots or boxes early in the spring or in the frame, or open border later on. Early sown plants of these should be planted out in May or June in the open border where the plants are to flower. Seed sown in July in the open border, and the plants thinned out if necessary, and transplanted early in September, will often come through the winter better than plants raised earlier from seed sown earlier.

As auxiliaries and extras in the flower garden or mixed border, both for decorative purposes and cut flowers, annuals and biennials cannot well be dispensed with. Their many and varied forms and types, as well as the beautiful shades and tints of their flowers, all of which may develop some new and unexpected feature, make them doubly attractive to the amateur flower-lover. The fact that by successive sowings many varieties can be had in flower in the hot months of summer and in early autumn, when flow-

ers are scarce, makes them of value also to the commercial florist. But for the busy or inexperienced plant-lover, where little care and attention can be given their culture, or where they are depended upon entirely to

beautify the garden or to produce a supply of cut flowers, annuals and biennials have often proved to be only a source of disappointment and failure.

Hamilton.

W. HUNT.

MAGNOLIA STELLATA.

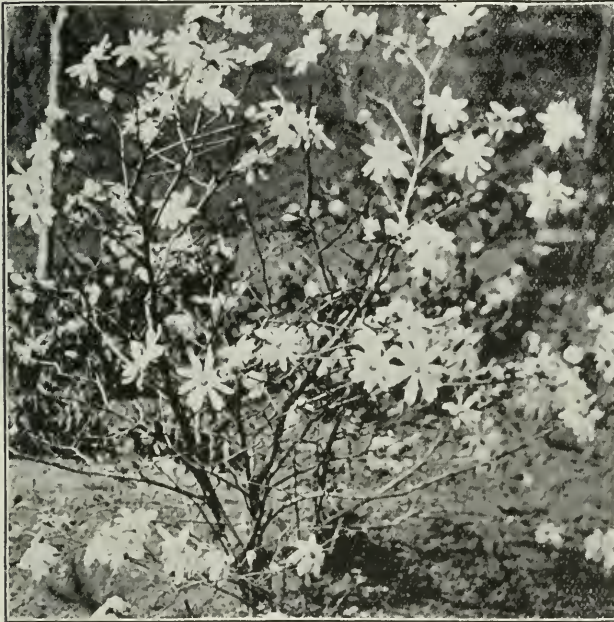


FIG. 2041*a*. MAGNOLIA STELLATA.

THE above is a picture of Hall's Japan Magnolia (*Halleana*) taken last spring during blossoming season. It is of dwarf habit and produces its pure white flowers, that are semi-double and fragrant, before the leaves appear. It is a wonderful little shrub and was obtained eight years ago from the Arnold Arboretum in Boston, and is now a better specimen, I am told, than can be found in those gardens, which is favorable to its hardiness in our

climate. During the first years after planting, a barrel without top or bottom, was placed over it after hard frosts in autumn, then, as it grew larger, a four-sided enclosure was built around it and last year it was only sheltered on the south and west. It was decided the past winter to leave it unprotected and at this date (the end of February) it is still covered with snow. But I rather doubt the good result of such a stern effort at acclimating, for it may end disastrously when the spring sunshine comes hot and strong, while yet the sap is frozen.

The idea of gradually getting a plant acclimatized seems feasible, but when a severe winter upsets all our theories, and the subject of our experiment becomes but a lifeless stick, we regret the test. Be that as it may in the future, one thing is sure, that among early flowering shrubs none have such a regal effect as *Magnolia Stellata*. Place it as this one stands, in a bed of glowing early tulips that glisten and shade like a rainbow, while it is white and still, full of fragrant blossoms and for beauty without a peer.

ANNIE L. JACK,
Chatauguay Basin, Province of Quebec.



FIG. 2041. AZALEA INDICA.

GREENHOUSE, WINDOW AND GARDEN.—IV.

APRIL will be a busy month in the greenhouse. Potting late struck cuttings from the cutting bed, and potting earlier struck plants of coleus, ageratum and bedding plants generally into larger pots, will have to be attended to.

Fancy caladium corms or bulbs, and tuberous begonias that were placed in sand in the cutting bed last month will soon require to be potted. When the new roots are about an inch long is about the time to pot them. Pot the tuberous begonias into well drained six or seven inch pots, as they are difficult to re-pot. The caladiums can be potted into smaller pots as they are not so difficult to re-pot later on.

Young chrysanthemums must be potted into larger pots. Allowing the roots of

these to become pot-bound not only checks growth, but is an inducement for disease, especially "rust," to develop itself. A few cuttings of chrysanthus can still be started for planting thickly on the benches or for growing in pots in the greenhouse.

Carnations can be planted out in the open border as soon as the weather is suitable, which is often not until the end of the month or early in May perhaps. Carnations are to a certain extent hardy, but plants that have been grown under glass must not be exposed to severe frosts unless they have been well hardened before planting them out. Pinch the tips of the growth of the carnations out to induce a bushy, sturdy growth.

Pots of violets that have done flowering can be divided and repotted into 4 inch pots.

The pots can be plunged outside toward the end of the month in a partially shaded position in the garden.

Seedling plants of gloxinia, cyclamen, primula and tuberous begonias can be transferred from the seed pans or pots into shallow boxes, as soon as they are large enough to handle nicely.

Seeds of early annuals and biennials should be transplanted into pots or boxes and placed out-of-doors as soon as the weather is at all suitable. A little shade and protection on hot days and cold nights will be necessary for these for a short time when first put outside. The plants should be well rooted if possible in the boxes, before being put out.

Cuttings and young plants of summer flowering begonias will require potting into 2½ inch pots as soon as rooted. One half loam, and one part each of sand and leaf soil suits these begonias very well.

Plants of azalea indica will require syringing regularly every morning on fine days. Some of the late flowering varieties may perhaps yet be showing some bloom, and care must be taken not to syringe these very heavily.

Lilium Harrisii seems to be grown in less quantities year by year. Immature and diseased bulbs are largely accountable for non-success of recent years with these useful Easter plants.

Roses in pots, or planted on benches, will require plenty of water at the roots. Syringing and fumigating must not be neglected, as insect pests develop very rapidly at this season of the year.

Ventilation must be given freely on hot sunny days. Opening the ventilators as early in the morning as possible consistent with safety, will prevent "fogging" or "damping-off" of the flowers of geraniums, pelargoniums, and other plants.

Dampen the floors early in the afternoon and close the ventilators before sun-down.



FIG. 2042. ECHEVERIA SECUNDA GLAUCA VAR.

THE WINDOW.—All plants such as palms, dracenas or cordylines and foliage begonias, that require repotting, can be potted in April or May, if proper potting soil can be obtained. Unless suitable soil that is dry and in good condition can be obtained, the plants had better not be potted until later.

Annuals that were sown early will perhaps require thinning out; asters, zinnias, dianthus, gaillardia and phlox, transplant very easily. Harden these plants off gradually by placing them outside on fine days for a few hours.

Several kinds of the echeverias make pretty window plants and are easy to grow.

A mixture of rather sandy potting soil suits these plants very well. In summer most of the varieties can be plunged, pot and all, in the garden from June until September, where they will almost shift for themselves. *Echeveria metallica* is an easy variety to grow and, if treated as mentioned, will often develop a flower-spike that produces a number of small, bright red blossoms, that will brighten up the window during a great part of the winter.

The variegated echeveria, sec. gl.

variegata, is a very prettily marked dwarf-growing variety. The plant as shown in the cut is only about four inches in height and a little broader, but its prettily marked, fleshy, pale green leaves that are delicately striped and shaded with white and pink, makes this diminutive type of these plants very conspicuous and pretty when placed so as to contrast with plants having different colored foliage. This variety succeeds best kept in the window all the time, and must not be potted very frequently or given too much water, especially in winter.

Fuchsias must be syringed once or twice a week to keep down red spider.

Cuttings of geraniums, fuchsias, lantanas and similar plants will strike now if placed in sand. Care must be taken not to keep cuttings continually soddened with water. It is better to place them a little in the shade if they wilt, than to deluge them with water all the time to keep them from drooping.

THE GARDEN.—The bulb beds can usually be uncovered about the middle of the month without any fear of injury from frosts to their occupants.

Shrubs and all tender plants, that have been covered up or protected during the winter, can have their winter covering removed by degrees. Sudden exposure to sun and air is sometimes detrimental to many delicate plants, after being closely covered during the winter.

All rubbish and leaves should be raked up and burned. The ashes will make a good fertilizer for use in the fruit, flower or vegetable garden.

Sow sweet peas in drills three inches deep as soon as the ground can be worked. Early sowings of these usually give the best results.

Give the herbaceous border and all small fruits—except strawberries—a coat of rotten manure; this should be forked under the ground as soon as convenient. Strawberry

plants should have their winter covering removed.

Hardy rose bushes should be pruned at once, if not already done. These should also have a coat of manure or some bone dust forked in around them, before growth commences.

In the vegetable garden the asparagus bed will require the first attention. Fork it carefully over as soon as possible, and give it a good dressing of salt and nitrate of soda, as recommended at page 32 in the January number of Journal.

Plant artichokes as soon as you can, after the frost is out of the ground. Whole, uncut sets of these nutritious, but little used, vegetables must be planted to secure a crop. Plant the sets four inches deep, and eighteen inches apart in the rows. The rows should be about three feet apart.

If early cabbage and cauliflower plants have been grown, they can be planted out about the end of the month, or early in May.

A sowing of early and late varieties of peas should be made as soon as the frost is out of the ground. By sowing early and late varieties together, successive pickings are secured.

Parsnips and onions should be sown as soon as the soil can be raked without clogging the rake. These cannot be sown too early if the soil is in proper condition. Any parsnips that were left in the ground during the winter should be dug up and placed in the cellar. These will be found to be in splendid condition for the table, after being subjected to a winter's frost, and are far nicer flavored than those dug in the fall, besides being more wholesome.

A row or two of early carrots and beets should be sown, the main crop of these should be left a week or two later.

Parsley seed is also best sown as early as possible. Sow it thickly in drills about half or three-quarters of an inch deep. The

ground where it is sown should be raked level, and the soil pulverized fine. Parsley seed is very slow in germinating, taking three or four weeks before it shows any sign of growth, unless the weather is very favorable.

A row or two of lettuce seed should be sown as soon as the ground can be worked nicely. The early Ohio and the Hanson are two good varieties.

A packet of leek seed sown early will give quite a number of plants for planting out later on. Leek seed should be sown in shallow drills about three-quarters of an inch deep. Later on, when the plants are four or five inches high, they can be planted in shallow trenches in a few inches of soil,

underneath which has been placed some well rotted manure.

It is hardly safe to plant dwarf or pole beans until the first or second week in May.

A few sets of early potatoes can be planted early in May, or earlier if the weather is suitable. The Van Ornam and the early Ohio are two of the best first early kinds.

A good sized bed of spinach should be sown early, as the first sowing is usually the most productive and nicest eating. Late sown spring spinach is an uncertain and oftentimes useless crop, as it is generally tough and flavorless in the hot weather. The Viroflay is about the best variety for spring sowing.

Hamilton.

W. HUNT.

HOW TO MAKE CUTTINGS.

A BIT of a plant stuck in the ground stands a chance of growing and this bit is a cutting. Of most flowering plants cuttings or slips are taken from the green or growing wood. To tell whether the wood is in the right stage for taking cuttings give it a quick snap between the fingers and if it snaps and hangs by the bark it is all right; but if it bends without breaking, it is too young or old; or if it splinters, it is too old and woody. Sand or gravel is the best soil to start the cuttings in. It should be kept wet all the way through and be protected from the sun and too

rapid evaporation. A newspaper thrown over a box of cuttings is a good protection.

The tips of strong, upright shoots usually make the best cuttings. Each slip should have a joint near the base. Allow two or three leaves to remain near the top and if the leaves are too large, cut them in two. As soon as new leaves start well and the cutting is rooted, it may be potted into good soil in pots or boxes, but it may take several weeks or even months for the cutting to take root. As long as they remain green they are all right.

THE WAY TO FORCE PLANTS TO BRANCH.
—There is only one way in which a plant can be forced to branch, and that is by cutting off the stalk. The plant thus interfered with will make an effort to grow, and either a new shoot will be sent up to take the place of the lost top, or several

shoots will be sent out along the stalk. If but one starts cut it back. Keep up this cutting-back process until you have obliged as many branches as you think are needed. Persistency and patience will oblige the plant to do as you would like to have it do.
—*April Ladies' Home Journal.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

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

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

THE LEGAL APPLE BARREL.—Mr. E. D. Smith, M. P. for Wentworth, writes that American barrel, holding 96.51 imperial quarts has been made legal in Cap. 37, Victoria 63-64, 1900. The same act makes it punishable with a fine of 25 cents a barrel to use a barrel of smaller dimensions.

YORK IMPERIAL AND SUTTON BEAUTY apples have been fruited at the experimental orchards of the Fonthill nurseries. Of the former Mr. Wellington writes, "We think so highly of it that we are grafting an old orchard on a farm we purchased, entirely to that variety." Of the latter he says, "we believe it all right for Canada. We have sold thousands of trees which will soon come into bearing."

"Great Crops of Small Fruits and how to Grow Them" is not a mere catalogue; it is

the title of a treatise on plant life and the laws which govern the development of fruit in plants, and one which has worked a revolution in small fruit growing. Mr. R. M. Kellogg, the author, writes that he will send it free to those of our readers that apply for it.

WASH FOR SAN JOSE SCALE.—Mr. N. Keep, Winona, has just received the following recipe for a spray to kill the scale and sends it us for publication. He says it was sent him by his father-in-law in California:—40 lbs. lime, 20 lbs. sulphur and 15 lbs of salt; take 10 lbs. of the lime, all the sulphur, and boil till thoroughly dissolved in 20 gallons of water. Slake the balance of the lime and salt together in hot water, mix and add enough water to make 60 gallons. Apply with a force pump when cold.

A DISEASE of the Cherry Tree was noticed early last summer in the cherry orchards of Kent, England. Caruthers, the consulting botanist, says it is a leaf disease, affecting the fruit also, which it renders unfit for market. In the autumn and winter diseased trees are readily detected by their holding their leaves like trees cut down in summer foliage. The growth of the wood is stunted owing to the death of the leaves. He says :

Sections through the leaf stalk show also a very luxuriant growth of the mycelium which is confined to the cortical tissue. It is very irregular in form and pushes its way between the cells. It does not extend beyond the petiole, stopping short at the point where the large cortical cells of the petiole are in contact with the small round compact cells of the twig into which the fungus does not penetrate.

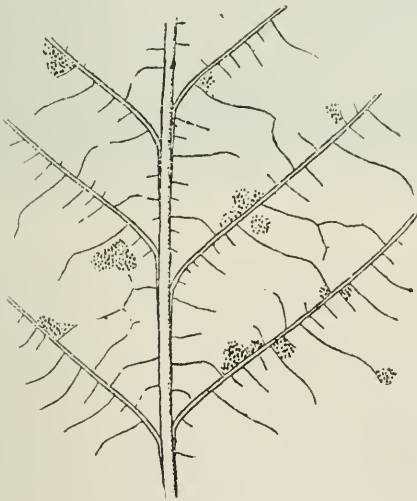


FIG. 2043. Fragment of Leaf of Cherry Tree showing groups of parasitic fungi.

The disease has been spreading rapidly in Kent during the last few years. The varieties of cherry trees that have been reported as specially liable are Waterloo, Bigarreau, Napoleon, Blackhearts, and Eltons; Governor Woods have not as yet suffered much and English and Flemish reds and May Dukes have not been attacked, though odd trees of other varieties, such as Bigarreau, growing among them have been diseased. In one orchard the disease attacked Waterloo first, soon spreading to other kinds, while at another place this variety had not been affected until last year and then only the leaves had suffered; the fruit had not been damaged.

The only remedy proposed in the old country is the gathering and burning of the

leaves. In Canada, no doubt, spraying with Bordeaux would be proposed.

Cherry cultivation is just coming to the front in Ontario, and we hope this disease may not cross the Atlantic.

UNIFORM PACKAGES FOR FRUIT.—The recommendations of our Committee on Uniform Packages have been made into an Act to amend the Weights and Measures Act, under the direction of our member for Wentworth. Mr. E. D. Smith writes that he is having the Bill prepared in both French and English, and that it will be shortly brought in for discussion. The following is a copy.

1. Every box of berries or currants offered for sale in Canada shall be plainly marked on the side of the box, in black letters at least half an inch square, with the word "Short," unless it contains when level-full as nearly exactly as practicable:—

- (a) at least four-fifths of a quart, or
- (b) two-fifths of a quart.

2. Every basket of fruit offered for sale in Canada, unless stamped on the side or cover, plainly in black letters at least three-quarters of an inch deep and wide, with the word "Quart," in full, preceded with the minimum number of quarts, omitting fractions, which the basket will hold when level-full, shall contain, when level-full, one or other of the following quantities:—

- (a) fifteen quarts or more;
- (b) eleven quarts, and be five and three-quarter inches deep, perpendicularly, inside measurement, as nearly exactly as practicable;
- (c) six and two-thirds quarts, and be four and five-eighths inches deep, perpendicularly, inside measurement, as nearly exactly as practicable; or
- (d) two and two-fifths quarts, as nearly exactly as practicable.

3. Every person who neglects to comply with any provision of this Act and any person who sells or offers for sale any fruit in contravention of the foregoing provisions of this Act, shall be liable, on summary conviction, to a fine of not less than twenty-five cents for each basket so sold or offered for sale, and the fine shall go to the informant.

4. This Act shall come into effect on the first day of February, 1902.

LECTURERS TO AFFILIATED SOCIETIES.—Mr. G. C. Creelman, Superintendent of Farmers' Institute, paid us a visit recently to discuss plans for the carrying out of the lectures before our affiliated Horticultural Societies. The Department of Agriculture

has consented to take this work in hand, and carry it on in a much more vigorous manner than we have been able to do. We feel sure that this plan will be a fresh inspiration to all our societies.

Already Mr. Creelman has prepared and sent out the following letter :

DEAR SIR,—At the request of the Ontario Fruit Growers' Association, and with the consent of the Hon. Minister of Agriculture, the lecture work in connection with the Horticultural societies of the province has been transferred to the Department of Farmers' Institutes.

I understand that it has been the custom of the Association in the past to send a speaker to address your meeting once every year, and it is the duty of your association to supply a comfortable hall and advertise the meeting sufficiently to ensure the delegates an interested and representative audience.

I should be glad to hear from you at once whether you wish to continue this practice. I can arrange to have a speaker attend the meeting in your town in March or April, and as a number of your members are also members of our Farmers' or Women's Institutes, it might be possible for us to arrange for one of our lady delegates to accompany the gentleman who will address your meeting. This lady would be prepared to speak on subjects connected with the home, and together with such local talent as you have in your society, would, I think, make a very attractive programme.

It might also be arranged to have the delegate, or delegates, address the school children in the afternoon of the day on which they are to attend your meeting. Besides pleasing and instructing the children, it would be a means of supplementing your advertising, and through them the adults at home would be reminded of the entertainment at night.

Hoping to hear from you at an early date, I am,
Yours very truly,
G. C. CREELMAN.

HYACINTHS AND NARCISSI—A subscriber in Ingersoll kindly encloses to us an amateur



FIG. 2044. TULIPS AND NARCISSI.

photograph of these bulbs in bloom, grown by him in pots without a greenhouse. There were twelve large blooms of Von Sion in the fern dish, and four large spikes of miniature hyacinths in the left. He writes, "I very much appreciate the advertising columns of the Horticulturist, because I have been anxious to have the names of good Canadian firms. I consider Mr. Hunt's articles excellent."

QUESTION DRAWER.

Lawn Grass.

1209. SIR,—I wish to make a lawn in the spring. The soil is fairly good clay loam, having been levelled and put in as good condition as may be last fall; what kind of seed should one sow, and should it be put on thickly and at what time; would a dressing of some fertilizer be beneficial; if so, what kind, and when applied? By answering above you will confer a favor on
Chatham.

SUBSCRIBER.

Maynard, in his Landscape Gardening, replies to these enquiries very well. Only those grasses, he says, which make a fine spreading growth, give good results in lawn making. "The best kinds for general purposes are the bent grasses, and June grass, which spread rapidly by underground

stems that quickly fill up any vacant spaces between the grass plants and thus prevent the growth of weeds. White clover is generally used in making a lawn, as it grows close to the ground and fills up all spaces not occupied by the grass roots.

While spring is the best time in which to seed a new lawn, it may be done at any time if the proper conditions of moisture can be obtained. A very large amount of manure or fertilizer and a moist condition of the soil will enable one to seed a lawn successfully at almost any time of the year, but these conditions are not so certainly secured at any other time as in spring. In fall seeding, unless done very early, the young plantlets are likely to be thrown out by frosts and a second seeding be required in the spring. Another reason why spring is better than summer for seeding is that weed seeds do not grow so readily and abundantly at this time. Coarse stable manure should never be used upon the surface of the land because it encourages the growth of weeds; but if turned deeply under, nothing can be better to hold the moisture in the soil and encourage deep rooting of the grasses.

The amount of seed to be used will depend somewhat upon the season when sown and the probable amount of weed seeds that will germinate with the grass seed. When sown in April, May or September, less seed should be used than if sown in June, July, or August, and more seed than when it is comparatively free from such pests.

It is always best to use an abundance of seed, as there may be some uncertainty of its all germinating. Perhaps the quantity per acre that will give the best results under the average conditions is two bushels of bent grass, i. e., red top or its varieties, two bushels of June grass and ten pounds of white clover. One half of this quantity would be sufficient if it was all certain to

germinate and if no weed seeds started into growth.

After the land has been made perfectly smooth and fine by raking, rolling and re-raking, the seed should be divided into two or more lots. The first lot is then sown in strips or lands, as evenly over the surface as possible, and then raked in, taking care not to move the soil from place to place, thus bunching up the grass seed with it. The second lot of seed is then sown in strips crossing the land in the opposite direction from the first sowing, thus securing the most even distribution of the seed possible.

A rake with long teeth set about two inches apart is better than the common iron-toothed garden rake. If nothing better can be obtained, the common wooden hay rake will be found to work well.

It is the general practice to roll the ground with the garden roller after the seed is sown, but in extremely hot and dry weather, while the soil may be more thoroughly firmed about the seed by rolling, the smooth rolled surface leaves the young seedling so much exposed to the action of burning sun and drying winds that grass often does better if the surface is not rolled at all."

Potatoes Too Small.

1210. SIR,—My soil seems very rich and everything grows well except potatoes and they are very small; what can I put on my ground to increase their size? It has been enriched from the barnyard every year.

D. LAW.

Probably our correspondent has used too much stable manure. The best growers advise no stable manure for the potato, unless it be the year preceding the crop; for they say it lessens the crop and predisposes to rot. Better try superphosphate in the hill at the rate of say 200 lbs. per acre, raked into the surface soil just before planting, and just before the last hoeing sprinkle with wood ashes.

Fall Flowering Shrub.

1211. SIR,—Please tell me of some flowering shrub for the fall that grows five or six feet high, and that would be hardy for this point.

Port Dover.

D. LAW.

We know of nothing better than *Hydrangea paniculata grandiflora*. This is a beautiful shrub, one that succeeds every time up on St. Joseph Island, in Lake Huron. It grows about 8 feet high and blooms in August and September, when very few shrubs are in flower. The flowers are white and borne in great pyramidal panicles a foot long.

Plums Rotting.

1212. SIR,—On receipt of this kindly inform me what will prevent my plums from rotting on the trees. They commence to rot about the time they begin to ripen.

Blenheim.

G. R. GRAINGER.

This is one of the serious difficulties of the plum grower, especially in the case of such varieties as the Lombard which is very susceptible to it. Thinning the fruit before maturity is an excellent plan, for it prevents the spread of the disease from one fruit to another, and at the same time increases the size and improves the quality.

In addition to this, spraying with Bordeaux is specific treatment for plum rot and this should be done both before and after

blossoming, and again after a fortnight or so.

Importation of Nursery Stock.

1213. SIR,—In the Order in Council re importation of nursery stock, page 48, Canadian Horticulturist, you do not give the dates during which in spring and fall the goods may be imported. Would you please give me the dates during which importation is allowed.

Kingsville, Ont.

C. R. MATTHEW.

The dates for St. John, St. John's, Niagara Falls, Windsor and Winnipeg are March 16th to May 15th, and October 7th to December 7th; and at Vancouver from October 15th to March 15th.

Beggar Weed

1214. SIR,—On page forty-two of the January number of the Canadian Horticulturist, 1900, there is an article written by Capt. E. A. Wilson, on the subject of using "Beggar Weed" as a foliage plant, etc. Can you tell me whether that was tried last year in your vicinity, or as far north as this part of the country, and if so, whether the result was satisfactory, or in other words did it prove to be an available legume for this climate. I know it is fine, and will bear Mr. Wilson out in what he said of its merits for such purposes in the south, especially in Florida.—Very respectfully,

Lockport, N. Y.

E. ASHLEY SMITH.

We have mislaid his address, but we think that Capt. Wilson is an American, we think of the Southern States, so that his experience would be no guide to us at the north. We do not know of this plant having been tried in Canada.

Open Letters.**Transportation of Fruit.**

SIR—I notice in the February number of the Horticulturist in connection with the article on the Brantford meeting, that in reporting for the Transportation Committee I am made to say that it is impossible to put 20,000 lbs. of grapes or mixed fruit in an ordinary car owing to the light weight of the fruit, and consequently the shipper is unable to take advantage of the reduction of the C. L. rate in the case of grapes. This statement, Mr. Editor, is incorrect and misleading.

The report stated that the committee had succeeded in obtaining a reduction in the classification of grapes in car-loads of \$1.00 per ton equal to \$10.00 per car-load of 20,000 lbs.; also the privilege of loading in the same car mixed fruits such as peaches, pears, plums, grapes, in

baskets, and apples in barrels, in order to make up a car-load, and the various packages to bear their respective car-load rates. This privilege was largely offset, however, and destroyed by the restriction that in such cases 24,000 lbs. shall be the minimum C. L. This is a manifest injustice as it practically prevents putting in a few barrels in a carload of fruit from time to time at a reasonable rate unless the minimum be raised to a limit where there is too great a body of fruit packed together for the proper and safe carriage of same.

A few of the principal changes in the present tariff and arrangements that the fruit industry requires and which should be granted by the R.R. Companies are as follows:

1st. A more reasonable rate for the carriage of fruit to the Northwest provinces—at present the rate is equivalent to one half or more of the usual

gross value of the goods at wholesale in Manitoba.

2nd. A more satisfactory classification of mixed fruits in one-half carloads and carloads for all points in Ontario and Quebec, of sufficient size to absorb large quantities regularly.

3rd. A considerable reduction in the inter-provincial rate in apples in barrels.

4th. A more efficient and prompt transportation of fruits by special freight service when quantities are sufficient, and better connections with local way freight trains when quantities are smaller.

As the fruit industry grows and extends there is no doubt but that the R.R. people will see the advantage of catering more fully to the trade.

Yours respectfully, W. H. BUNTING,
Chairman of Committee.

St. Catharines, February 28th, 1901.

Appreciation

SIR,—Please accept thanks for the beautiful annual report of the Fruit Growers' Association for 1899. Have received one of the reports every year since 1891, nine copies in all. They are well bound, and are quite an addition to my library shelves.

I prize them for the valuable information which they give on fruit growing as well as general information on all kinds of Horticulture. Have grown small fruit six years in Sinaluta with success, in fact supplied my table all the year round out of a plot of ground fifty feet by forty.

So far mine is the only fruit garden in the village. Am trying to persuade others to beautify their homes in the same way

Again thanking you for the report.

I remain your's truly

Sinaluta, Assa., N. W. T. J. W. MOODY.

Our Affiliated Societies.

TORONTO JUNCTION.—The regular monthly meeting of the Toronto Junction Horticultural Society was held in the council chamber, Toronto Junction, on the evening of February 28th, at 8 o'clock, Hon. President A. Gilchrist presiding. According to notice by the society's private post card mailed to every member, President Colbeck delivered an address on the subject "Southern California—a Horticulturist's Paradise." There was a fair attendance of members who listened with the keenest appreciation to the president's interesting account of the wonderful development which, aided by favorable climatic conditions, had taken place in several sections in Southern California, especially in Riverside and Pasadena.

The lecturer urged that while results equal to those achieved in the towns named might not be achieved in Toronto Junction, a good deal might be done towards that end by a determined effort on the part of members of the society.

A hearty vote of thanks moved by Capt. Ross and seconded by Mr. Watson, was tendered President Colbeck for this interesting and instructive address.

The following programme for the meetings of the society for the year was arranged:—

1. California—a Horticulturist's Paradise. F. C. Colbeck. Thursday, February 28th.
2. Trees and Tree Planting. Arch. Gilchrist. Tuesday, March 26th.
3. The best flowering Shrubs for Ontario. J. G. Goodall. Thursday, April 18th.
4. Herbaceous Plants. Jno. McP. Ross. Thursday, May 16th.
5. Noxious Insects and Insectivorous Birds. C. W. Nash. Thursday, June 13th.
6. Melons. J. B. Spurr. Thursday, September 19th.
7. Bulbs for Fall Planting. Arthur W. Annadale. Thursday, October 18th.
8. What I Saw of Horticulture in Europe. Thos. Rennie, Thursday, November 14th.
9. Parasites. M. A. Chrysler. Thursday, December 12th.

PARIS.—At the annual meeting, the Secretary read the following report;

To the Members of the Paris Horticultural Society.

Your Directors beg leave to present their Second Annual Report as follows:

1. Instead of taking the benefit of 20 per cent. discount allowed by the Ontario Fruit Growers Association, in cash, your Directors decided to take it in extra premiums, believing that the objects of the Society would be better served, by introducing all the new plants and flowers possible, especially as we began the year with a good balance on hand.

2. In March we had a visit from Mr. Bacon, of Orilla, who delivered a most interesting lecture on "Bulbs." This lecture was one of the course under the auspices of the Ontario Fruit Growers Association.

3. Owing to the increased ravages of insect pests, and to the desire of fruit growers to destroy them as much as possible, your directors decided to purchase a spraying machine for the use of members of the society. This was done and the fruit trees of members in the town were sprayed three times, at a cost to the members of actual disbursements. Enough was learned to satisfy us that the use of the machine will be of great benefit, not only to the members individually, but to the Society as a whole, as a means of inducing new members to join. We would recommend that in future, the benefits of the machine be limited strictly to members of this Society.

4. On August 9th, a Flower Show was held in a large tent on the lawn of the Congregational church. The exhibit was large, particularly in cut bloom, and although not limited to members, it is pleasing to note that the great majority of prize tickets were captured by members of this Society. A nominal admission fee of ten cents was charged to non-members, as the receipts showed that a large number of the public took advantage of the show. The plants, grown from

the bulbs distributed to all members were here shown and the awards made. There was a large entry list in this section, thus improving the wisdom of the Society's action in stimulating competition. Not the least interesting feature of the show was the presence of Mr. William Bacon, of Orillia, who acted as judge, and at the same time gave the exhibitors the benefit of his ripe experience in floriculture. His address at the close of the show was most instructive. Our thanks are due to the officers of the Congregational church for their kindness in placing their grounds at our disposal, free of cost.

ORILLIA.—The first monthly meeting of the Directors of the Horticultural Society was held in the Council Chambers on Tuesday evening. Notwithstanding the intense cold, there was a fair attendance. Mr. Bolster, President, occupied the chair. Several matters pertaining to Horticulture were discussed. Mr. Street mentioned a pest, new to this part of the country, which had appeared on his stocks, and it was decided to submit a specimen to Professor Fletcher, of the Central Experimental Farm, with a view to ascertaining the speediest method of exterminating it. Mr. C. E. Grant gave interesting information as to some insects, including the much-talked-of "kissing bug." It was decided to invite Professor Fletcher again to visit Orillia and deliver his lecture on insects and insecticides, Mr. Grant kindly promising the use of his fine collection to illustrate the lecture. Mr. A. B. Thompson brought up the question of encouraging the beautifying of streets and private grounds throughout the town. He suggested that the Town Council, the Board of Trade and the Horticultural Society might issue a circular, offering some encouragement to those who plant shade trees in the streets.

GRIMSBY.—A most successful parlor meeting of this Society was held one evening in February at the home of Mr. M. Pettit, Winona. The principal address was by Mr. N. Keep who gave a detailed account of his experiences in raising flowering bulbs, and at the same time showing specimens of the same, grown in his own little greenhouse. This was followed by an excellent programme of music and recitations.

This Society has adopted the plan of giving away plants as premiums for the exhibits, this

being much more in line with our work than giving money prizes.

OTTAWA HORTICULTURAL SOCIETY.—This is a most progressive Society. The directors have issued a circular to their members, which read as follows:—

In again presenting a Premium List to the members, the President and Directors of the Ottawa Horticultural Society beg to state that the greatest care has been exercised in choosing the plants, bulbs, &c., for distribution, and also in arranging the prize list, and they trust that the liberal offer made this year will, as hitherto, meet with the approval of the members.

With the object of developing bulb growing—both in the dwelling house and in the garden—a list of suitable and desirable bulbs was, last year, included in the Premium List in addition to the spring distribution of plants and seeds. This step proved a most popular one with the members and the results were so gratifying that it has been decided to again this year offer a list of first quality bulbs, selected with a special consideration of the likely conditions of the members. This, together with the spring distribution, special donation, and the large number of prizes and special prizes (see prize list) for exhibitors, is a more liberal offer than accorded to members of any other Horticultural Society in Canada, but by this means the Directors feel that they are fully carrying out the objects of the Society. The Ottawa Horticultural Society is, perhaps, the most prominent and strongest Horticultural Society in Ontario; it has steadily increased its membership roll year by year and it is the hope of the Directors that it will continue to grow and have a marked influence on horticulture in this district. They trust, therefore, that the members will assist in the good work by bringing to the notice of their friends the object of the Society, pointing out the advantages and privileges its members enjoy.

In addition to the choice selections of bulbs to be distributed in September, and the extensive list of plants, &c., to be delivered in May, each member will receive one plant of Maule's Japanese Quince, donated by the Experimental Farm. The flowers of this shrub are very ornamental, being large and bright red, and in the autumn when the golden colored, highly perfumed quinces are ripe it makes a very interesting object.

LITERARY NOTE.

THE MACMILLAN COMPANY has just issued *The Elements of the Theory and Practice of Cookery*; a Text-book of Household Science for Use in Schools, accompanied by a Teacher's Manual, by Mary E. Williams, Supervisor of Cooking in the New York Public Schools; and Katharine Rolston Fisher. The three parts into which the book is divided include (1) Preparatory lessons on Air, Fire, Fuel, Water, Cleaning, etc.; (2) Starch and the Cooking of Starchy Foods, Eggs, Milk, Bread, Food in its relation to the body, Flesh used as Food, Fats and Frying, Vegetables, the Service

of food, Study of digestion; (3) Sugar and sweet dishes, Preservation, Diet for invalids, Diet for babies and little children, miscellaneous topics. The convenient arrangement of the subject-matter its adaptability to individual, group or class work, the saving of time effected by the use of a book containing notes and receipts that have ordinarily to be copied or taken from dictation, and the suggestions to the pupils concerning supplementary reading, are points that will be appreciated readily by the teacher.

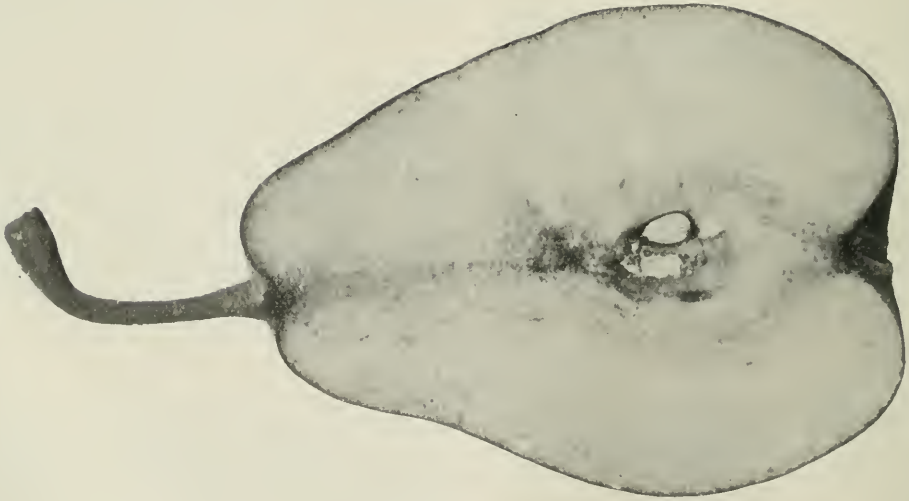


FIG. 2045. THE LOUISE BONNE PEAR.

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* * MAY * *

THE LOUISE PEAR.

HOW that Canadian pears are finding a place in British markets, and are likely to bring our growers remunerative prices, it will be most important to inquire what varieties should be planted for that object. The fewer the number of varieties sent forward the better will these become known in the markets and consequently the readier will be the sale for them if really desirable.

We, in Ontario, grow too many varieties of fruits for our own best interests. We are too easily tempted by the nursery agent to believe in every new kind which he extols, and in consequence we grow too few fine samples of any one variety to make an impression upon any market. This mistake must be remedied if we would achieve success.

All useless and small sized varieties of pears and apples must be top worked to better kinds, and in our new plantations we must plant only the very best. One variety of pear, for example, of its season is enough, unless there is some special reason for more. In Bartlett season, we need no other variety. Then when the Duchess goes forward what better variety could be marketed; especially if you know how to grow it? Then comes

Bosc, Lawrence, and Anjou in order, varieties well calculated to rule their season.

Now if our growers will pursue this course, and plant in quantity just enough varieties to cover the season, they can soon make up car lots of a certain kind, and make that kind known and called for in the best markets of the world.

The Louise Bonne is an excellent old French variety that may well be included in our list for export. In one of our experimental shipments this variety sold at the highest price of any. It is a tender variety, inclined to ripen rapidly after it is gathered, but not so rapidly as the Bartlett. In proper cold storage it goes over in perfect condition, and with its deep red blush on a yellowish ground presents a most tempting appearance, creating a favorable impression which its excellent quality will sustain. One caution however is worthy of the attention of fruit growers who propose to grow this pear for profit, and that is to give it the best of manure and cultivation, else it is inclined to be below size and often knotted on one side. To be fit for export it should be at least $2\frac{1}{4}$ inches in cross diameter, and of perfect form.

The writer has grown this variety for

thirty years past at Maplehurst, on soils varying from sandy loam to clay, and has had best success in a deep, rich, sandy loam not too dry. It should always be grown as a dwarf; we have never succeeded in growing the fruit of first class size on a standard tree. Every year it needs, like other dwarf pears, a careful cutting back to keep up a vigorous growth of young wood, and to keep the form of the tree symmetrical.

Leroy in his *Dictionnaire de Pomologie* gives a curious account of the origin of the name. A gentleman of Normandy named Longueval first grew it from seed in 1780. He lived at Avranches where in a quiet retreat lived an abbè who was esteemed the wisest pomologist of the eighteenth century. Their love of horticulture made these two intimate friends, and one day when dining together, during dessert, the abbè was asked by Longueval to taste the first fruit of this remarkable pear.

Finding it possessed of great merit he courteously said to Madame Louise de Longueval, whose many virtues he highly appreciated;—"That new pear is so perfect, that I beg permission to give it the name which each of us give you, viz., 'Bonne Louise.'"

The following is a brief technical description of this variety:—

Louise—(Louise bonne de Jersey). An excellent export pear if well grown. This and the Duchess have long held the first place as market varieties with growers of dwarf pears in Ontario.

Origin, at Avranches, France about 1780 by Mr. Longueval, and named after Madame Louise de Longueval. About 1827, grafts were secured by Andre Leroy of Angers. The original tree is said to be still standing.

Tree, hardy in southern Ontario, succeeds better on quince than on pear stock; a vigorous upright grower; very productive if well cultivated and set in deep rich sandy loam.

Fruit, large, often $3\frac{1}{2}$ inches in length by $2\frac{1}{2}$ in width; pyriform, sides usually unequal; skin, smooth, yellowish green with brownish red cheek, with numerous red and brown dots; stem, one to one and a half inches long, usually fleshy at insertion on one side, somewhat swollen at each extremity, set in a very slight if any depression; calyx half closed, set in a wide, shallow, slightly plaited basin.

Flesh, white, texture fine grained, juicy, buttery, melting; flavor, pleasant, aromatic.

Season, September 15th to October 15th.

Quality, very good for dessert purposes.

Value, home market fair; foreign market first class.

THE HORTICULTURAL SOCIETY LECTURES.



OUR Horticultural trip has been fairly successful. The meetings have been large and the interest more than usual. I have been asked on every occasion to take up "Trees, Plants and Shrubs for the Ordinary Lawn Lot." The plan of my talk is simple. I take up the principles underlying transplanting, then arrangement of trees, shrubs and flowers in relation to the house and lawn and street, and then take up the characteristics of as

many as possible of the desirable trees, shrubs, vines and herbaceous plants, showing how they may be used to secure a pleasing effect during the whole year. As an introduction I outline the work of the provincial association till it has included all the horticultural interests of the people using the *Horticulturist* as the organ of all these interests and these lectures as an aid in the educational work.

Our Paris meeting was not large. We

had meetings without number to contend with and perhaps the advertising was not as judicious as might have been. We visited many very beautiful grounds in the town and few towns have so many, and I secured a number of views from Capt. Cox which I send you. I am not sure you can use them, but I send them with the chance that you can. If not send them back to the Capt. who is Postmaster of Paris. He will of course give you all information if you could give the grounds a notice. They are quite extensive and take the time of a man during the season.

I have been endeavoring to reach the local papers this trip with what result I scarcely know as they have failed to forward anything to me, except the Galt paper which I forward to you. Miss Rose is doing excellent work. The Galt paper report does not do her justice. Her object is rather to stimulate a love for gardening than to go into detail. She gives an excellent address to the children, taking up the distribution of seeds in a familiar way. Her platform presence is very effective, combining dignity and geniality in manner with freedom of expression and happy turns of thought, so that she never fails to secure the respect and attention of her audience, young and old.

We so often interfere with church meeting that I think it would be well to make a special effort in the future to secure the cooperation of the churches. In the smaller places the church meetings occupy a very large portion of the spare time of the very people we wish to reach. A minstrel show or a comic opera does not draw heavily on this class, but we do. Two or three nights in the week the people we want are at "Young People's Meetings" "Missionary Meetings" "Prayer Meeting," etc. Clearly one or the other must give way. We endeavor to place our meetings on as high a moral plane as the church meetings, and

if the local societies will choose their officers (and in all cases, as far as I know they have done so,) from those who will work in harmony with the churches, I see no reason why we should not ask the churches to postpone their meetings in favor of ours, as ours cannot be postponed. We discussed this matter at Mitchell where we had seven ministers, and the consensus of opinion was that such a plan was feasible. There need of course be no official recognition of the churches, as the whole thing would be a matter of courtesy arranged between the officers of each society, locally. I am visiting as many of the local gardens and grounds as I can. I believe the delegate would greatly increase the popularity and usefulness of the lecture course if he were able and willing to place himself in the hands of a local committee who could take him to the grounds already planted, and point out there, to those who wished it, the merits and defects (he had better confine himself to the former,) of the planting, or go to new places and make suggestions as to the arrangement and selection of trees, shrubs, vines and plants, flower plots, etc., on the ground. He could use these very effectively, as I know from experience, in his evening talk, and at the same time greatly relieve people who are willing to spend money on their places but don't know how to do it with advantage.

I purpose to write later to Mr. Creelman on these points. We are having a very busy trip. I am scarcely an hour between breakfast and midnight that I am not either with the local officers or on the train.

Perhaps some of the subjects I have touched this morning may be profitably commented upon in the Horticulturist. If you think so, why, of course, use anything you can, and I will be glad to develop the points further if you will indicate the line.

Yours very truly,
Seaforth, April 17, 1901. A. McNEILL.



FIG. 2046. ARBORETUM AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

CENTRAL EXPERIMENTAL FARM NOTES—XVI.

FEW persons, probably, were sorry when winter was over this year. Snow fell on the 14th November and covered the ground until the second week of April, making nearly five months during which the soil was not seen. Furthermore, during that long period there was no thaw of any consequence and at times there were long continued spells of quite cold weather, so that when at last the snow disappeared, spring was welcomed more than it has been for many years at Ottawa. During the latter half of March the snow melted steadily, but slowly, as the weather was not warm, and it was unusually cloudy from March 21st until April 10th, there being little sunshine recorded between

these dates. The snow began to go faster after April 1st, as the weather was milder, and there was much rain. On April 10th, when the weather again became bright, all the snow was gone except in the drifts. As there was practically no frost in the ground last winter, the soil could be dug at any time, and as soon as the snow was gone outside work was begun, so that in this respect the spring was more than a week earlier than last year, as the frost was not out of the soil enough to use the spade until April 19th in 1900. The first ploughing was done this year on April 12th. Up to the present time the indications are that most things wintered better than usual. Both large and small fruits are looking well

as are also the ornamental trees and shrubs, with the exception of the Junipers and Retinosporas, the foliage of which was injured considerably.

An unusual injury occurred in the nursery among the young apple trees, as the bark of many of them was badly split within a foot of the ground. The trees grew until very late last autumn and the snow fell early on the unfrozen ground when the young trees were well charged with sap. The cause of the splitting was probably due to the fact that the snow prevented the frost from reaching the lower part of the trunk until very cold weather came and then the severe frost caused the bark to burst.

The trees sprayed with the lime mixture last autumn for the Oyster-shell Bark Louse are already looking much brighter than those not sprayed and large numbers of scales have dropped from the trees and the remaining ones appear quite loose and will doubtless be washed off by rain within a few days.

The clover in the orchards which came through the winter in good condition is already beginning to grow. In one part of the orchard it has already been ploughed under and the land will be re-seeded with it later on. It is the intention again this year, as during the past three years, instead of ploughing under the clover and cultivating the soil, to cut it from time to time during the summer and leave it on the ground.

This system, however, is not recommended where the soil becomes dry and where the trees are liable to suffer from drought.

Visitors to the Central Experimental Farm are often surprised at the number and variety of the trees and shrubs used for hedge purposes, and they manifest much interest in them by asking questions regarding the the best varieties to plant and the methods of growing them. Examples of one hundred species and varieties are now growing

side by side in hedges fifty feet in length and ten feet apart, which present a fine appearance in summer when in full leaf.

The methods to be adopted in growing a hedge successfully are simple, but should be followed if a compact and regular hedge is to be obtained. The young trees or shrubs should be planted in good soil, and if it is not good it should be removed and better earth brought in its place. Young stock from one to two feet in height, should be planted and all cut back to an even height of from twelve to fifteen inches. Evergreens should be procured as compact as possible at the base, for if they are loose and the foliage wanting, it takes them a long time to thicken. The roots should not become dry from the time the shrubs are dug until they are replanted in the hedge-row. Planting is done by opening a trench about a foot wide and placing the hedge plants fifteen to eighteen inches apart in a single row. The trench should be filled with good soil pressed firmly against the roots. Afterwards the surface soil should be kept loose for about two feet on each side of the hedge throughout the summer, and every following season. If the trees and shrubs are cut back when planted they will need no further clipping the first season, but, after that, hedges of most deciduous trees and shrubs require to be clipped twice a year, in the latter part of June and again in August. Regular pruning from the beginning is very essential to successful hedge growing.

The following trees and shrubs, after seven years' test, have proven among the most satisfactory for hedge purposes of all those yet tested at the Central Experimental Farm:

Ligustrum Amurense (Amur privet).—This is the only privet yet tested at Ottawa which has proven perfectly hardy. As the privet is very largely used in Great Britain for hedge purposes, it will be especially wel-

comed by English people settling in Canada. It is a pretty shrub with dark green leaves and forms a very compact hedge.

Rhamnus Frangula (Alder buckthorn)—A rapid growing shrub which makes a firm, compact hedge. Its glossy green leaves make it quite ornamental, and where a tall growing deciduous hedge is desired this is one of the best. The flowering period of this shrub extends over a period of five or six weeks, and during that time it is a favorite haunt of the honey-bee.

The Cathartic Buckthorn (*Rhamnus catharticus*), is also good.

Thuja occidentalis (American Arbor-vitæ)—This is the most satisfactory evergreen tested here for hedge purposes. It is a native tree and quite common in many parts of Canada, growing in a great variety of soils which renders it very suitable for a hedge. Its neat, compact appearance and bright green leaves make it very ornamental in summer, while in winter, although the leaves are duller, it yet remains quite attractive. In 1888 and 1889 more than one mile of this tree was planted at the Central Experimental Farm as a hedge, which is now

very compact and about six feet in height. The American Arbor-vitæ requires only one clipping each year, which is best done in August.


Thuja Occidentalis aurea Douglasii (Douglas' Golden Arbor-vitæ)—This beautiful golden-leaved evergreen is highly recommended for those who desire a golden tinted species for hedge purposes. It has formed one of the most beautiful hedges tested here, being of a bright yellow color, which makes a fine contrast with the green of other hedges.

Picea pungens glauca (Rocky Mountain blue spruce)—The blue spruce makes one of the most beautiful evergreen hedges. Its color is pale, steely blue, which produces a fine contrast with a green lawn. It is a slow growing tree and makes a very neat, compact hedge, requiring little clipping. As this tree varies in color from green to blue, in procuring hedge plants the blue variety should be ordered.

W. T. MACCOUN, Horticulturist.

Central Experimental Farm,
Ottawa.

PREPARING FRUIT FOR COLD STORAGE.

T the recent meeting of the Eastern New York Fruit Growers' Society, Mr. W. H. Hart of Poughkeepsie read a paper on "Growing and Preparing Fruit for Cold-Storage." Among other things, he said :

The middleman for most fruit growers is a necessity ; the difficulty of distribution is so great that we give our produce over to him. Cold-storage has become a middleman, for it enables you to sell perishable products, which before were sacrificed in a glutted market, at an even price throughout the year ; and it greatly increases consumption and enlarges the market. Refrigerator

cars are equally useful in extending and increasing our markets for all farm products.

Some varieties of apples, otherwise good keepers, are apt to scald in cold-storage. York Imperial, Peck's Pleasant, Grime's Golden and Greening are all apt to scald. This tendency may be largely abated by care in spraying and fertilization. Insect attacks hasten ripening, and fungous growths impair the skin of apples. The natural oil of the skin, which should be abundant, is much increased by the fungicide, which insures health to leaf and fruit, and by chemical fertilizers and their delivery to the tree by cultivation. An

unsprayed Greening, grown without care on an exhausted soil, will scald months before a sprayed, well fed one, put into storage under exactly the same conditions.

For the great winter market, plant only leading market sorts especially suited to cold storage, such as Baldwin, Greening, Spy, King and Sutton. If properly grown, I do not assort my fruit for storage, merely requiring that it be handled gently in gathering, defective fruit dropped to the ground and apples slid from picking-basket into crate, where it remains until assorted for market. The bruising avoided by this

minimum of handling adds much to long keeping and saves expense. All care possible should be taken to keep fruit cool after gathering and in transit to cold storage. Keeping quality is frequently impaired by overheating in railroad cars or in heaps in orchard or barn. A few hours of excessive heat before storing will cause fruit to scald or decay in midwinter. Give such care in growing and preparing fruit for storage or market as will insure a uniform product of high excellence. There is no time when there is not a paying demand for the best fruit.

AGARICACEAE.

I AM much obliged to Mr. Dearness for his valuable article on the distribution of agarics. I trust that he will write again and that others may be induced to follow his example. I would also suggest that if he knows of any reliable data or records respecting the mushrooms, edible and poisonous, to be found in Canada he will give this information to the readers of the Horticulturist.

Respecting the *Agaricus gambosus* or *Tricholoma gambosum*, Fr., Mr. Dearness gives me the credit of being the first to report it in Canada and suggests its having been imported "amongst the roots of shrubs or plants from Europe." It is quite possible that this may be the correct explanation. The main college building known as "Trafalgar Castle" contains a large amount of oak imported direct from England. The grass seed sown upon the lawn, and some of the shrubs found in the grounds were also imported from England. It will be interesting in this connection to note a striking instance of the transportation of mushrooms that have been found in the lawn, adjoining the college ground, formerly owned by Mr. Jas. Holden, the President of the Whitby,

Port Perry and Lindsay Railway. In this lawn are to be found morels, the only ones found in this vicinity though they are quite abundant to the north. On enquiry have learned that the lawn was at one time quite low and damp in some places and that Mr. Holden brought down from the north several car loads of earth to improve his lawn and brought with it no doubt the mycelium of the morel.

Mr. Dearness refers to the disagreeable odor of the *T. gambosum* of England as reported by Dr. Cooke. The species found in the college grounds had a decided fungus odor, though not a "heavy, disagreeable odor." For some time I was in doubt as to its being the real *gambosum*, and referred to Dr. Colville, of the United States Dept. of Agriculture, who seemed to think that it was. There must be considerable difference in the matter of odor. Dr. McIlvaine in his recent work states that *T. gambosum* is found in Chester and Lebanon county, Pa., also around Philadelphia, etc., and that its "odor is pleasant like that of a new meal."

Have been rather surprised to learn that any harmful results have come from eating *Lepiota Naucinoides*. This mushroom is

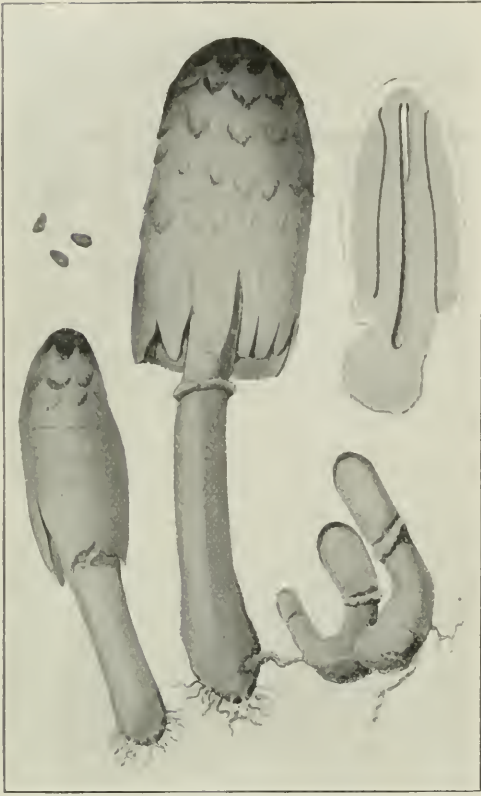


FIG. 2047. COPRINUS COMATUS.

quite plentiful in this region and is much enjoyed. Last fall I received a basket of these mushrooms, but amongst them were some specimens of *Entoloma graveolens*. The entolomas are known to cause nausea and vomiting. I mention this as a possible explanation. Perhaps a species of *Entoloma* was inadvertently gathered with the *Lepiota*, and thus the unfavorable result was produced.

Coprinus Comatus Pers. The shaggy-maned mushroom. The name "comatus" "shaggy" has come from the shaggy points or lacerated scales to be found on the surface of the cap. In general shape it has been compared to a goose egg or a closed umbrella. I am indebted to my friend, Dr. Purslow, of Port Hope, for the photograph

from which the accompanying cut No. 2047 has been prepared. He took it from an illustration found in Dr. Taylor's work on mushrooms. The Doctor reports that this mushroom is found abundantly in the neighborhood of Port Hope. It is found also in and around Whitby. It is so easily identified, and is so valuable as an article of diet, that I bespeak for it an enthusiastic reception.

In young specimens, the cap, gills and stem are creamy white, except the apex of the cap, which is frequently brownish. As the mushroom advances in age the margin of the cap turns black, and then begins to melt away into an inky black fluid. The gills are equal in length and crowded, at first creamy white then in succession pink, brown and black, finally dissolving like the cap. During the early stages when the gills are white and pink, and when the juice is either colorless or wine colored this mushroom is edible. When it turns black and begins to liquefy it is sometimes used for catsup.

This mushroom is found in rich grounds well supplied with decomposing vegetable matter. Cook in butter with pepper and salt.

Coprinus atramentarius, Fr., the Inky mushroom, and *Coprinus micaceous*, Fr., the Glistening mushroom, are species closely related to the preceding. They are both characterized by the inky deliquescence. They are so common in barnyards, or around old decayed stumps, that I presume that almost every reader of the *Horticulturist* is familiar with them. Often when a boy I jumped upon them, thinking that their inky appearance was a sure sign of their poisonous character. Like the preceding they are quite palatable when young, and may be made into catsup when turning black.

J. J. HARE.

Ontario Ladies' College.
Whitby, Ont.

BIRDS IN THE ORCHARD.

WE occasionally come across a man who is opposed to spraying, considering it an altogether too laborious and useless work. Such a man cited to me an orchard where its apples were unexcelled in freedom from worms and the orchard equally so in immunity from caterpillars.

Now this seemed pretty strongly to confirm his anti-spraying views. Thinking that there was some cause for this high state of excellence where no spraying was in vogue, I had an interview with the owner in regard to this matter and was told that the only cause he could assign to it was the work of birds, for during last spring and summer myriads of birds were busily engaged in the orchard. In the vicinity of the orchard was a grove of evergreens, through which ran a stream of water. Amid these trees numerous nests were to be found. To show that these very birds had a powerful influence in ridding the orchard of pests, we will cite a few facts issued by the New York Department of Agriculture. The United States authorities at Washington have been dissecting some thousands of birds and have made records of the contents of the stomachs of each bird.

We will now name a few birds and show the contents of stomach. The winter food of chickadees was found to be largely eggs of canker worms, each stomach on being examined contained 300 to 450 eggs of the canker worm.

Ninety-nine per cent. of the stomach contents of thirty meadow larks was caterpillars, grasshoppers and beetles.

In 46 black-billed cuckoos there were found 906 caterpillars, 44 beetles, 96 grasshoppers, 100 sandflies, 15 spiders.

In 109 yellow-billed cuckoos there were found 1,865 caterpillars, 242 grasshoppers,

69 bugs, 6 flies and 86 spiders ; surely there was but very little room for fruit. In one stomach alone there were 250 tent caterpillars. From two-thirds to three-quarters of the food of the woodpecker consists of insects.

In two flickers, 3,000 ants were found in each stomach.

It has been stated that the king bird is destructive to bees, but the following will discredit this assertion. Out of 281 king birds there was only 14 stomachs which had bees and 90 per cent. of its food was found to be insects. The blue jay eats many noxious insects, also the crow, barn swallow, and our old familiar friend the robin.

I have noticed in our own orchard that the woodpecker seemed quite at home around peach trees, digging for all they were worth for the peach borer.

We might relate many more examples in these researches, but surely enough has been said to show that birds are no small factor in this matter of ridding our orchards of insects. Acts of legislation have been passed forbidding the slaughtering of many birds, and now each of us, as individuals, should take an interest in rearing and protecting the beautiful feathered fruit protectors, and and only be too happy to allow them the very meagre allowance of fruit which they eat, and which is indeed very small in comparison to the insects which they devour.

Birds need the protection of dense trees, quiet resting places in which to hatch their eggs and care for their young ; evergreens are a favorable resort for many birds. Birds are much like other animals, they can become to a certain extent domesticated, and live around the same places as well as any domestic fowl.

Prof. D. Lange, in his book, "Our Native Birds ; how to protect and how to

attract them," gives a case where a lady in Vermont has made a specialty of attracting birds to her gardens and orchards, and she has succeeded admirably well. She says, "After once learning to take food provided for them the birds will come anywhere for it, to windows on upper stories or windows under deep piazzas. Her main reliance in winter seems to have been bones, with bits of meat and marrow remaining upon them,

which were nailed or tied into trees to be pecked at. Chickadees, woodpeckers, and many others go to them immediately."

A great number of us might imitate or improve on this, and entice many birds to our surroundings. If we cannot do this we can at least stop the small boy with his stones and sticks, and his robbing-nest tendency, also the big boy with his gun.

Grimsby.

J. F. BRENNAN.

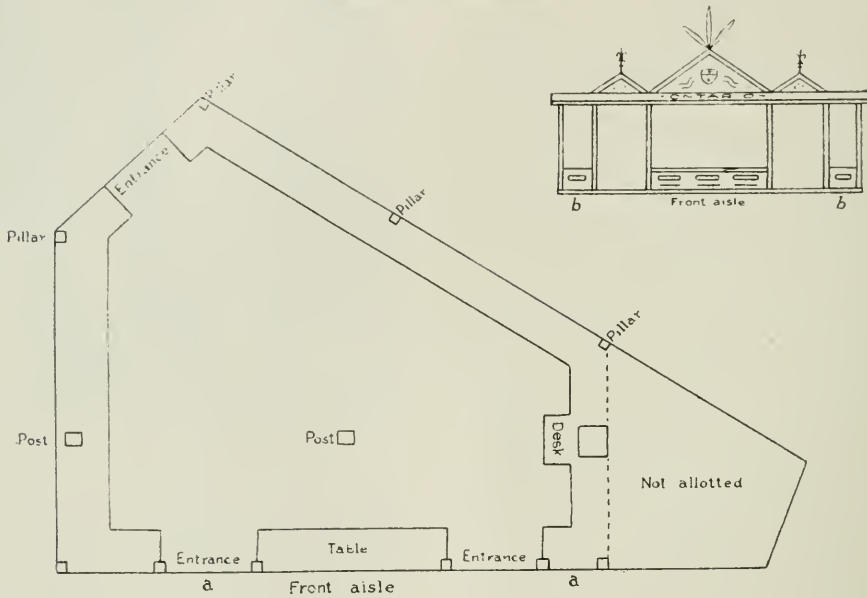


FIG. 2048.

THE PAN AMERICAN EXHIBITION.

EARLY in April the writer visited Buffalo for the purpose of aiding in securing an appropriate installation for our Canadian fruits. The writer's experience as Superintendent of the Dominion exhibit at Chicago in 1893, suggested some pointers in this matter which seemed of possible benefit to our work. To our great satisfaction, and that of all fruit growers in Ontario, we found in Mr. W. H. Bunting, the Superintendent for Ontario, an energetic, wide awake gentleman, with ex-

cellent original ideas, and withal quite ready to profit by any useful suggestions.

The space secured for Ontario fruits is only about 1100 square feet, but it is splendidly situated along one of principal aisles, where it will show off to splendid advantage. The accompanying plan of the floor space will give our readers an idea of the shape, and of the tables which will be arranged along the margin; *a, a*, shows the principal entrance, along which it is proposed to arrange an arch, with the word Ontario prom-

inent, and adorned with the coat-of-arms of the province, as shown at *b, b*. In the interior of the space Mr. Bunting proposes to erect a trophy which will be a centre of attraction, surmounted by flags, and laden with bottled fruit, plants and other objects of interest.

Now upon the directors of our Association and the officials of our affiliated Horticultural Societies and other members, to a large extent depends the success of this work. Every Horticultural Society should make up a special exhibit to be shown under its own name, and secure a diploma and a medal. This is quite within the reach of every one of our Societies, for the awards

are not competitive as in the case of smaller fairs, but instead, an award is to be given for each exhibit that is up to a certain standard of merit.

We would advise all our Societies to place themselves in correspondence with Mr. W. H. Bunting, St. Catharines, the Superintendent of Horticulture, and give him notice of the kind and quality of the exhibit they propose to make, and the probable date of shipment. The same precaution should be taken by all our directors and experimenters, for the greater the number of different awards to Societies and individuals gained for Ontario the greater the sum of the honors for our province.

A HINT ON PREPARING BORDEAUX MIXTURE.

COMPLAINTS are frequently heard of the lack of results from the use of Bordeaux mixture.

One man stated at a Farmers' Institute meeting last winter that he had used it for apple scab for four years without results, and was ready to sell his outfit. His orchard was no freer from scab than his neighbors' orchards which were unsprayed. This is only one case out of many met with.

On enquiring closely into the way the work was done to discover a probable cause of failure it was found, in almost every instance, that it was due to the improper method of compounding the Bordeaux mixture.

Many people dissolve the copper sulphate, slack the lime, pour them into the barrel and then drive to the pump, fill the barrel with water and imagine they have Bordeaux mixture, but they are mistaken. The solutions of copper sulphate and lime being brought together without being sufficiently diluted with water have caused a chemical reaction which has entirely changed the composition of the mixture.

The original substances were soluble in

water and beneficial, the resulting substances were insoluble in water and useless for the purpose.

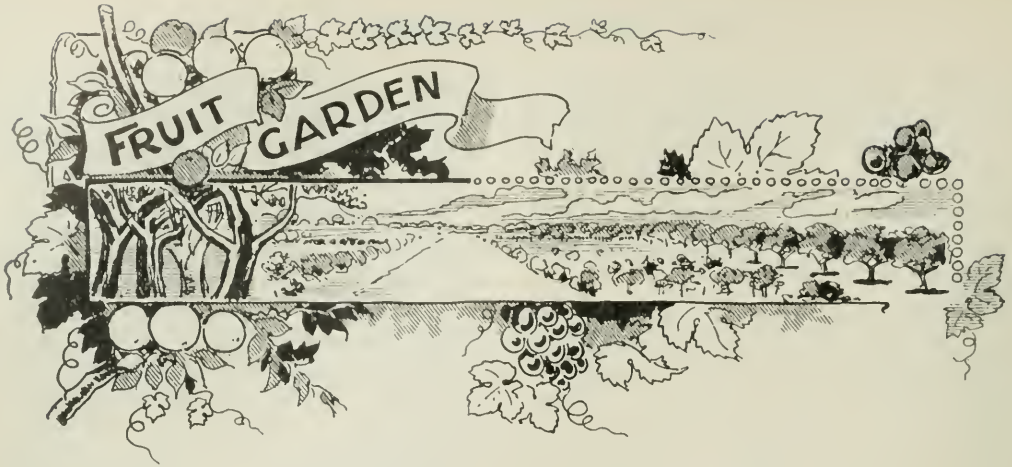
Where spraying is done in a small way the mixture is usually prepared as needed. The copper sulphate is dissolved in hot water and of course the newly slacked lime is also hot. As heat hastens chemical action the change in this case would be very rapid. Bordeaux mixture made in this way has a "curdy" appearance as if filled with small insoluble particles.

The man referred to above as having sprayed without results, said that sometimes his mixture was so "curdy" that he could scarcely get the pump to work.

To make Bordeaux mixture properly the solutions should be cool and the barrel almost filled with water before they are brought together. When properly prepared it should have a smooth creamy appearance. Bordeaux mixture made in this way and properly applied at the right season will not fail to give satisfactory results.

J. E. ORR.

Fruitland, April 20th, 1901.



SEASONABLE HINTS.

PLANTING trees usually belongs to the month of April, but frequently this work is unfinished until late in May, owing either to the late arrival of the trees, or to the condition of the soil. It is important that the soil should be in good condition, both for the soil texture itself and for the effect upon the tree. Nothing is more difficult to overcome than a stunted condition, and therefore favorable conditions should always be provided.

At our Brantford meeting the question of pruning or not pruning at time of planting was hotly discussed, some maintaining that it was best not to cut back young trees at that time. Some experiments were made last year at Woburn, England, with several varieties of apple trees, both dwarf and standard, involving questions of pruning, root treatment, manuring and planting. These experiments were slightly in favor of immediate cutting back on setting out, rather than waiting until a year later.

“Root pruning trees has resulted in checking both vigor and growth. Trees not pruned every year were in 1898 but little more than half as large as normal trees, and those pruned every other year only about three-quarters as large. The crops borne by these trees, however, were heavy in proportion to their size. Trees carefully

lifted every year and replanted at once suffered no injury thereby, but when left three days before planting, in imitation of commercial nursery methods, material injury resulted, amounting four years after the transplanting to a loss of 28 per cent. in size. The effect of growing grass about trees was most striking.

“The grass-grown trees are, after five years, scarcely bigger than when planted, and the actual increase in weight which they show during this time is about 18 times smaller than in the case of similar trees in tilled ground. The effect of weeds has been distinctly less than that of grass, and that of careless planting, combined with weeds and total neglect, is scarcely greater. The grassed or weed-grown area, in the majority of cases extended to about six feet beyond the stems of the trees, but in the case of two of the varieties of standards the extent was only three feet, and in these instances recovery began in 1897 and now appears to be complete, so far as the vigor of the trees are concerned, although they have not made up for the loss in growth experienced before 1897. In the case of the other trees, where the ground is more efficiently grassed over, there seems to be some signs that recovery is now beginning. With those trees which have been recovering since 1897 the ma-

jority of their roots are still within the grassed area, and it seems impossible, therefore, to attribute the effects of the grass to a competition of food between the roots of the grass and those of the tree. We believe one of the main causes of the effects to be due to the large increase in the evaporation from the soil which is known to be produced by grass, the trees being thereby made to suffer from drought, with consequent deprivation of other nourishment as well; but we have reason to consider that the grass acts also, by preventing the access of air to the roots of the trees. Further experiments have been undertaken to elucidate this action more fully."

Top Grafting bearing apple and pear trees is a far simpler job than most fruit growers imagine. A skillful hand with a sharp knife and a fine toothed saw, a ball of wax and some scions, can transform a worthless orchard to one of great value. Why grow a dozen kinds of winter apples, giving a mixed car load that is hard to sell, when a few days work would result in an orchard of straight Spy, Ontario, York Imperial, Gravenstein or some other one of the best varieties, and

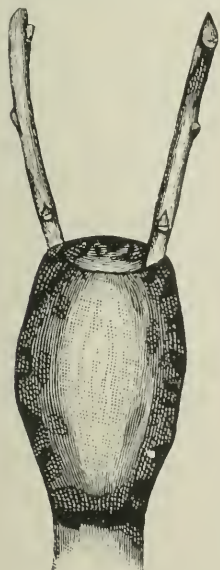


FIG. 2049.

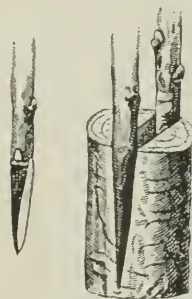


FIG. 2050.

enable you to export whole car loads of a single first-class sort at top prices.

Cut 2050 clearly shows the method of cleft grafting without further description.

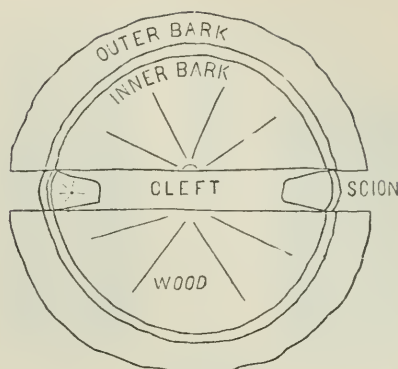


FIG. 1.

FIG. 2051.

The scions should be cut in advance when perfectly dormant, and if this precaution is observed, the tree to be grafted may be even coming out into leaf and yet the work be a success. It is important to learn to make a uniform slope in wedging the scion, and at such an angle as will fit the split. For this a sharp knife and a little practice is necessary. Fig. 2051 shows how important it is that the inner bark of stock and scion should meet and thus grow together, for here the vital union takes place. When fitted, the wedge holding the split open is removed and the scion will be held fast in place.

The grafting wax should be applied as shown in 2049. The following is one of many recipes for making grafting wax: Resin, 4 parts by weight; beeswax, 2 parts; tallow, 1 part. Melt together and pour into a pail of cold water. Then grease the hands and pull until it is nearly white.

Spraying — Much as our experiment stations have done for us in this particular line, there is yet room for considerable work on their part. Sometimes it gives marked results, and then again, the fruit grower almost concludes it has been a complete failure and a great loss of time and money. What we growers want to know are just the exact conditions that give certain results? Just now, before the buds open, we are instructed to spray our apple, pear and plum trees with

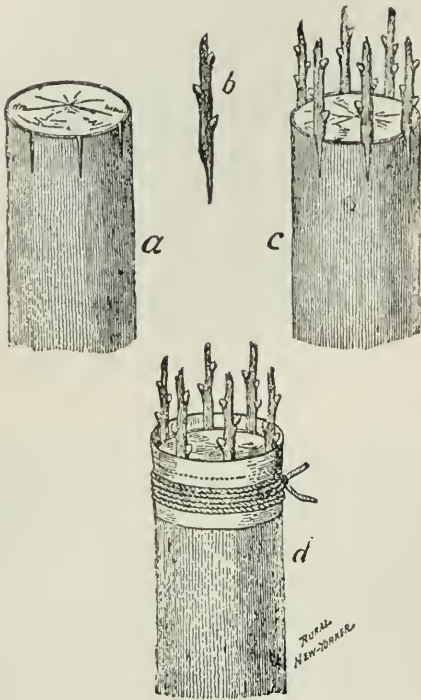


FIG. 2052.

and each pays into the funds so many cents per tree for having them treated. Some such co-operative plan would be a grand solution of this question, for the job is nasty, and most would rather pay than spray.

Crown Grafting.—In the case of large trees, where the ordinary cleft grafting seems unsuitable, some have successfully tried crown grafting, as shown in the accompanying illustration. The branch is sawn square off as shown at (a). The wood is not split, but clean slits are made down the bark as for budding, and in these the scion (b) is inserted, one in each slit, as shown at (c). Grafting wax is not needed, but a band of thick paper is wound about the graft, leaving it to project about an inch above the wood, as shown in (d). It is then secured with a strong twine, and the cup so formed is filled with mud, which protects the cut until it is partially healed. This method of grafting is very simple, and usually succeeds.

copper sulphate, one pound to twenty-five gallons of water to destroy the germs of scab and rot. Some growers prefer to use the Bordeaux even for this first application, because it does not wash off so quickly as the copper sulphate solution.

One thing is sure, that the man who treats his trees thoroughly succeeds. J. W. Brennan, with fifteen acres of orchard, does his work thoroughly, and such Spys we never saw. Scarcely a worm, no scab, magnificent fruit—some of which has gone forward to the Paris and the Buffalo exposition and the rest was sold in Ottawa at top prices. Some of those Spys brought in our home markets over \$1 a bushel last autumn. But when one has one hundred acres to spray several times thoroughly, he is apt to shirk his job.

Some of our Horticultural Societies have struck a splendid plan. The society purchases a large pump, which is worked by a gasoline engine, a man is employed to run it,

Grapes.—The tying should be completed at once, if not already done, and the vineyard cleaned up for cultivation.

Grape thinning is somewhat practiced in England for such kinds as Lady Downes, Gros Colmar, etc., but we question if it would pay us in our vineyards. The work is done there when the fruit is about the size of No. 1 shot, and when done a bunch of grapes should have even sized berries that will form a compact cluster, close enough to retain its form when cut and laid on the dish or stand. If they fall about and show the stalk it is overthinned; if they force each other out of place it is underthinned. They always begin at the point and work upwards, steady-ing the bunch with a small peg or stick, removing the smallest and plenty of the inside berries first.

For a gentleman's garden no doubt this would be practicable, but scarcely in a commercial vineyard.

NOTES ON VARIETIES OF STRAWBERRIES IN 1900.

THE season was so unusually dry, even for this northern district, that only plantations under superior cultivation offered a fair test of their capabilities. Hence varieties commonly accounted only worthy of the "matted row" system of cultivation did not show up so well in comparison with others as they do in moist seasons. Certainly the relative value of a variety seems to vary with the season as well as the soil. Nevertheless we got a very interesting test of a number of varieties, as the crop did not wilt and wither off, as reported in some districts further south.

I have tried to arrange the order of the notes following according to the prominence of the varieties before the public as well as to my estimate of their value.

CLYDE.—Probably the most valuable for a not too distant market of all recent introductions. It is not as firm as Wilson but seems to stand up better than Crescent; not good enough in quality for home use, but quite so to take the market and be asked for again; rather too light colored in the matted row system, especially in a moist season, but very beautiful as grown in the narrow row and in ordinary seasons. Its strong points are its size (large to very large), smoothness and regularity as if run in a mould, and extraordinary productiveness. Plant it on rich clay loam if possible. Indeed I have seen it fruiting wonderfully with a neighbor on rather poor clay soil baked "hard as a brick." On sandy soil it is apt to falter and fall down under its load of fruit unless well stimulated with manure.

WM. BELT.—This is the most remarkable berry I have ever seen—for some purposes and under certain conditions. Of the Sharpless type in both plant and berry, but under fair (not extra) culture it is perhaps three to

four times as productive. Probably it would not prove at all a success grown by the slipshod method. Moreover it is not at all the berry for sandy land. Even with plenty of manure it is hard to keep the foliage from rusting on light dry soils. But on moist fair clay loams, grown in rather narrow rows, with most of the runners cut, it is simply a marvel. On such soil, far from rich, I gathered thirteen berries that filled a quart basket heaping full—my neighbor, Mr. Newman, being witness—and the foliage was green and healthy in spite of the drought, and the plants immense. Best of all, the quality was sweet and rich—next to Marshall, the prince of strawberry flavor. Not only are the berries very large and delicious but they are also rather firm, glossy, and of beautiful color. The first berry in a cluster is generally rather coxcombed in shape, but never rigid and ugly—all the others are generally of rather uniform shape. Of course the crop is not equal in quantity to the Clyde, and probably a smaller, firmer and more acid berry might be preferred by some for preserving; but for growing in quantity for a fancy market, or to delight the family and amaze the neighbors, I know of nothing to beat the William Belt.

MARSHALL.—This is the great show berry. If anything can excel the Sharpless and Wm. Belt in size it is this. In quality and firmness it is superior also, and even more glossy and of richer color. A good bearer, but not so productive as Wm. Belt—say about double as productive as Sharpless. The plant is about as large as Wm. Belt, and with me, on moist clay loam, the foliage seems even more healthy and handsome. But it is yet more impatient of light soil. On poor sandy soil I found it a dismal failure, but on good dark land it stands at the head of the class for size, beauty and quality.

SPLENDID.—The best general-purpose berry I have well tested. Not best in any one particular (except healthfulness) or for any one purpose, yet if I could only have one variety for all soils and purposes it would be this for its high general average: smooth, regular, handsome, of good size, of excellent quality, quite firm, with a crop close up to Wilson or Crescent in quantity, growing on good strong plants with handsome glossy foliage, as if varnished, that stands up and does its best in any season on all soils, it is indeed Splendid.

NICK OHMER—of the Marshall and Wm. Belt type—is scarcely as large or delicious as the Belt but firmer, more regular in shape and perhaps more productive. I think the foliage is healthier than that of either Marshall or Belt, and I would sooner plant it on light land. I consider it a valuable variety.

SAMPLE (P.)—This is the first variety in these notes which is deficient in pollen, so that it will not bear well without some variety near it with perfect blossoms. Otherwise it is a fine variety—strong, healthy, a good runner and a great bearer, fruit very large, roundish-conical, firm, deep colored, handsome, and of good average quality. It is not so particular about soil and keeping runners cut as so many of the other big fellows. I have only fruited it once but it appears quite promising.

GLADSTONE.—I just mention this here to sound a note of warning. I am not prepared to call it a fraud without further test. Possibly the nurseryman who sent it may have made a mistake, so I am trying it on plants from another firm. But as I have it so far it appears exactly identical with Sharpless. I notice, too, that some American growers are beginning to say the same thing. Every now and then some old variety gets a new label and goes out to astonish and disgust enterprising fruit growers. What a pity the fellow who does it can't be labelled!

RIDGEWAY.—A fine early berry, large, handsome, firm, good to eat, glowing-like flame—a good cropper, but does not send out many runners; fruited on full grown plants only once here but quite promising.

WILSON.—On "improved pedigree stock" from Michigan, this grand old market variety seems as good as ever, but we want something better.

CARRIE (P.)—Claimed to be an improvement on its parent the Haverland. I cannot see much difference, but the Haverland is a fine variety lacking only firmness and better quality to stand near the head of the list.

TENNESSEE PROLIFIC.—Of the tough sturdy, very productive Crescent type, but larger than Crescent, firmer, not so insipid, and with a perfect blossom. Having fruited it only once I am not positive yet as to whether it comes up to the Crescent in productiveness, but it is evidently a good cropper. A leading grower in the Niagara District declared it superior to Clyde one season, and the next year, after fruiting, he said he thought it about equal. It is evidently a valuable market variety. The foliage is bright and glossy, and it does well with me on both light and heavy soils.

MORGAN (Morgan's Favorite)—Fruited just once, but evidently of great excellence. Imagine a Wm. Belt that will keep healthy and bear abundantly on bright soil, and you have a picture of the Morgan as it behaved with me last summer. On a yellow sandy knoll, without manure, the plants were magnificent in size, and the fruit large to very large, beautiful, firm, abundant and delicious.

MAGOON.—Side by side with Morgan this variety was nearly or quite equal in every particular except that the fruit seemed scarcely so smooth, firm and sweet, while it was decidedly later in season.

DOWNING'S BRIDE, STAR, FOUNTAIN, are varieties that must be tested on better soil

before I can recommend them. Side by side with Morgan and Magoon on the sandy knoll they were comparatively worthless.

CRESCENT and BEDER WOOD on the sandy knoll stood well up to their old reputation. Crescent, especially, grown from selected pedigree stock offered by a strawberry specialist in Michigan was just as productive as we used to know it fifteen years ago—large, too, for the season. Beder Wood of course rusted, as it always does, but it bore well and early too.

EXCELSIOR.—This is the first early variety they make such a fuss about in the States. Well it is early no doubt—the earliest of all I have seen—and it is smooth, glossy, dark red and very firm. But oh it is so sour! After one year's test I must not talk as if I know all about it, but it must bear a larger crop and stand up a little freer from rust before I can praise it. Yet its great earliness and firmness make it promising for market.

MICHEL'S EARLY—Nearly as early as Excelsior, and much sweeter—is a better variety for home use, but it is quite soft for a market berry, and if allowed to make runners without restraint it will be unproductive. Checked a little in running I have had it bear well.

JOHNSON'S EARLY—I find more promising than Excelsior—very early, large and firm enough, healthy, moderate in forming young plants, and quite productive even on light land, but rather acid. Only fruited once.

SAUNDERS, WOOLVERTON, WILLIAMS—All fine, large, well-known varieties of Canadian origin, of which the last seems to be the most profitable for market.

BRANDYWINE—A good late variety, about the size of the three last mentioned—fine for late market.

GANDY—The latest of all yet tested, large, very beautiful and delicious, but unproductive on sandy land.

RUBY—One of the most beautiful and delicious, large and firm, but only moderately productive.

GLEN MARY (P.)—Late, very large, quite productive, but rather soft and sour, and a poor grower except on rich land.

BISMARCK—Large, handsome, of ordinary quality and moderate productiveness.

PARKER EARLE—Immensely productive on moist rich land and in a wet season. In ordinary seasons, with common treatment, it will not ripen half its fruit, so I am afraid it has got to be turned down,—which is a pity considering the size and beauty of the fruit and the greatness of its attempts.

PARKER EARLE IMPROVED (Arnout's)—Just a chip off the old block.

PARKER EARLE JUNIOR—Hardly even a chip, I think—seems quite worthless.

GREENVILLE (P.)—Large and productive, but had to be rejected for lack of health. The leaves would draw together, and upon examination were found to be affected with mildew.

WARFIELD (P.)—Immensely productive, and the glossiest and most handsome berry for its size of the whole lot, not very large, but large enough for market. But the fruit is of poor insipid quality, and in a wet season a good many of the blossoms would fail to pollenize properly, so that a large part of the crop would be gnarly and small. So when it developed the same fault of mildew on the leaves noted in the Greenville it had to go. The Senator Dunlop is said by Mr. Crawford to resemble it greatly in appearance and crop, but to be of delicious quality and of perfect blossom. The plants certainly grew well, and I look forward to fruiting it next summer with eager anticipations.

Kansas, New York, Bennett, Mrs. McDowall, Murray, Darling, Success, Parson's Beauty, Smith's Early, and especially Jos. H. Black's seedlings, viz., Joe, Nettie, Carrie

Silvers, Nina, Stella and Reba, have shown healthy, vigorous growth on my place, but have not fruited yet.

With all our improvements there is yet room for the perfect strawberry. When we reach a combination of productiveness and regularity of the Clyde, the vigor of the Sharpless, the size and quality of the Wm. Belt, the firmness of the Wilson or James Vick, and the wiry constitution of the Crescent, we may perhaps consider ourselves

near enough to the top of the ladder. Whether Providence has made the requisite arrangements for such a result in a world of imperfections may well be doubted, but certainly the process of reaching up for the best possible is delightful, and we must congratulate ourselves upon the improved varieties now to hand of "the best fruit God ever made on earth."

T. C. ROBINSON.

Owen Sound, Feb. 1901.

TREATING THE SAN JOSE SCALE.

Mr. G. E. Fisher, Burlington, the chief inspector, has addressed a carefully prepared circular to the fruit growers of Ontario, regarding the treatment of this scale, and we extract a few lines. Our readers may secure the whole circular on application to him.

The grower will find the best proofs of its identity in its being plentiful and widely distributed over the tree, in its being present in all stages of development at all times of the year and its very distinct nipple and ring. If left to itself the San Jose Scale will increase very rapidly indeed, but it may be controlled by remedies.

Whale oil soap applied $2\frac{1}{2}$ lbs. to the imperial gallon of water just before the buds open will check the scale severely, and has a splendid effect upon the trees in destroying fungus and stimulating growth, but if used before the frosts are over will kill the blossom buds of tender varieties. Soap offers so little resistance to re-attack and so many of the scales were left alive that before the end of the season the original condition of infestation was fully restored. There was very little spreading, however, where the soap was used at full strength and in sufficient quantity. Every part of the tree must be saturated. I have never seen a tree which had been injured by soap.

Crude petroleum is strong medicine, and must not be used in excess of what is necessary to penetrate encrustation. Every part of the tree must be reached, but no part sprayed a second time, nor must the spray be directed too long against the tree. Special attention should be given to the inside of the branches, the twigs and the deep cracks in the bark. Many trees have been killed by excessive applications and it is safer to use crude oil diluted to 25 per cent with water, which must be applied with an emulsion pump. The London Spray Motor combination is the only reliable pump I know for applying mechanical mixtures. No scale can live on an oil treated bark, and the oil not only

kills nearly all of the scales but protects the tree from reinfestation. Too much crude oil will kill trees and very little is necessary to kill the scale. If applied to peach trees the treatment should be very light, even and complete. Crude oil should be used thoroughly but sparingly just before the leaves appear, and costs about one-sixth the cost of soap. I have not seen apple, pear or hardy plum trees, which had been injured by crude petroleum.

Whale oil soap and crude petroleum may be combined in any proportion to suit tender trees.

Kerosene is not satisfactory except as a summer treatment in the proportion of 10 per cent with water for killing the young scales, and whale oil soap, one-half pound to the gallon, may be used for the same purpose. Neither of these summer sprays will penetrate the coverscale beyond the white stage, and to be effective must be repeated every ten days.

The remedial work done last year was not altogether successful, owing partly we think to the material used not being of first quality and partly to improper use of it. If there is one thing which above all others is worth doing well it is treating trees affected with the San Jose Scale.

The Minister of Agriculture for Ontario, recognizing that this work is still in the experimental stage, that it is urgent and that great difficulty in procuring suitable spraying material would be experienced, will again supply whale-oil soap and crude petroleum to those whose orchards are affected or exposed to infestation with the San Jose Scale, on the same terms as last year, that is one half of its cost laid down cash on delivery. The soap will be made from strictly high grade material and will probably cost a trifle more than that used last year. Having recently completed a tour of the oil fields and made many tests, I can now locate the most suitable crude petroleum for this purpose the Province affords.

The following are given in the same circular.

INSTRUCTIONS FOR SPRAYING.

1. Trees must be thoroughly pruned, and all rough bark and lichen removed.

2. Have a sufficient supply of material on hand and a proper pump for applying it.

3. Do not spray the trees when wet.

4. Thoroughness is imperative.

5. For early work, soap should be used in the proportion of $2\frac{1}{2}$ pounds to the gallon of water where the scale exists, and one pound to the gallon when operating only against fungus. It should be first dissolved in a separate vessel, then strained into the barrel of the pump, and is more effective when applied hot.

6. Any good force pump provided with an abundant supply of hose, an extension pipe and a suitable nozzle, will apply the soap.

7. Soap can be used most effectively during the time between the swelling of the buds and the opening of the blossoms; even if a few blossoms are open, no harm will ensue. An earlier application will destroy the fruit buds of tender trees. The tree should be sprayed until every part is saturated. The inside of the limbs, the twigs and crevices should have especial attention. $1\frac{1}{2}$ gallons

of the mixture is sufficient for a full grown peach tree.

8. If undiluted crude petroleum be used, the least possible quantity of oil that will cover every part of the tree should be applied with the very finest vermored nozzle. It is safer to use oil diluted to 25 to 30 per cent with water. The vermored nozzle, either coarse or fine to suit the work, is best. While every part of the tree must be reached, no part should be covered twice with oil. A reliable combination pump only should be used in applying mechanical mixtures.

9. Treat for Lecanium and Pear Psylla early in April. San Jose Scale and other purposes as late as possible before the buds open. First, apple, then pear, then the hardier varieties of plums, then the tender varieties, and last peach, allowing sufficient time to complete the work. Crude petroleum should not be used at all on the foliage.

10. For summer spraying, use kerosene, 10 per cent. with water on bright, airy days, which will promote evaporation, or whale-oil soap, one-half pound to the gallon of water, whenever practicable.

THE MOUNTAIN RARERIPE PEACH.

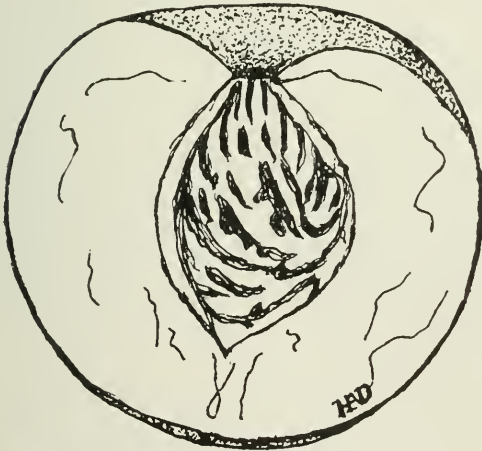


FIG. 2134. MOUNTAIN RARERIPE PEACH.

AMONG the multitude of peaches that have proved their value this year there are few of the white fleshed free stones that have equalled the Mountain RareriPE. It is comparatively a new peach and ripens in mid-season, just before and lapping onto Stump and Old-

mixon Free, which are of the same character; hence, it has close competition. In some of the leading orchards of Delaware, where it fruited in considerable quantities this year beside these old standards, it proved fully their equal and in some cases their superior.

The size is from medium to large and the shape round, with a very faint suture on one side. The color is white, beautifully shaded with carmine red. The flesh is very thick and firm enough to withstand shipment before the fruit is fully ripe, and very tender and juicy in the end. Its flavor is rarely equalled, being rich, yet mild, sub-acid, and very fragrant. The stone is not very large, has no bitter taste in the flesh about it and is very free. It is a good variety to go along with Elberta, which ripens at just the same time, and it deserves extensive trial where such a peach is wanted either for market or home use.

H. E. VAN DEMAN.



TIMELY TOPICS FOR THE AMATEUR—XV.

THERE is no season of the year that taxes more severely the energy and skill of those who take an interest in their gardens, than the month of May and the early part of June. Neglect or carelessness in garden operations at this season, is certain to be followed by disappointment and regret, later on.

Not only has the ordinary spring and early summer work of rolling lawns, cutting grass, getting the walks in trim, and other routine work to be attended to, but the vegetable and fruit garden also demand their share of attention.

The vegetable garden, more especially, must not be neglected. Unless successive and late crops of vegetables are sown or planted, there will be a dearth of vegetables during July and August, as well as a shortage of autumn and winter vegetables.

Always endeavor to sow and plant garden crops when the ground is sufficiently dry to work easily. Tramping about on the ground when in a wet and soddened condition, is detrimental to plant growth, more especially on stiff clayey soils. If planting is carried on in wet or showery weather, always loosen the soil up with a fork or hoe where it has been tramped about

on. A loose, friable surface soil is conducive to rapid growth, and much heavier crops will be secured than by allowing the soil to become hard and packed.

Another important point in garden work, is never to allow the roots of any tree or plant that is to be transplanted, to be exposed to the air any longer than is really necessary. If the roots cannot be covered with earth, cover them with damp straw, or a piece of matting, so as to exclude air from the roots. More plants and trees are lost by neglecting this important point than is generally supposed. Plants that can be kept from wilting for a few days after being transplanted, by judicious shading and watering, will well repay the extra care bestowed on them by responding with quick root action, and a vigorous, healthy top growth.

The transfer of tender flowering and foliage plants from the greenhouse, or perhaps from the hot-bed or window, to the changed conditions of out-door life, is a feature of spring work that is often very carelessly and thoughtlessly conducted. Tender exotic plants, such as coleus, cannas, caladium esculentum, etc., are often hurried out into the cold soil of bed or border, without any

attempt having been made to harden and prepare them for this sudden and decided change in their surroundings.

The result of this harsh and unnatural treatment is soon apparent. The plants soon lose the beautiful rich color and markings of their foliage, and unless the weather is very favorable it is possible that they may be entirely denuded of their foliage.

It is almost impossible to harden plants off successfully in a small greenhouse or conservatory where there is a mixed collection of plants. By keeping the ventilators open at night, or even late in the evening and not shading too heavily, much can be done in the way of hardening plants. But this plan is not advisable where there is even a small collection of plants such as exotic ferns, fancy caladiums, foliage begonias, etc., as these require shade and heat to bring them to perfection.

There is no better plan to harden plants intended for summer use out of doors, than standing them outside under the shade of trees, or standing them on a border or walk on the north side of a fence or buildings so that they are protected from the direct rays of the sun for a few hours at mid-day, and from cold biting winds and slight frosts. A week or ten days in this position will gradually harden the foliage of tender plants, and

avoid the anxiety and loss that is often caused by hurrying tender plants out direct from greenhouse or conservatory to exposed positions outside.

This hardening-off process will be found to be beneficial, not only to tender greenhouse plants, but also to plants raised in the window, or in any position where they have not been hitherto exposed to direct sun and air.

If dull warm weather could be depended on for a few days, when placing plants out doors, all trouble of hardening-off would be avoided. But it is seldom that much dull, cloudy weather is experienced toward the end of May or early in June, to favor us in this respect.

I have written these few remarks more as seasonable reminders than notes of instruction to readers of the journal. I know from experience that matters of this kind are oftentimes forgotten and lost sight of in our anxiety to have the flower-garden and lawn looking bright and gay as early in the season as possible. Recollections of past experience and failures too often occur to us, when the results of neglect and forgetfulness have become too apparent to allow of their being remedied very easily.

W. HUNT.

Hamilton.

THE PANSY—"FOR THOUGHTS."

"Of all the bonny buds that blow,
In bright or cloudy weather,
Of all the flowers that come and go
The whole twelve months together,
The little purple pansy brings
Thoughts of the sweetest, saddest things."
—*Mary E. Bradley.*

"Is there not a soul beyond utterance, half nymph, half child, in those delicate petals which glow, and breathe about the centres of deep color."
—*George Eliot.*

IF THE writer had such conceptions of the elegance and soulfulness of the pansy of the not distant past, what would be the sentiment of the surpass-

ing splendors of the many families perfected in the present time?

The last few years have seen most remarkable developments in the pansy world. First, departures from the rich self-colorings seemed to be in the direction of wild irregular splashings in the color and markings, with greatest dimensions, regardless of symmetry and the striking effect of the clearly defined eye. Afterwards came, in evidence of the aesthetic tastes of the Parisians in perfecting, the beautifully

pencilled and regular petalled, richly suffused "Cassier" and "Bugnot" families. Again appear the deeply serrated, gold and silver margined, grandly mottled, mammoth sized, American grown varieties, of surpassing beauty and even fragrance, like to that of the violet. Latterly, fanciers have turned their attention to the development of trade on this bloom as "cut flower." So that we have now extraordinary large flowers, of rich velvety substance, in most elaborate and gorgeous colorings, borne on long stiff stems, well foliaged plants with deep rooting, drought resisting, and great branching characteristics. And many will find in these newer strains such surprises in their new combinations of coloring, cinnamon, canary, orange yellow, black, indigo, and sky blue, cream, violet, claret and fiery red, that the unfolding revelations will astonish, as much as pleases them.

Seed offered from such strains, perfected through years of scientific culture, hybridization, and selection in process of raising, should receive the best attention and skill we can give it, so that we may realize pleasure and profit in our venture to grow them. A few thoughts on this line is my apology for the following abbreviated suggestions:—

The time of sowing and blooming and the purpose for which you grow and bloom them, must be determined by each one engaging in it, for himself. By sowing the seed now indoors, and transplanting into the garden you can secure some sample blooms this season, but you cannot obtain the fullest and best development and possibilities of the plant. Therefore, if you sow early, be satisfied with a few blooms and grow on the plant, as I should, if I were to sow in July and prepare fully for a grand display the following year's autumn—August to winter—and carry over for another year.

Should you desire, or should circumstances require of you, to sow your seed in

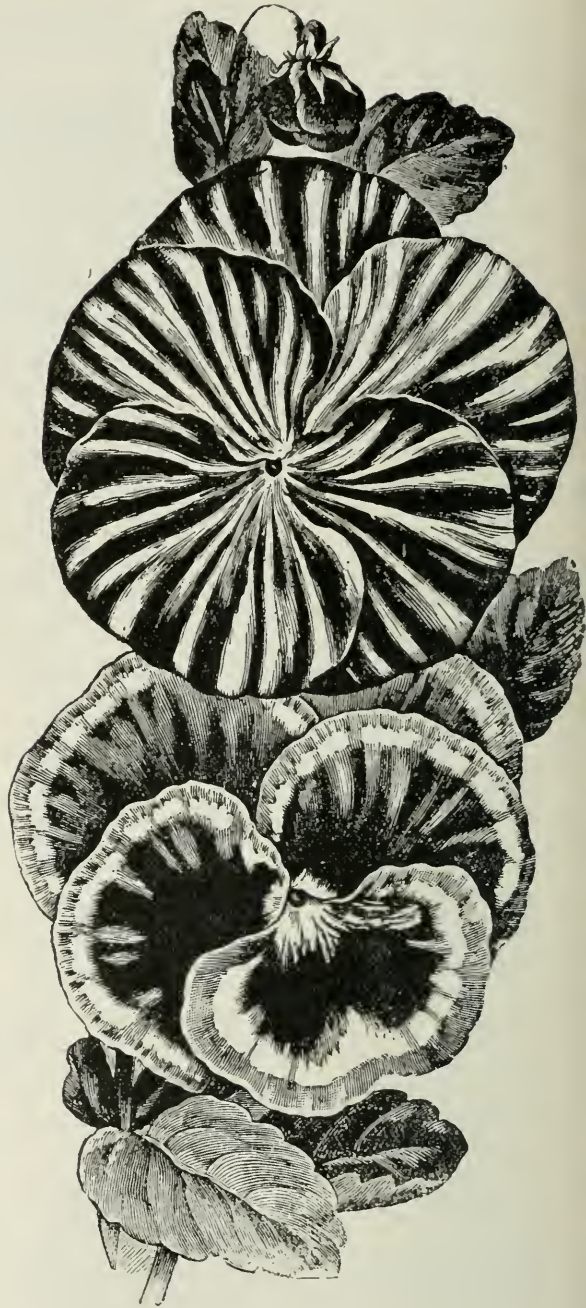


FIG. 2054. PANSY.

the open garden, secure a spot somewhat sheltered, and pulverize and make even the seed bed of a nice loamy soil with plenty of

humus—decomposed forest leaves, spent hops, etc. Cover the seed lightly and evenly, keep moist and secure against trouble by placing leafless branches over the bed, and follow the line of culture herein indicated.

I prefer sowing the seed in boxes indoors, because boxes do not absorb the moisture so quickly as crockery, etc., less attention is required, and the seed is too precious to be exposed to loss and disaster from depredations of cats, hens and dogs, and possibly frolicsome children. The box in which the seed should be sown may be about $2\frac{1}{2}$ inches deep, and of width and length to suit your purpose, as, in the same box, within properly defined limits, you may sow other seeds, and thus make one vessel do. It would be advisable to sift or make fine the entire compost for the box so that the fine rootlets may run freely and be taken out in transplanting without much damage. No soil is better for this purpose than a well rotted loamy turf sod, reduced to fine tilth, mixed with a little fine sand and leaf mould. Fill your box to within $\frac{1}{2}$ inch of the top, then take a shingle or piece of smooth board and press the soil firmly to an even surface. On this scatter your seed not too thickly, use a clean side of your shingle, glass or board, and press down the seed evenly and firmly, after which cover with a very fine soil, and to the depth of three times the size of the seed. This is a pretty safe rule to follow in all seed sowing, excepting in the case of very fine seeds, such as calceolaria, musk, begonia, which scatter thinly upon the top of the soil to which could have been added a little moss dried, rubbed very fine and mixed in the soil near the top. The process indicated for pansy seed sowing is equally good for primulas, auricula, cinneraria, cyclamen, polyanthus, etc.

This being done, water should be given in a very fine spray to prevent washing the covering off the seed. If you do this

liberally at brief intervals for a few hours at the start, then cover with thick paper and place in a position not too much exposed to sun and air by out of doors, not in danger from storm, and you will be spared much trouble, and germination will be evident in a few days if the seed be new and fresh. Preserve moisture thus, if dried, spray again, and you will soon behold the evidence of upspringing life. Do not altogether uncover at once, but bring to the light gradually, never into a very bright sun, especially through glass. At this stage be quite sure that the seedlings get fresh air in some way, and do not be tempted to have them too wet, more especially so as they begin to cover the soil and crowd each other for room. The main thing now is to secure a strong, stocky growth in the seedling, as nothing so much militates against success in growing a good show plant of the royal "heart's ease" as to allow it to run to a single stem, weak and elongated.

As soon as they are in the four or six leaf they should be transplanted into a bed or frame, that has been specially prepared for them in the meantime, with well enriched soil, deeply dug, thoroughly pulverized and stirred with the hoe or rake to destroy germinating weeds. Cow byre manure is preferable as a fertilizer.

Into this bed transplant the seedlings six inches apart each way. Care should be taken that the rootlets are nicely spread and not bundled together in the planting. A careful watering, in the absence of a timely rain, is now in order, so that the growth of the pansy be not checked by wind or sun. I like to get through this operation in the early evening. Two things departing from this point should be carefully noted: First, use the hoe very diligently to keep down weeds, conserve moisture, and excite nitrification of the soil. Second, as soon as the precocious plant gives evidence of its blooming character pick off every bud and

positively allow no blossom to develop for some time, certainly not until plants are established in their permanent bed, and if you wish to grow for genuine display or competition, or for quality, style and magnificence of plant purely, it is best to sow seed about July 15th to 20th and follow these rules. And let this bed or cold frame, be in such a place that some shelter from wintery blasts will be secured. To assist the young plants in their coming safety through the winter, as soon as the ground is frozen hard, cover liberally with a light mulch of short straw, or better still newly fallen leaves, and do not remove this in the opening spring, till the fear of hard frosts is gone. This prevents damage from thawing and freezing intermittingly, and when they come out they go with a rush right into their life work, which I should, personally, prefer to be on the following lines.

Presuming that the grower wishes to have the greatest satisfaction in securing a bed of large plants, crowned with a wealth of richest blooms of magnificent size and colors, he will in the season preceding have prepared his permanent flowering bed by enriching with well decomposed manure, a deeply dug soil, well drained; in location such as to escape the fervid heat of the mid-day summer sun, and the blighting winds of early and late season; and, as soon as the balmy days of spring appear, after frequently stirring the soil of the new bed to destroy weed life, retain moisture and gain warmth, will transplant his beauties, yet unrevealed, nine inches apart in the row and twelve inches between the rows, noting what has been said about the roots in planting, and not burying the neck of the plant too deeply, or gathering the soil about it so as to smother and cause decay. Then dispose the head of the plant, if already branched in all directions. Pinch off every bud and, if long in the runner, shorten one or two joints with a clean cut. What you want now is root development and spreading top.

Stir the soil diligently, never allowing the plant to suffer for want of water. If watering is a necessity attend to this late in the afternoon rather than in the morning. Continue to carefully pick off all buds till, say, July or even later. In the meantime, top dress with some well rotted manure and work well into the upper inch or two of soil with the hoe. And as pansies are very gross feeders, you will soon discover they have assimilated in their full development all nutrients within immediate reach. So now, that is about August, to give a fresh stimulus to growth and increased vigor for their supreme effort in the unfolding of a vast number simultaneously, of richly painted, thick petalled, immensely large regular blooms, begin at one side of the bed and carefully take away the soil near to the row of plants (all along side the plants) deep enough to receive the whole plant with good depth of roots; then move bodily each plant and settle it nicely and firmly into the place made for it, drawing the soil from the middle of the two rows towards it and continue this until your whole bed of plants now stands where the unoccupied soil was before. This accomplishes two things: first, by this root pruning you check redundant gross growth and promote floriferousness, and secondly, it provides fresh nutrients for enlarged blooms and lengthened life.

When in fullest glory never allow the blossoms to remain on the plant any length of time, but pluck in full freshness and take in-doors and distribute to your friends, the sick, the churches, the doctor's offices, drug stores; mail to the hospitals, sick children, particularly; and you will still have the more to send. Lastly, if you wish to preserve a few choice ones for seed, remove to other quarters, and use slops or light dressing of salt before planting, then when the seed food turns the least brown pluck and dry in a box with holes in.

F. BACON.

Orillia.

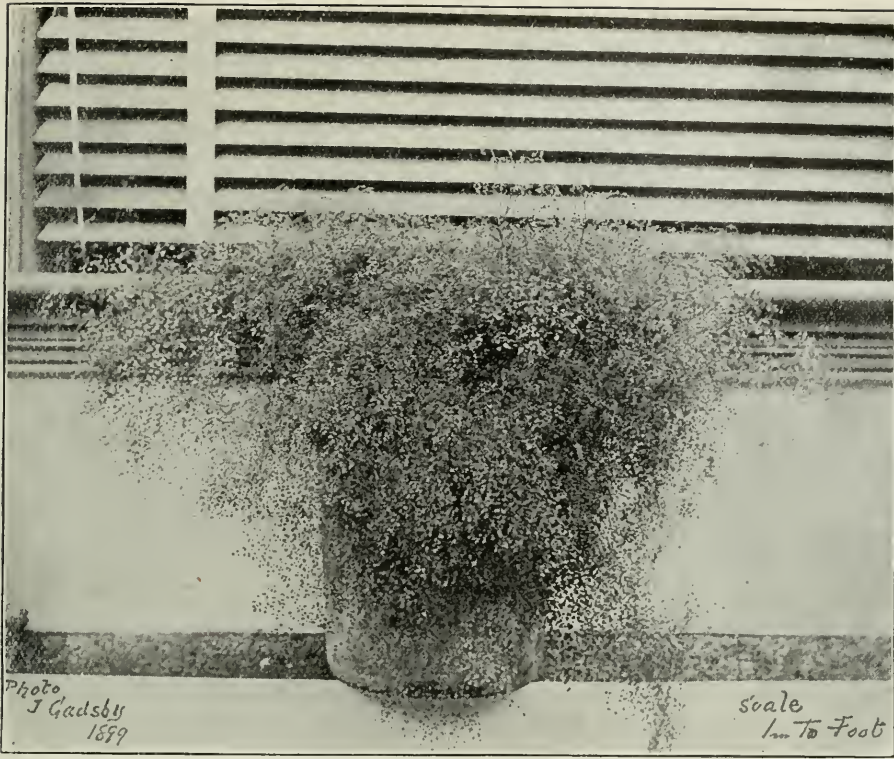


FIG. 2055. ADIANTUM GRACILLINUM.

GREENHOUSE, WINDOW AND GARDEN—V.

THE GREENHOUSE—Most of the present occupants of the greenhouse or conservatory will soon be gradually transferred to their summer quarters outside. Hydrangeas, agapanthus, clivias, genistas and pelargoniums that have done flowering, and other similar plants can generally be safely stood outside under temporary protection about the second or third week in May. Geraniums, ageratums, verbenas, petunias, pyrethrums, garden annuals and the hardier bedding plants are also quite as well stood outside about the same time, before being planted into the bed or borders later on.

Coleuses, cannas, ricinuses, achyranthes, palms, azaleas and the more tender plants had better be kept in the greenhouse until

the end of May or early in June. The facilities available for temporary shelter and the condition of the weather, must however largely determine the best time to introduce all plants to outdoor life.

If the greenhouse or conservatory is not occupied during the summer with tender plants that require shade and very little air, the benches may be utilised to grow chrysanthemums on. Owing to the prevalence of the fungus disease, commonly called "rust," that has attacked outdoor grown chrysanthemums so badly during the last few years, it seems to be impossible to succeed with these gorgeous autumn favorites except by growing them under glass all the summer. This plan has been practised for several years by a few growers in Can-



FIG. 2056. SPIREA, ANTHONY WATERER.

ada, and almost entirely so by our florist friends in the neighboring republic during the same period.

To grow good sized plants on benches, five or six inches of good rich potting soil must be used. Early struck plants that should now be in three or four inch pots can be planted eight or ten inches apart each way. The tops of the growth can be pinched off every week or so until July, when the plants should be allowed to grow on without further pinching. Plenty of air night and day, must be given the plants during the hot weather in summer, both top and bottom ventilators being used for this purpose. The plants must never be allowed to become dry at the roots, and will require syringing daily. Early in the day is the best time for both these operations. Later struck cuttings can be planted in the same depth of soil and grown on for single stemmed flowers. These can be planted much closer together than those planted earlier, and must not be pinch-

ed back. A little fine bone meal mixed with the soil before planting will be beneficial to the plants.

Tuberous begonias, gloxinias, fancy caladiums and exotic ferns must have a liberal supply of water at the roots. These plants dislike too much syringing or sprinkling overhead. The tuberous begonias will benefit by being removed to a cold frame any time in June. The protection of a sash slightly shaded must be given them, and plenty of ventilation.

Old plants of cyclamen can be placed in the frame with the begonias, and not given very much water during summer. Young seedling cyclamens can be potted as required and grown on in the greenhouse successfully.

Genistas in pots should be plunged pot and all in the open border, when danger of severe frosts are over.

Plants of early struck stevias and eupatoriums should be potted into six or seven inch pots. These should be plunged in the open border about the middle of June when all danger of frost is over.

Fuchsias will be better brought outside in June and placed in a shaded position on the north side of a fence or building. Pelargoniums can be treated in the same way.

Azaleas should be syringed daily and never allowed to become quite dry at the roots.

Pot roses that have done flowering can be stood out under the shade of a fence or building and given only sufficient water to keep them from drying out at the roots.

Ventilating the greenhouse must be attended to so as to suit the requirements of the plants it contains.

Exotic ferns, fancy caladiums and a few other plants require less air and a more humid atmosphere.

Pot a few good winter flowering geraniums into six or seven inch pots. Plunge these in the open border. Keep the tips of

the young shoots pinched out occasionally until August. The flowers stems must also be kept picked off until September to ensure good flowering results in winter.

It is not too late to sow a pot of East Lothian stock seed. Pot the plants singly into 4-inch pots and plunge pot and all into the open ground until fall. The plants can then be potted into 6-inch pots and taken into the greenhouse. By March or April they will give you some grand spikes of their deliciously perfumed flowers. The white variety is the best.

THE WINDOW—Many of the plants that have occupied the window all winter will be better stood outside in a shaded place. Cactus and epiphyllums that have flowered during the winter or spring, calla lilies, old plants of geraniums that are wanted for next winter's flowering, can be treated in this way. Fuchsias will probably do better stood out in a shady place during the summer.

Plants for the window boxes outside will soon be required. For sunny positions use geraniums, cordylines and coleus for the centre, and vincus (periwinkle), German ivy, nasturtiums, *Othonna grassifolia*, Madame Saleroy geraniums, petunias and a few other sun resisting plants for the edge of the box. If the position is nicely shaded, fuchsias, tall growing abutilons, summer flowering begonias, foliage begonias and similar tender plants for the centre can be made use of, whilst ferns, tradescantias, *Isolepsis gracilis*, *Festuca glauca*, etc., will be found satisfactory for planting around the edge of the box. A slight shading to window boxes at mid-day in sunny positions will be beneficial to the plants.

THE GARDEN—The flower bed and borders should have a light coat of well rotted manure forked into the soil if it was not done in the fall. The beds and borders should in any case be forked over just before their summer occupants are placed in them. The herbaceous border should be treated in a



FIG. 2057. SPIKE OF EAST LOTHIAN STOCK.

similar way. Any large clumps of perennial phlox, campanulas, etc., that need dividing up should be attended to early in May.

Annuals and the hardier kinds of bedding plants can be planted out as the weather permits. Water and shade all newly planted seedlings carefully for a few days after transplanting.

Put the brushwood sticks or other supports to sweet peas before they commence to run. If left later the vines are oftentimes injured.

Give the rose bushes a sprinkle of dry hellebore before the buds are developed. A second application may be necessary. This will keep down the rose slug or maggot. Half a teaspoonful of Paris green, well mixed in a small quantity of water first, and sufficient water added to make two gallons of the poison liquid, will answer the same purpose sprinkled on the rose bushes.

A strong solution of tobacco water is the best preventive and remedy for the small white pests—the rose thrip—that attacks rose bushes in June and July. Pour boiling water on a handful of raw tobacco or raw stems in a pail. When the liquid is cool, strain it off and add sufficient water to make two gallons of the solution. Sprinkle or syringe the foliage with this solution, once or twice a week, before these pests have made much headway. Sprinkling raw tobacco or stems around under the plants is a partial remedy against the attacks of this enemy of the rose.

Bulbs that are out of flower can be taken up and planted in some out-of-the-way place to ripen. If the bulbs can be left undisturbed, especially the tulips and crocuses, they will give good results next season. But it is useless to leave them in beds intended for coleus, geraniums and similar strong growing plants, unless the bulbs are a great distance apart from each other. Small annuals such as alyssum, candytuft, portulacca, etc., might perhaps be sown without disturbing the bulbs, but the results are not often satisfactory.

Gladiolus should be planted out during May at intervals of a week or two. Plant the bulbs three or four inches deep, in good light soil.

Dahlia roots can be planted out the last week in May in safety.

Ricinus, cannas and tender plants are better not planted outside until well into June.

VEGETABLE GARDEN—The main crop of beets and carrots should be sown early in May. Second early and late potatoes can be planted from the middle of May until the first week in June.

Celery plants, from seed sown in April, will require transplanting into a small frame out of doors. The plants must be kept well

watered and shaded until they have started into growth.

Successive crops of peas and beans as required can be sown. The Golden Wax, Early Valentine, Excelsior and Refugee are good beans for the garden. Horsfords' Market Garden, Burpee's Profusion and the Stratagem are good kinds. Plant second early corn about the second week in May. Early Minnesota, Cory, Hickock's Improved and Stowell's Evergreen are four good varieties. By sowing these four varieties at the same time they come in for use one after the other in the order named. The Stowell's Evergreen is a grand main crop sweet corn, the immense ears it produces remaining fresh and sweet for a long time. Plant a few seeds of vegetable marrow squash in the hills of corn. The Bush Marrow is the earliest variety, but the long-running English Marrow is the most productive kind.

A second crop of spinach may be sown early in May, but it is doubtful if it will yield profitable returns.

Plant out leeks as soon as large enough in shallow trenches prepared the same as for celery.

Start the hoe and cultivator early to keep down weeds and to help the crops.

Sprinkle powdered hellebore on the gooseberry and currant bushes to check the ravages of caterpillars.

Radishes and lettuce should be sown early in May so as to secure a succession of salads for the table.

Late frosts must be watched for and guarded against in May and early June. A little protection given now to early crops, for perhaps only one night, means the enjoyment of a dish or two of vegetables very early, at a time when they are certainly a great luxury.

W. HUNT.

Hamilton.

DECIDUOUS SHRUBS.

I HAVE often considered the want of a reliable list of the best, most floriferous, useful and hardy deciduous shrubs a great drawback to the general planter of such stock; hence my reason for compiling this list, trusting it may serve a good purpose. It will certainly save busy people from turning up hundreds of varieties in the different catalogues and journals, when if not familiar with the varieties, they are very apt to be led astray by the glowing descriptions given, and those unfamiliar with shrubs are apt to be confused since with their great number, so many of them being so alike in appearance. Another mistake too often made in catalogues is their silence as to the hardiness of plants, and the silence of our journals in not condemning such, so saving the unwary from spending their money in useless stock. Farmers are generally ridiculed for not planting trees, shrubs and hardy plants about their houses; they are not all bred gardeners, why then not tell them the varieties to plant? Why not give good prizes at our large exhibitions for collections of such stock, and have them named? I think that a prize offered by the government for the best named collection of trees, shrubs and herbaceous flowering plants would be of untold value to the country by educating the farmer and the mechanic as to what to plant. I hope the following list will be found to fill the bill, and as to the names there is nothing here mentioned that will not do well in Welland or Lincoln counties.

1. *Berberis Thunbergii*—From Japan, about 3 feet high, one of the best dwarf shrubs in cultivation; flowers yellow, in drooping racemes followed by red berries in the fall and continuing well through the winter; no collection should be without the Japanese berberry.

2. *Berberis var. purpurea*—A purple leav-

ed variety of our native *Berberis vulgaris*; will grow to 8 feet high and is a beautiful object as a specimen plant on the lawn or as a hedge plant: a hedge of this plant looks well throughout the summer, and well into the winter after the leaves fall, with its quantities of berries, particularly if planted on poor sandy soil. The fruit is much prized by the partridges, and is equal if not better than cranberries to eat with turkey at Christmas, if canned before getting frozen. My experience is that the purple variety does not fruit as freely as the native variety *B. vulgaris*.

3. *Caryopteris mastacanthus*, or Verbena Shrub—About 3 feet high, blooms from September until cut down by frost; this shrub is a grand acquisition; it is one of the prettiest flowering shrubs that I know of, the flowers resemble heliotrope, it blooms in the axils of the leaves and all along the stem; the leaves are very pretty light green



FIG. 2058. DEUTZIA, PRIDE OF ROCHESTER.



FIG. 2039. WHITE FRINGE.



FIG. 2060. ELEAGNUS LONGIPES.

above and very silvery on the under side; the whole plant has a beautiful odor. If this shrub proves to be hardy, there is no shrub will give as much pleasure; there are two colors, blue and white.

4. *Chionanthus Virginica* (White Fringe)—This will grow from 5 to 8 feet high in rich deep soil; is also a hardy gem, producing racemes of white fringe-like flowers about the first of June, followed by purple clusters of fruit, like grapes, in the fall.

5. *Corylus var. purpurea*—(Purple leaved hazel)—This plant is by all odds the best purple foliage plant for general purposes we have and very hardy; it is very showy at a distance. It will grow to 10 feet high, but can be kept dwarf by trimming.

6. *Daphne mezereum* (*rubrum* and *album*) should be in our collection of shrubs from the fact that they are the earliest flowering shrubs we have, and of very sweet perfume. This plant is a native of Niagara Falls and is very hardy; flowers before leafing out; it grows to a height of 5 feet.

7. *D. crenata*, single white.—Will grow to 7 feet high; all the deutzias are beautiful shrubs, and we cannot afford to leave all of them out of the list.

8. *D. crenata flore pleno*—Double pink flowers in racemes in the month of June, 8 feet high.

9. *D.* (Pride of Rochester)—Double white tinged with pink, a very beautiful variety, but I think it a little tenderer than the last. This one is

useful for florists' work, to cut from.

10. *D. gracilis*—This one is of a dwarf bushy habit, very hardy, pure white, single flowers in racemes completely covering the plant, good to force in the greenhouse, also good to cut for florists' work, will flower in May; about 4 feet high; will flower at Easter when forced.

11. *Eleagnus longipes*—Silver thorn of which there are several varieties; this one has the most beautiful foliage of a greenish

white above and a silvery white on the under side, which shines in the sun.

12. *Eleagnus umbellata* — The female plants of this variety are a grand sight to see when in fruit, the leaves are silvery white like the rest of its class; the fruit is eatable, of a reddish amber color about like currants in size; flowers small and yellowish, not showy. Plants can be kept down by trimming to 7 or 8 feet in height.

13. *Enonymus Europæus* (European strawberry tree)—This shrub will grow to about 10 feet in height; should

be kept as a single specimen plant, which makes it more attractful when bare of leaves in the fall; about the first frosts the seed pods begin to open, exhibiting their strawberry colored seeds which remain on the plants all winter, making them pretty objects standing among the snow; flowers small, chocolate color.

14. *Exochorda grandiflora*—From China, hardy here, a most beautiful shrub, bearing white flowers in clusters, very showy, about 6 feet high—one of the best.

15. *Forsythia Fortunei*, var. *suspensa*, and var. *viridissima* (Golden Bells)—From China; the three varieties are hardy here, in bloom end of April or first of May; a grand shrub covered with bright golden bells before leafing out; blooms here the second time in the fall.

16. *Halesia diptera*, and *H. tetraptera* (Silver Bells)—This plant becomes a mass of



FIG. 2051. ENOCHORDA GRANDIFLORA.

white bell-like flowers, will grow to small sized trees, 10 or 12 feet high; there is no plant prettier when in bloom about the middle of May; blooms before the leaves expand; belongs to Southern States.

17. *Hibiscus syriacus*—*Althæa* (Rose of Sharon)—It will grow to 10 feet high; extremely useful on account of their late flowering; they bloom profusely at a season of the year when but few shrubs are in bloom, 1st August. There are double and single flowering varieties. The following will be found as good as any H. var. Carnation, double white striped red; H. var. Cœrula, double blue; H. var. Lady Stanley, double white, tinged pink; H. var. Variegatus, leaves beautifully variegated.

18. *Hydrangea paniculata grandiflora*, grows from 5 to 6 feet, but should be kept cut back to within 4 or 6 inches of the old stem or trunk each spring, and only leave

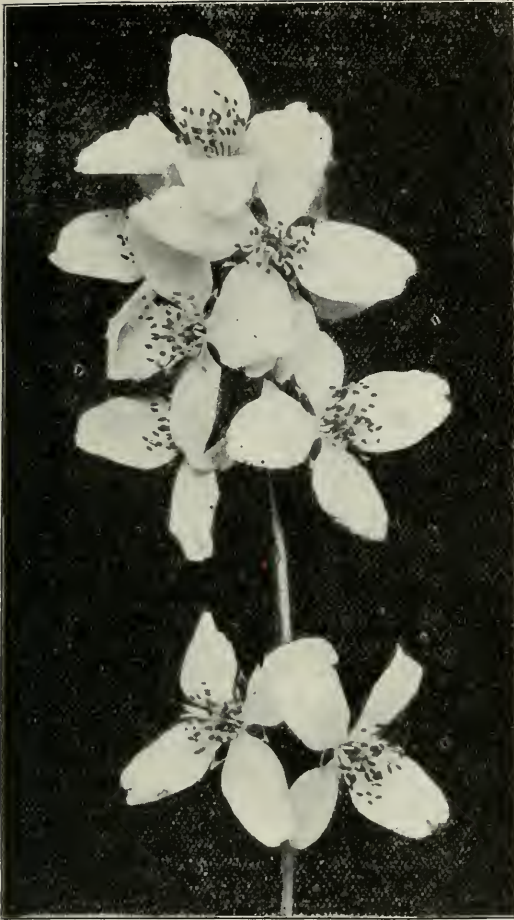


FIG. 2062. MOCK ORANGE.

four or five of these short stems to have large panicles of bloom; a long-lived healthy plant, blooming in August and September; from Japan.

19. *Hypericum Moserianum* (St. John's Wort)—Grows to about 3 feet in height, a very desirable hardy shrub, producing yellow flowers 2 inches across from July to fall; native of America.

20. *Ilex Verticillatus* (Deciduous Holly)—5 to 6 feet high. I met with a plot of these shrubs lately in our own woods, and I thought them one of the most beautiful sights I had seen for a long time, the plants were literally covered with bright red ber-

ries, the ground being covered with snow made them look all the brighter; they last all winter; flowers small, white in July.

21. *Ligustrum*, var. *tricolor* (Privet)—This variety I would recommend on account of its beautiful variegated foliage, a very pretty sport of the common Privet.

22. *Lonicera* (Bush Honeysuckle.) Turkestan. L. var. *candida*, 8 to 10 feet, white flowers in end of May.

23. *L.* var. *fragrantissima*—This is a Chinese variety, greatly admired for its very sweet scented pinkish white flowers which appear early in spring.

24. *L.* var. *grandiflora* is probably one of the best of all, much larger pink flowers than the type blooms in May.

25. *Pæonia Mouton* (Tree Pæony)—3 to 4 feet high; slow growing, but when matured will agreeably surprise the owner by the large rosy pink double flowers it produces in profusion; requires rich soil.

26. *Philadelphus* (Mock orange)—Southern United States. *Philadelphus grandiflorus* is one of the best, 10 feet.



FIG. 2063. PÆONIA PAPAVERIFLORA.



FIG. 2064. SPIRAEA, VAN HOUTTEI.

27. *Philadelphus var. aurea*—Is a golden leaved variety of the preceding one, and of a dwarfer habit, good.

28. *Prunus pissardi*—8 to 10 feet, a grand purple leaved large shrub or small tree, retains its color until the fall, a valuable plant for color.

29. *Pyrus Japonica* (*Cydonia Japonica*) Japanese Quince, or Burning Bush, too well known to need description, 5 or 6 feet high.

30. *Rhus cotinus* (Mist or Smoke Tree)—8 to 10 feet, bears large panicles of mist like flowers in June from which it derived its name, native of United States.

31. *Sambucus* (Elder) *var. aurea*—A golden leaved variety of the common elder, a showy plant for color effects ; 6 feet high.

32. *Spiraea*—The spiræas are very desirable shrubs in all shades of color, double and single flowers. They grow from 2 to 6 feet high ; there are about 49 varieties that I am acquainted with. The following are about the best :

33. *S. bumalda*—2 to 3 feet, one of the best of the newer sorts, flat heads of rosy pink flowers.

34. *S. Anthony Waterer*—2 to 3 feet, a

continuous bloomer all summer ; a sport of the preceding one, crimson flowers.

35. *S. callosa*—3 feet, pink flowers, and continues in bloom a long time, hence its value.

36. *S. callosa variety alba*—A white variety the same as the preceding variety.

37. *S. punifolia* (Bridal Wreath)—Too well known to need description ; 5 feet high, double white flower.

38. *S. reevesii*, var. *flore pleno*—3 to 4 feet high ; a very beautiful variety bearing double white flowers about the size of daisies, one of the best ; in bloom about first of June.

39. *S. thunbergii*—4 feet ; this one has single white flowers in two to four all along the young wood and preceding the leaves, very pretty ; in flower about the first of May.

40. *S. Van Houttei*—This one when in bloom would mind one of banks of snow ; a grand variety ; also makes a pretty hedge, 4 feet high.

41. *Symphoricarpos* — (Snowberry) *var. vulgaris*—This one bears red berries ; very pretty in the fall.

42. *S. racemosus*—Bears white berries, otherwise like the preceding one, both are nice planted together.

43. *Syringa* or lilac—The lilacs are too well known to make any comment upon them, suffice it to give the names of a few of the best, and will begin with the Persian varieties, which are dwarf, growing to about 8 feet high ; they have small leaves and are profuse bloomers ; *Syringa Persica* (Persian lilac) flowers light purple.

44. *S. persica var. alba*—The white form of the preceding ; both are good to plant among some of the larger varieties.

45. *S. vulgaris*—This is the common garden lilac, 10 feet high, purple flowers.

46. *S. alba*—A white form of the above. Both are as reliable as any of the newer ones of which there are a great number.

47. *S. var. comte Horace de Choiseul*—Reddish lilac, and double flowers.

48. *S. Charles the 10th*—7 feet, very good purple.

49. *S. vulgaris Marie Legrange*—4 feet, a dwarf form, with large white panicles, very good.

50. *Tamarix Africana*—Grows to 8 feet high; has small pink flowers, in slender racemes, which appear towards the end of May or the first of June; the foliage is small and heath like; makes a good green for bouquets.

51. *Tamarix Indica*—6 feet high; blooms at the end of August or first of September, of a brighter rose color than the above variety. A few plants planted together of the tamarisk makes a fine display of which the bees are very fond.

52. *Viburnum plicatum*—6 to 7 feet, Japanese snow ball; this is one of the best shrubs in cultivation.

53. *Weigelia or Diervilla* (var. *rosea*)—One of the best, and flowers the second time in the fall.

54. *Weigelia candida*—Pure white variety of the above.

55. *Weigelia desboisii*—Dark rose color.



FIG. 2065. AFRICAN TAMARISK.

56. *Weigelia variegata*—A variegated leaved sort, all are grand shrubs for any lawn, grows to 7 feet high.

Niagara Falls South. R. CAMERON.

THE PHYLLOCACTUS.

THE Phyllocactus (flat leaved) are the most satisfactory bloomers under the ordinary conditions of house culture of all the cactus family. They are for this reason the most commonly found in the windows and conservatories of amateur flower growers.

They have many good points to recommend them, the principal one being the freedom with which their magnificent flowers are produced. They seem to reward the greatest neglect with a profusion of bloom, which is unequalled by any of the ordinary

decorative plants in cultivation. To many people the very name of cactus is quite enough to satisfy them that the plant mentioned is undesirable, and they do not give them a trial, thus missing the pleasure felt by anyone fortunate enough to own a good specimen when it is laden with its gorgeous flowers.

Perhaps the easiest Phyllocactus to grow and bloom, and the one oftenest seen in window garden, is *Ackermanni*, or King cactus. This grows to large size, and as it gets strong, makes a lot of new growth each



FIG. 2066. PHYLLOCACTUS.

season. The fine satiny scarlet flowers are borne along the edges of the leaves at every notch, and very profusely. The buds in all stages of maturity keep the succession of brilliant bloom up for a long period, beginning in February. There are two specimens of this plant in a conservatory at Niagara Falls which bear annually upwards

of six hundred flowers, and are the pride of their owner. Another very strong grower, with much larger leaves than Ackermanni, is *P. Anguliger*, which also has a larger flower, and is a good contrast both in color of stem and flower. The stem is a fresh pea green, and the flower is white. It is a winter bloomer, and was illustrated in the *January Horticulturist*.

Another species of a very slender growth, altogether out of proportion to the wonderful bloom it bears, is *P. Pferrdorffi*. It is rarely seen, and only shows its good qualities when in flower. The flowers are from 8 to 10 inches across, very fragrant, and are valuable because the sepals are a clear yellow, with white petals.

P. RosensSuperbus is of easy growth, and blooms when very small. The flowers are a pleasing rose shade, and a nice addition to any collection. Some of the rarer parts have flowers of a purple shade, such *P. Kampmanni*, *P. Laloyi*, *P. Conway's Giant*, and others. But the Queen of them all, and one quite commonly seen, is *P. Latifrons*. This fine species is a night bloomer of easy rapid growth, and is often wrongly called the night-blooming-cereus. The mistaken idea that many have, that all cactus which bloom at night are night-blooming-cereus, is a common error. *P. Latifrons*, called *Queen of Night*, has a distinct style of growth, well shown in the illustration, Fig. 2066. A well grown plant looks like a fresh green shrub about five or six feet high. Its growth is in round woody stems three or four feet high, surmounted by the broad flat leaves from which its name is derived. Given a good rich soil, plenty of water while growing, and a position slightly shaded from the heat of the sun, and it will reward you with plenty of its magnificent white flowers. These open at night, and are very fragrant, filling the air around them with their delicious perfume. This is a most satisfactory plant for any one to grow,

and is a good decorative plant if well grown, even when not in bloom.

The culture of the *Phyllocactus* consists mainly in not allowing any stagnation around the roots and providing the proper soil. A good compost is made by using a light, well rotted pod, with one-third each of leaf mould, dried cow manure ground

fine, and sand added to it, and the plants potted rather dry. Plenty of charcoal in the bottom of the pots gives a good drainage, and plants need not be repotted, after they are a good size, for years. An annual top dressing of the same compost used in potting will be found the best treatment.

Woodstock.

J. H. CALLANDER.

THE PURPLE FRINGE (*RHUS COTINUS*).



FIG. 2067. PURPLE FRINGE.

This Purple Fringe or Smoke Tree, as some call it, is one of the favorite mid-summer flowering shrubs in Western Ontario, where it has been grown for the last 30 years. It belongs to the same family (*rhus*) as the sumac, which though affording us the most beautiful of colored foliage in the fall, is also one of the most troublesome things to eradicate with which we have to contend. This shrub however is not troublesome in that way, for it does not readily produce suckers, and is easily destroyed if not wanted. But it is so beautiful a shrub that so far we have never had enough of the plants, let alone too

many. It is a native of Southern Europe, from Spain to the Caucasus, whence it was introduced to England in 1656.

It is rambling in its habit, making a large round bush which give a better effect grown singly than in groups. Towards the end of June it is a mass of large panicles of purplish misty blossoms, which are very beautiful. These are very effective for a long time, and everyone feels attracted to them for cutting to add to bouquets and other decorations.

The photograph shows one of those shrubs growing at Maplehurst.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

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

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

THE SWEET CHESTNUT. — Some of our readers are anxious to plant nut trees for profit, but have no information regarding their hardiness. We have a chestnut ridge where a large number of magnificent old native sweet chestnut trees are growing in deep rich sand. This is in latitude $43\frac{1}{2}^{\circ}$. We would be pleased to hear from our readers how much further north these trees will succeed and mature their nuts.

THE STANDARD APPLE BARREL.—We have just received a letter from Wm. A. Taylor, Assistant Pomologist, U. S. Department of Agriculture, Washington, acknowledging receipt of information about standard size of apple barrel adopted in Canada. He says, "We believe this is a step in the right direction, as it tends to simplify marketing. There is still a great diversity in the standard of apple barrels used in this country,

and it will require some years under our system of government to secure the universal adoption of any standard."

GEORGIAN BAY FRUIT GROWERS. — A strong Fruit Growers' Association was formed at Collingwood on Friday the 27th of March to be known as the Georgian Bay Fruit Growers' Association, with Mr. Charles Lawrence, as Secretary. One important object of this society will be the Co-operative handling of fruit, especially apples, of which it is stated that at least 100,000 barrels are produced annually in that district, of such a quality that they bring a special price in the best markets.

Some of the members of this society are desirous of affiliation with our association, and this may be carried into effect. The plan is to make the membership \$1.00, so that after paying the fee for each member

to be a member with us, they could retain the usual commission of 20 cents a member for their own treasury. Then each member would receive our journal, plants distributed, reports, etc., our lecturer would visit their meetings, and their proceedings would be published by us.

FRUIT IN NIAGARA DISTRICT.—Mr. E. D. Smith of Winona, reports to the *Toronto Globe* that the prospect for peaches, pears, grapes and other fruits in the Niagara district is unusually encouraging for the coming season. The export to the Northwest shows great possibilities for Ontario fruit growers so soon as varieties are grown which will endure long shipments. It is not the packing that our Winnipeg friends need to complain of with regard to Ontario fruit, but the fact that the varieties grown in California are better for long shipments than ours. This export trade in tender fruits is a new development, and in future this consideration must largely govern varieties planted.

Mr. E. D. Smith states that last year he alone shipped two hundred car loads of fruit from this district, via Hamilton & Grimsby electric road and Canadian Pacific Railway.

PAN-AMERICAN.—The transportation facilities would seem to be ample for all possible demands of the mammoth crowds which are expected. The entire street railway system of Buffalo, driven by the power of Niagara Falls, is so laid out as to secure direct communication from all parts of the city to the Exposition grounds. At the northern boundary of the grounds there has been built a fine steam railway station. A two-track steam belt line encircles the City of Buffalo reaching this station, and all the steam railroads centering in Buffalo have access to these tracks. This means of transportation will be extensively used, both for excursion trains from out the city and for conveying

people from the various parts of the city to the grounds.

MR. THOMAS MEEHAN, the eminent botanist and nurseryman who is at the head of the firm that publishes that high class journal known as *Meehan's Monthly*, is well represented to our readers in the accompanying likeness. Born in London, England in 1826 he is one of the oldest living members of the American Association for the advancement of science, and his election to membership of the Royal Wernerian Society of Edinburg before he was of age was an honor unusual to one so young.



FIG. 2068. THOMAS MEEHAN.

His literary work is quite voluminous, but his greatest and most important undertaking is the "*Flowers and Ferns of the United States*" each illustrated with a magnificent colored plate. This was first published by Prang & Co., of Rochester, but is now continued in *Meehan's Monthly*.

QUESTION DRAWER.

Dwarf Apple Trees.

1215. SIR.—Are dwarf apple trees as hardy as standards? Are they as successful in Ontario?

Newbury.

J. GANDIER.

The apple tree is dwarfed by being grafted or budded on a small growing species, usually either the Paradise stock, a small variety, never reaching over three or four feet in height, or the Doucin, a medium size tree, producing small sweet fruit. The object of dwarfing apple trees is to adapt them to a small garden, and on the Paradise stock they make beautiful little miniature trees, say four feet in breadth and height, which, when loaded with bloom, are very attractive.

We do not know that this stock is any hardier than the free grown seedling stocks usually employed for standards, some of which are more hardy than others. Although the fact that so many orchards of Fameuse are grown about Montreal on dwarf stock would give one the impression that they are at least equally hardy, if not more so.

We should be pleased to hear from any of our readers who have experience in the colder sections.

As to the success in growing them, if our correspondent means, are they as profitable as standards, we would say certainly not. They would not give nearly as many apples per acre, and are chiefly intended for the small garden.

We must, however, give testimony to the excellent size and color of the Astracan, which we have been growing at Maplehurst now for nearly forty years on Doucin stock.

Gillett's Lye.

1216. SIR.—I want to spray my snowball (*opulis sterilis*?) and roses for the aphides eggs at once and Gillett's Lye has been strongly recommended for the purpose. Could you give me any idea what strength should be used before the buds

burst and after; also if it will injure the lawn about the shrubs? If the lye be used safely and effectively for such purposes it will prove a boon to me who has found kerosene emulsion and tobacco water dirty and very troublesome to prepare. I wrote Gillett's people, having seen the recommendation in the Horticulturist, and they referred me to you. I am of opinion that many busy men are deterred from growing plants to the extent they would because spraying has now become in many cases essential to success, and the spraying mixtures have to be experimented with before they can be used, and are dirty besides.

A. B. ORD, Ingersoll

We have never yet fully satisfied ourselves as to the strength in which this should be used, and so far as we know our experimental farms have not fully tested it. We found it effective in killing cherry aphid used in the proportion of one 10 cent package to 5 gallons of water, but destructive to the foliage. Dr. Fletcher says he has not yet found it very satisfactory in killing oyster shell bark louse, for though it kills the very young scales, it is not sufficiently effective to warrant its use. The samples he has examined have turned out to be simply caustic soda, which even at a strength of one pound to three gallons did no permanent harm to the foliage. Prof. Shutt writes that he supposed the formula for lye wash for dormant wood, was one pound to three gallons of water, and for use after the foliage has appeared, one pound to forty gallons of water. Prof. Shutt is now engaged on the analysis of a number of Canadian and other lyes and will report later on.

Nut Trees For Ontario.

1217. SIR.—Could you please tell me what nut trees are hardy and bear nuts around Toronto, and especially whether I can grow the American sweet chestnut, also whether anybody has succeeded with the *Salisburia*.

Todmorden, Ont.

WM. KIDD.

In reply to your question regarding nut trees which are hardy and would bear nuts at Toronto, I beg to give the following list:—black walnut, butter nut, Japanese

walnut (*Juglans sieboldiana*), and shell black hickory, all of which should be perfectly hardy at Toronto and produce fruit nuts. There are two kinds of hazel nuts which would also be quite hardy, namely, *Corylus rostrata* and *C. Americana*. The European filbert or hazel, though it would probably prove hardy at Toronto, so far as the wood was concerned, would not be likely to set fruit. The reason why the nuts do not set is that the pollen from the male flowers is shed before the female flowers are in a condition to receive it, the result being that the latter are not fertilized and no fruit forms. If the pollen were saved and applied artificially it is possible that the fruit would set. The American sweet chestnut is not perfectly hardy here. We have, however, a few trees which have not been

injured by winter and have produced nuts, but there were no kernels developed. The conditions at Toronto should be more favorable for growing the sweet chestnut than at Ottawa. The *Salisburia* is hardy here, and should succeed near Toronto.

W. T. MACOUN.

Horticulturist C. E. F. Ottawa.

Scions of Canada Red.

1218. SIR,—This last spring I put in about a dozen grafts of Northern Spys into a Canada Red tree, and they grew to nearly three feet in length but very small around. Will you please say through the Horticulturist what I had better do with them?

Norval.

F. F. BRADFORD.

The Northern Spy is inclined to grow rather slender wood. We would advise thinning out the growth, and cutting back from one-half to two-thirds its length.

Open Letters.

Hillcrest Orchards.

SIR,—From your note at the end of the article on Hillcrest Orchards, Kentville, N.S., in your March number, it might appear that the writer, Prof. Macoun, had been incorrectly informed as to the value of the oldest part of the orchard. To substantiate the figures which Prof. Macoun quoted I wish to say that this valuation of \$1,000 per acre has been placed upon the oldest part of the orchard by at least a half dozen orchardists well qualified to judge. Different blocks have different values according to age of trees. On the block of twenty acres referred to, the apple trees, 40 to the acre, are eleven years of age, and the additional intermediate trees, 280 to the acre, of the most desirable varieties of plum, peach, pear, cherry, apricot and quince, are from five to seven years of age, each one ready for work and not interfering in the least with the apple trees. Had there been but the forty apple trees to the acre it would not have been valued at more than \$400 to \$500 per acre at its age, but in its present condition it is not remarkable that it has been considered worth double that amount.

I am aware that this is the highest figure for orchard land, still some well cared for apple orchards of full grown trees of the usual number, forty to the acre, have changed hands in Kings county at that price and if you will do us the honor of a visit some time I will be pleased to show you from 20 to 40 orchards of from five to ten acres each, within a radius of seven miles of Kentville, whose owners will tell you, I think, that they

would not take less than that figure for them. There would, of course, be many in the same area, equally as old, that would not be worth more than from \$300 to \$600 per acre, but when our best fruit men are getting from 100 to 125 barrels of shipping fruit per acre yearly and receiving direct from the London commission men an average of \$2 25 per barrel for their season's crop you will understand the appreciation our orchardists have for such property.

Respectfully,

RALPH S. EATON.

Kentville, N.S., March 27th, 1901.

Grapes in Waterloo County—Three Good Ones

SIR,—Ten years ago I planted a few grape vines, among others, the Brighton, Worden and Moore's Diamond, three grand grapes, for the home garden. They have done exceedingly well here bearing fine crops every year.

Brighton, red, clusters large and long, finest flavor of any grape I have. Worden, black, the first to ripen, about the first of September; very good berries, large as Concord. Moore's Diamond, white, very good berry and cluster large and fine—a sight to see. For the farmer's garden these three would make a fine collection and give abundance of that fine fruit for the home.

The Green Mountain grape I received from the Association of Fruit Growers is a good grape and is doing well; early as Worden and very sweet.

Galt, Ont.

WALTER M. TURNBULL.

Pan American Notice.

SIR,—Will you permit me through the columns of your valuable journal to draw the attention of all fruit growers in the Province of Ontario to the fact that the fair name which our province enjoys, as a country producing in abundance fruit of fine appearance and magnificent quality, will be put to a severe test during the coming season at the Pan-American Exposition. Surrounded as we will be, not only by the fruit products from the various states of the union, but also by those from more distant and tropical countries, all of which will be fully represented in the Horticulture Building, it is very desirable that we spare no effort to maintain the reputation which Ontario has gained already at the Expositions of Chicago, Paris and elsewhere, and to secure, if possible, fresh laurels.

With this end in view, I am extremely anxious

to enlist the co-operation and hearty assistance of all fruit growers in the different sections of the Province, and I know of no better way to reach them than through the columns of the Horticulturist.

I have been much gratified with the many expressions I have received of intentions to forward fruit in season from different points, and I trust that every section of the Province will, either through prominent individuals or through its Horticultural Society, be able to furnish a supply of choice fruit from time to time.

I hope to be able in the next number to furnish your readers with a full statement of the arrangements as to awards etc., under which fruit will be exhibited during the season.

Yours respectfully,

St. Catharines, April 22.

WM. H. BUNTING.

Our Affiliated Societies.

CAVUGA.—We had our open meeting last night in the Court House. An orchestra of seven pieces played for us. The Court Room was banked with flowers at the end, and a large audience filled every seat. Mr. Bacon's lecture was much appreciated. He knows his work thoroughly and is a clear, explicit and intelligent speaker. He also was much pleased with his reception and our new work as a new society. A. K. GOODMAN, Secretary Cayuga Horticultural Society.

THORNBURY.—On the evening of the 18th inst. the Thornbury Town Hall was crowded to the doors by an enthusiastic audience to listen to the lecture and musical entertainment held under the auspices of the Horticultural Society. After a chorus by the Glee Club, of about forty voices, Mayor Pedwell, who occupied the chair, called upon Miss Blanche Maddock, of Guelph, for her lecture on "Window Gardening," which proved most interesting and instructive, and gave new light on many points regarding the culture of flowers, and was just such a talk as the ladies of this section have been wishing for for some time.

After well rendered solos by Mr. McInnes and Mr. Pedler, Mr. Hutt, of Niagara Falls, delivered his lecture on "Beautifying the Home," prefacing his lecture proper with a short, but very interesting talk on "Nature Study." Mr. Hutt gave many practical suggestions on landscape gardening, making and care of lawns, ornamental shrubbery, etc. Also during the afternoon Mr. Hutt visited the schools of Thornbury and Clarksburg and addressed the children.

The evening meeting closed with more music and the national anthem.

The Thornbury society is flourishing; has a membership of sixty-five, and don't have to canvas for members.

J. G. MITCHELL, President.

April 22nd, 1901.

KINCARDINE.—Pursuant to notice given the Kincardine Horticultural Society were favored on Friday evening, the 19th inst., with two most inter-

esting addresses delivered in the Town Hall here, one by Mr. A. McNeill, of Walkerville, on 1st—House plants; 2nd—Plants, trees and shrubs for the ordinary town lot. The other address being by Miss Laura Rose, of Guelph, on 1st—Why I have a garden; 2nd—On economic gardening. The audience was a fairly good one considering that the weather was cold and a protracted or revival service was being held at the Canada Methodist church, close by our lecture hall; notwithstanding these our gathering was a decided improvement on what we have been accustomed to in the past shewing an increased or growing interest in horticulture, etc, about 250 being present. Mr. McNeill was listened to with very marked attention and the several demonstrations of applause evinced during his address and when he concluded, showed plainly that all were highly pleased. Miss Rose fairly delighted everyone and it is quite safe to predict a full town hall to hear her on her next visit to Kincardine to instruct us in the happy art of cottage gardening. I must not forget to report that Kincardine's worthy mayor, G. M. Mackendrick, Esq, kindly gave the free use of the town hall in the afternoon when Miss Rose gave an interesting address to a large number of the school children, a treat they will not soon forget.

T. BARKER, Secretary.

SEAFORTH.—The enclosed clipping from the Huron Expositor of this town contains a very good account of our public meeting on Wednesday evening, and expresses, I think, the opinion of all who were present:

The meeting in the town hall on Wednesday evening under the auspices of the Seaforth Horticultural Society, was a very successful and interesting affair. The attendance was large, the hall being well filled. The chair was occupied by Mr. Wm. Ballantyne, president of the society. Excellent and instructive addresses were delivered by Miss Rose, of Guelph, and by Mr. McNeill, of Windsor. They are both good speakers, and they have the faculty of making their addresses interesting as well as instructive. Musical selections

were also given by Mr. Will McLeod and Master Willie Hays. The meeting was in every respect a gratifying success, and will, no doubt, do much good in the way of stimulating renewed interest in the society, as well as in the pleasant pursuits of floriculture and horticulture. In the afternoon Mr. McNeill addressed the students of the Collegiate Institute, and Miss Rose the pupils of the public school."

Mr. McNeill is indeed a practical man and speaks of what he knows. Miss Rose's address was simple, yet pleasing and instructive. There will certainly be some results from their visits to the various towns.

Our society has grown some this year, both in numbers and in interest.

Although you do not very often hear from us, we nevertheless very much appreciate the Horticulturist.

V. KNECHLET, Secretary.

PICTON—The addresses given by Miss Maddock and Mr. Hutt on Monday evening, in Shire Hall, under the patronage of the Picton Horticultural Society, were a decided success. The hall was full, the audience being very attentive and appreciative of the matter laid before them. The question box was well patronized, and the information clearly given by Mr. Hutt and Mr. Wise, florist at Messrs. J. Terrill & Sons'. The subjects dealt with by Miss Maddock were principally "Beautifying the Home," and "Domestic Science," while Mr. Hutt spoke of the "Birds and Insects," in relation to flowers and trees. Both speakers referred to the remarkable success of Mr. Ross, the secretary of the society, with the tropical and economic plants he has given his attention to. These lectures to the horticultural societies are now under the management of, and the delegates are sent by the superintendent of the Farmers' Institutes, and no doubt will be of much value to those interested in horticulture.

CARDINAL.—The officers and directors of the society have reason to feel satisfied with the good success that attended the afternoon and evening meetings on Tuesday last. The society was favored with the presence and help of Mr. W. N. Hutt, of Southend, and Miss Blanche Maddock, of Guelph. In the afternoon the scholars of the Public School were treated to an address by each of the above named visitors, and so interested were the children with the addresses that they called "More, more."

The Town Hall in the evening was most tastefully arranged with bunting, flags, flowers, etc., and the display of plants on the platform was handsome. President R. B. Dowsley, Reeve of the village, acted as chairman. A short musical programme had been arranged, including songs from Mrs. W. B. Sweet, Mrs. N. Bolton, Miss E. Ross and Rev. Mr. Stafford, while Mrs. W. A. Logan and Miss Ross acted as piano accompanists.

A large audience assembled which completely filled the seating capacity of the hall. Two addresses were delivered by Mr. Hutt and one by Miss Maddock. In a racy, interesting and most instructive manner Mr. Hutt dealt with pruning, spraying, insects, birds, etc., and Miss Maddock on the mission of flowers and window gardening. At the close Mr. W. A. Logan, in moving a vote of

thanks, and Mr. M. L. Connelly in seconding the same voiced the sentiment of all present in pronouncing the meeting one of the best and most instructive the society had ever held.

For a membership fee of only one dollar per year, there is given about twice that amount in plants, bulbs, etc., and in addition a monthly horticultural journal.

PERTH.—The above Society held its first open meeting yesterday in the Town Hall here. There was no distribution, as we had distributed four tuberous begonias and six gladioli a short time before, and have yet to receive our Crimson Rambler rose and clematis paniculata for later distributing.

The committee appointed for the purpose had the stage beautifully decorated with palms, ferns, and flowering plants in great profusion.

At three in the afternoon all the schools of our town turned out with their teachers and paraded to the Hall. There were upwards of 500 pupils there. The meeting was opened by Mr. Charles Meighen, the Chairman of the School Board, in a very neatly turned speech, introducing Dr. Jas. Fletcher.

Dr. Fletcher is Entomologist and Botanist at the Central Experimental Farm, Ottawa, but, as he humorously puts it, he is more familiarly known as the "bug and weed man." He kept the attention of his audience riveted for three-quarters of an hour by his simple delivery and the simple facts he brought to their attention. The text of his lecture was "The Value of Nature's Study in Education," and he brought out many things that it would be well for young and old to remember.

In the evening Dr. Fletcher addressed the members of the Society and their friends, to the number of about 400. The Mayor, Mr. J. A. Stewart, opened the meeting with a short address, setting forth the aims and objects of the Society and the benefits derived from membership. Dr. Fletcher then spoke a half hour on "The gardener's insects' enemies." This was extremely interesting and instructive. The Doctor's address on this subject is not nearly as bloodthirsty as one would think from the title. In fact I think he would rather preserve the lives of the innocent insects than to destroy them; but in the meantime he gave us many practical hints in the best ways to preserve our fruit and flowers. He divided the insects into two classes; those having mouths with which they devour the foliage, and those having suckers, by means of which they sap the life of the plant from within. Dr. Fletcher then described thoroughly the use, and the way to use coal oil, paris green and insect powders as insect destroyers.

After this part there was a short musical programme, when Dr. Fletcher continued his discourse, taking for his subject "Some plants worth growing." He took up the four plants we are distributing, also the "Golden Glow."

Without doubt these meetings are splendid things, and great good should result from them. Dr. Fletcher reached 900 people yesterday, and turned their thoughts in the right direction for this season of the year.

A. W. GOODMAN,
Secy. Perth Hort. Society.

April 20, 1901.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap.*" It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says :

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel.** Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it :

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new and valuable.**

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them and report where these novelties are as described.

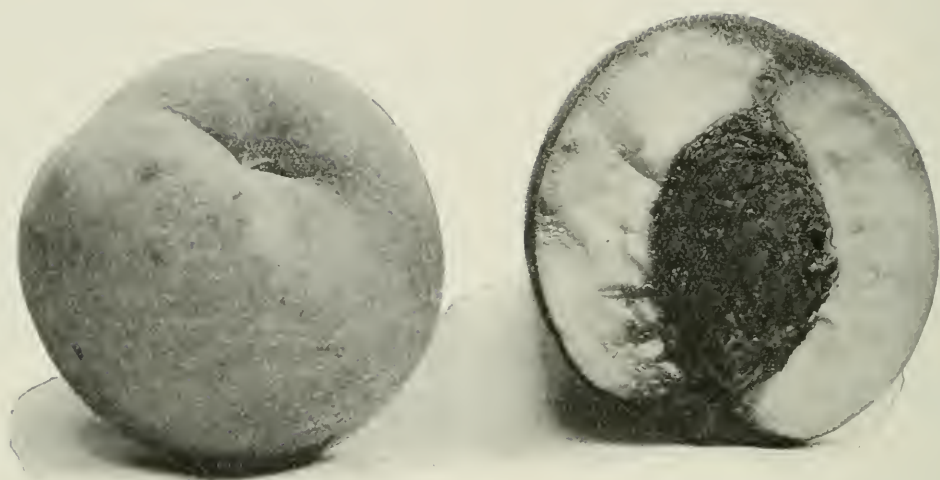


FIG. 2069. THE SNEED PEACH.

THE CANADIAN HORTICULTURIST

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No 6

* * JUNE * *

THE SNEED PEACH.

A promising early variety for home use and near markets.

ORIGIN ; Tennessee, by Judge Sneed, of Memphis, about 1880, from a pit of the Chinese Cling.

TREE ; vigorous, but slender in young growth ; productive, an early bearer.

FRUIT ; medium, about 2 x 2 inches in diameter, roundish oval, slightly one-sided ; skin, light greenish white, with red cheek, and short thick down ; cavity narrow and deep, with distinct suture, and a small pointed apex, in a slight depression.

FLESH ; semi-cling ; color, yellowish white at maturity ; texture, tender, fine, very juicy ; flavor mild, vinous, pleasant.

SEASON ; July 20th and 30th, 1900.

QUALITY ; dessert, good.

VALUE ; home market, fair ; distant market, useless.

THE earliest peach to ripen in our experimental orchard at Maplehurst, in 1900, was the Sneed, which began to mature about the 20th of July. At one time there was great profit in early varieties. Thirty years ago we began with Early Purple, which ripened about the 20th of August. One season we had such good prices for that variety that we set quite a large orchard of it. The fruit was excellent if you ate it just at the nick of time, but alas ! if you left it an hour too long it was all juice, and could not be ship-

ped a mile from home. Then came Hale, which ripened about the 15th of August, and colored up so beautifully on the trees, but was so disappointing when you tried to bite it. Firm was it? Why it would not get ripe enough to eat unless you knew just how to handle it, but usually it chose to rot first, in a large section, as suddenly as if struck by fire blight. But it sold well, and that was the chief consideration for the grower. Since its introduction we have many claimants before us as early varieties, such as Amsden's June, Early Canada, Louise, Rivers and Alexander, the latter of which ripens toward the end of July, and has a very attractive appearance, if well grown. But Crawfords, and other better varieties from the South and from California began pouring into our markets by cold storage from Florida and Southern California, and thus crowded out our inferior varieties of early peaches, until it now scarcely pays us to grow them at all in the commercial orchard.

The Sneed adds one more to the list of these early varieties, bringing in the peach season still earlier than Alexander. Last year it ri-


pened for the first time with us at Maplehurst, and it impressed us favorably as a dessert peach for the home garden, because of its tender, juicy texture and pleasant flavor. It is not a cling like the Hale, but only a semi-cling, like the Early Purple, which was always a favorite dessert peach, when fresh from the tree. The tree is a fine grower, and quite productive, and evidently an early bearer, for it produced its first fruit at three years of age. When ripe, the skin and the flesh are both creamy white, with a red cheek.

This peach would be wholly unsuitable for shipping to a distant market, as indeed are nearly all our early varieties.

The Sneed originated in Tennessee about 1880, and was named after the originator, Judge Sneed, of Memphis. It is a seedling of the Chinese cling.

Lourance, of N. C., wrote in the Rural New Yorker, last year, very favorably of this peach, as follows: "The Sneed is about ten days earlier than Amsden's June or Alexander; it is somewhat larger, ripens much better to the pit, is of excellent flavor, juicy and, when fully ripe, the skin readily peels off with the fingers. It has a large, full bloom, and therefore is not so easily killed by frosts. It is also rather late blooming."

PAN-AMERICAN HORTICULTURE—I.

UR second official visit to this grand exposition was made on Dedication Day, the 20th of May. Wonderful changes had taken place in the buildings and grounds in the month since our last visit, for then heads and trunks of statuary lay topsy-turvy and prospective elegance of architecture still revealed bare construction timbers. Now these are all in place and the magnificent, many-colored buildings now blend into one harmonious whole, in style a fine representation of the Spanish Renaissance, rich with sculpture and color decoration. One can well believe Mark Bennitt's statement in his "Illustrated Souvenir" that this great enterprise represents a total expenditure of \$10,000,000, not to mention the enormous value of the exhibits themselves.

Entering by belt line railway from N. Y. C. station, one is ushered through the Propylaea and its wings or colonnades, decorated with beautiful statuary, into the very midst of these magnificent structures; before you the Electric tower, 410 feet in height, a sort of guide to keep one from being lost, and in front of it the grand esplanade, where

thousands of people can be seated and watch the electric glory of the evening lights, which mark out the outlines of the buildings to people miles away on every side. On the east wing is a group of statuary by H. Adams representing "The Age of Enlightenment," expressing the progress of man from the savage to the enlightened state. Another group is "Heroic Music," by Kontè, showing the blind bard with the lyre and over him a winged female figure carrying the laurel branch, the whole expressing the conventional idea of heroic music. Cuts of these groups were kindly sent us by Mr. Bennitt, Chief of the Publicity Department.

We just hint on the general beauty of this marvellous exposition, because it emphasizes the importance of the opportunity here afforded of exhibiting our Canadian industries to the world. More attractive than the World's Fair at Chicago, more convenient of access to Canadians than any great exposition has ever been, there will be more Canadians at the Pan-American than at any former one, and we cannot stir up the national pride of our country in a more

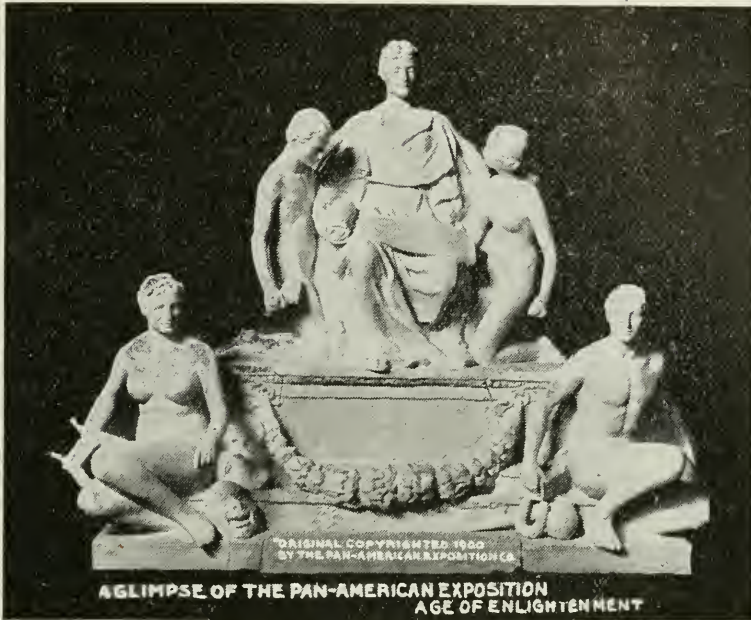


FIG. 2070.

laudable manner than by showing our products side by side with all others, and thus proving their superiority.

To the right of the esplanade after passing the Temple of Music, going south, you reach the Horticultural Building and Ontario's Court, near a grand entrance. Mr. Bunting, Mr. Robt Thompson and Mr. Collins were here to meet the public and give all information. The tables and arches were most appropriately designed and painted pure white; the tops of the tables were covered with a dark green cloth on which the white plates of fruit showed up beautifully. Fine white pillars stood around the whole space, and on the principal aisle faced the arches, the pediments of which were decorated with deer heads, and on the entablature of which stood out in bold relief "ONTARIO, CANADA"; the whole was surmounted by beautiful silk Canadian flags and Canada's coat of arms. The large pillars were utilized to show bottled fruit and pickles, and pictures of Ontario fruit farms, while the trophy erected



FIG. 2071.

in the centre was most attractive with its exhibit of culinary fruits in glass jars.

"The whole of this installation was erected by Ontario workmen," said Mr. Bunting proudly, "and only at six o'clock on Saturday night did the workmen finish the work, and then we had all the work of setting out our exhibits still to do." Well it was creditably done, if it was done in a hurry; and the apples, placed in cold storage last fall, came out for the most part in perfect condition. With the apples, some two hundred bottles of domestic canned fruits in glass, and an exhibit of pickles from Bow Park Farm, Brantford, the fruit exhibit will command its full share of attention until strawberries and other fresh fruits begin to come in.

LIST OF EXHIBITS.

The following is a list of the principal exhibitors of fruits and decorations as set forth on the 20th of May.

FRUITS.

Department of Agriculture,—American Pippin, Baldwin, Ben Davis, Blenheim, Bottle Greening,

Grimes' Golden, Russett Holland Pippin, King, Canada Red, Cranberry Pippin, Fallawater, Mann, Ontario, Red Russett, Snow, Stark, Spitzenburg and Winesap. Other varieties to be added from time to time.

A. A. Leslie, of Aylmer, sends a collection of apples from fourteen contributors at Sparta, Gravesend, Lakeview, Copenhagen and Bayview, each giving two or three varieties.

W. Richards, of Newcastle, shows twenty-nine plates of choice Northern Spy.

S. B. Morris, of Rodney, Spys and Baldwins.

Robt. Thompson and W. H. Bunting, of St. Catharines, King, Snow, Greening and Wagener apples and Keiffer pear.

Albert Pay, of St. Catharines, Spy and Baldwin; and James Titteringtoe shows Fallawater.

G. C. Gaston, of Craighurst, canned fruit, shown at Industrial, Toronto.

W. H. Bunting, collection of canned fruits from various contributors.

Shuttleworth & Harris, Bow Park, Brantford, pickles in jars.

DECORATIONS.

Ernest Hack, Grantham, the White Owl that surmounts the trophy.

E. J. Lovelace and Dr. Kilmer, the deer heads on the pediments.

Dr. May, Frank Coy, Albert Pay and R. Thomson, St. Catharines, the deer heads on the pillars.

Dr. Comfort, of St. Catharines, stuffed birds, and Frank Coy, a hunting scene, etc.

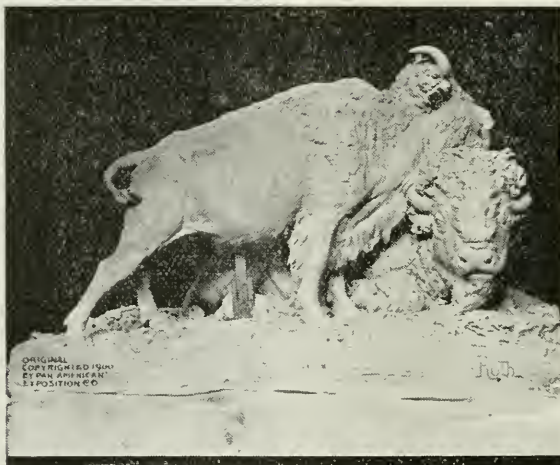


FIG. 2072. KING OF THE FOREST.

CENTRAL EXPERIMENTAL FARM NOTES—XVII.

THIS has been a very favorable spring for garden and orchard work. There was no frost in the ground to delay operations when the snow disappeared, and since that time the weather has been all that could be expected. The only frost that has been recorded since early in April was on the 20th of that month, when the temperature was 31.3° F. Since that time there have been several white frosts which the thermometer has not recorded. There were warm days during the last week of April and the first and second weeks of May, the highest temperature in April being on the 28th, when it was 79.8° F. In May the highest, so far, was on the 8th, when the temperature rose to 81.2° F. There has been comparatively little rain during the past month, but to-day there is a heavy downfall.

Everything is well advanced at this date, May 17th, and the season is more than a week earlier than last year.

Now that the leaves have expanded and the flowers are opening, a better idea can be obtained of how the various trees, shrubs and herbaceous plants wintered than it was possible to have a month ago; and it is also much easier to predict what the crop of fruit will be.

There were few deaths from winter killing in the apple orchard and the trees are now looking well. A large number of trees were affected by blight last year, and while the terminal growth in many cases was not destroyed, the fruit spurs were killed; as a result, the crop of apples on the trees will be small. Trees which were not blighted and which did not fruit heavily last year will probably bear good crops. The apple crop on the whole will be below the average. The American plums have bloomed very freely and there will likely be a heavy

crop of them. There will, however, be no European plums, as the flower buds were killed. The hardier cherries came through the winter well. The flower buds on all the trees, however, were practically all killed. There was evidence that the bloom would have been heavy, as the buds on the branches near the ground which were covered with snow were uninjured and there was a good show of bloom. Grapes were uninjured and are looking well. Some varieties of raspberries wintered well, while others were more or less injured. Golden Queen was killed to the ground and Cuthbert was considerably injured. Strange to say, the Shaffer under the same conditions, never looked better. The blackberries, also, came through the winter better than usual. Strawberries are exceptionally good and the prospects are very bright for a fine crop of this fruit. Ornamental trees and shrubs are looking well and the injury to the tenderer things was probably about the same as usual, with the exception of some of the evergreens, which were badly browned. Trees of the Ontario apple were again badly injured by winter. Mr. Harold Jones, of Maitland, Ont., reports that at the St. Lawrence Fruit Station this variety is quite hardy, and it may succeed in more sheltered places near here, but is not safe to plant.

There are few early blooming shrubs which are hardy here, and on this account attention should be drawn to *Spiræa arguta*, a comparatively new species which is not generally known, but which is very beautiful. This species somewhat resembles *S. thunbergii*, but is of much more graceful habit and has the advantage of being quite hardy. It began to bloom this year on May 12th, when the bushes were simply covered with small white flowers. Maule's



FIG. 2073. RUSSIAN COLUMBINE (*AQUILEGIA OXYSEPALA*).
(Photo. by F. T. Shutt.)

Japanese quince (*Pyrus Maulei*) is another hardy shrub which should be in every garden where *Pyrus Japonica* is not hardy. The flower buds of this species have never been injured by winter here and the flowers are large and of several shades of red. It blooms about the middle of May.

In the year 1887 a large collection of seeds was obtained from St. Petersburg, Russia. Among these was a Columbine which came under the name of *Aquilegia oxysepala*. This species, which has been grown here for fourteen years, is still as fine as when first introduced. The flowers are very large and are of a rich shade of bluish-

purple. The plant is a very free bloomer and as it flowers early in the second week of May, when there are few other plants in bloom, except bulbs, it is especially desirable. Most columbines are difficult to keep pure, as they cross very readily, but as this species blooms so early it is self fertilized.

We had good success this year in forcing parrot tulps in the house and have decided that we shall never be without them in the future. They do not make very good pot plants, as they are not stiff enough, but as cut flowers they are fine, the blooms lasting for two weeks if the room is not too warm. They are more difficult to force than the

early tulips and should be kept back as long as possible, As about half of the bulbs do not bloom they should be planted rather thick in large pans, pots or boxes. The double tulips are also very satisfactory for forcing in the house and succeed better than outside. Some of the best are: Murillo, Couronne d'or and Emperor rubrorum. Murillos when well grown in the house and fully expanded have measured nearly six inches in diameter. If the house is not too warm the flowers of double tulips will last from ten days to two weeks.

The perennial border is often bare looking

after the spring bulbs have done blooming, but we find that the border may be kept bright by growing Iceland poppy, the seed of which should be sown broadcast. This beautiful poppy makes a fine show of colour until other flowers begin to bloom. They also take away the patchy appearance of a border which has but a few clumps of perennials and fill up the gap until the annuals begin to flower.

W. T. MACOUN,
Horticulturist.

Central Experimental Farm,
Ottawa.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.—IV.

THE BUFFALO TREE-HOPPER.

FRUIT-GROWERS during the spring pruning of their orchards frequently come across limbs disfigured with oval-shaped scars (Fig. A) which are decidedly injurious to the tree. Frequently the affected limbs break off during strong winds, and as the grubs of borers are often found in these broken limbs, the inference is too often made that the borers are the mischief-makers. The real cause of the scars, however, is a greenish bug about one-third of an inch in length, triangular in shape, and with some slight resemblance to a buffalo, hence the name—*Buffalo Tree-Hopper*. (Figs. C and D).

In late summer and autumn, it is often possible to catch these tree-hoppers, or to watch them at work depositing their eggs in slits on the twigs. My illustration (Fig. B) shows the slits, not at the time of deposition, but in the spring when the scars have become quite large and unsightly.

The females deposit their eggs on young wood in late summer, preferring but little the two or three years old growths on young trees to those on old trees. The curved slits are made close to each other, enclosing a portion of bark, and in each of these slits six or more eggs are laid. The purpose of the double slit is apparent, for if only one were made the eggs deposited in it would almost certainly be damaged by the subsequent rapid healing process. With the two slits, arranged as they are, the enclosed portion of bark is killed, and the eggs are preserved from injury by any subsequent growth.

The eggs remain over winter in the slits and hatch about the first of June. During the winter and following seasons the slits gradually widen, and the scar becomes oval in outline on account of the dropping away of the enclosed central piece of bark.

It would appear that the Buffalo Tree-Hopper does not confine its attentions to apple and pear, but will produce scars on

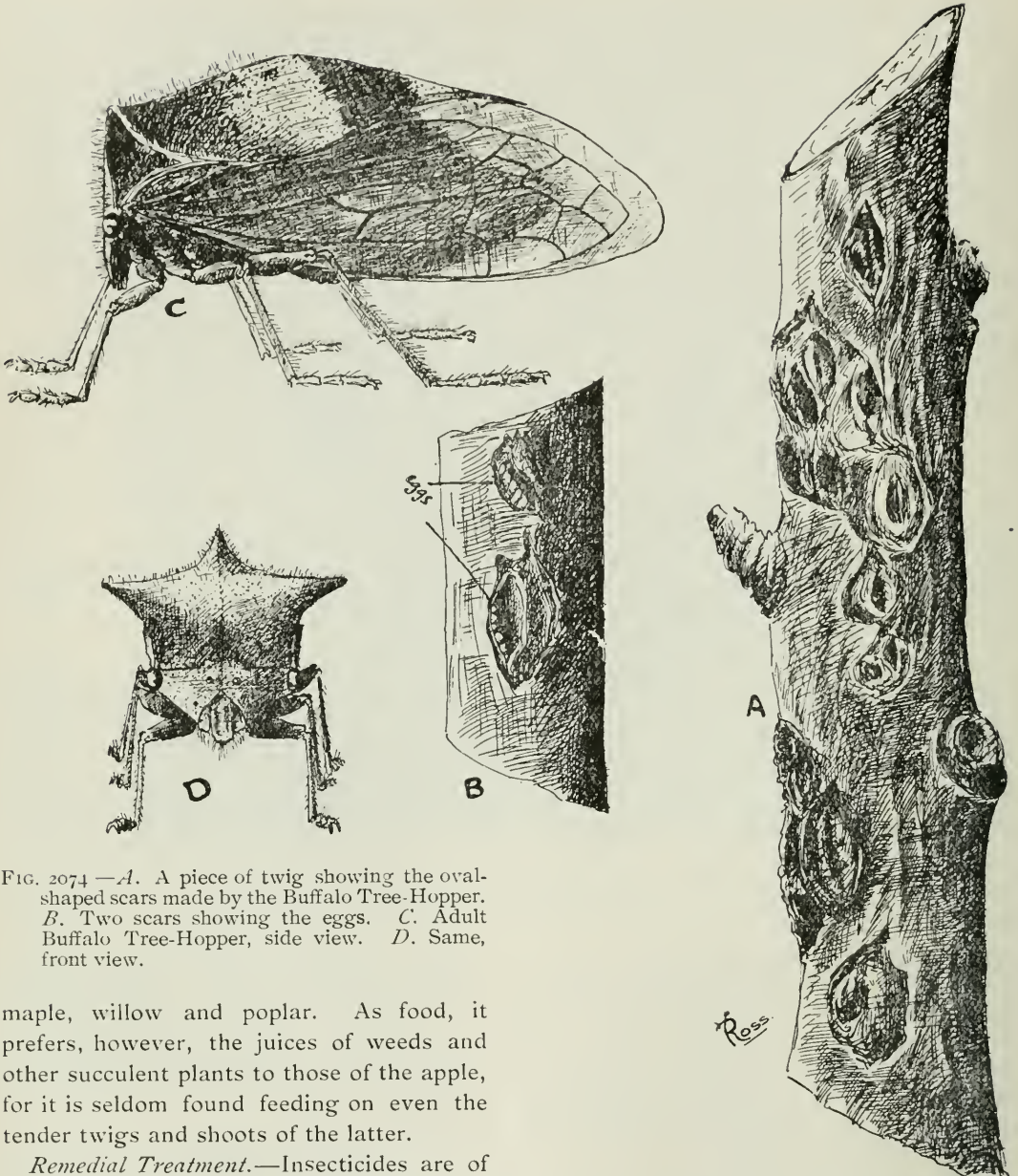


FIG. 2074 —A. A piece of twig showing the oval-shaped scars made by the Buffalo Tree-Hopper. B. Two scars showing the eggs. C. Adult Buffalo Tree-Hopper, side view. D. Same, front view.

maple, willow and poplar. As food, it prefers, however, the juices of weeds and other succulent plants to those of the apple, for it is seldom found feeding on even the tender twigs and shoots of the latter.

Remedial Treatment.—Insecticides are of little value in diminishing the severity of the attacks of the Buffalo Tree-Hopper. The best treatment is to remove and burn all affected twigs and branches during the season of pruning, as the eggs will then be destroyed.

Clean culture, by which weeds and other plants on which the insects feed are de-

stroyed, will also aid appreciably in reducing the number of the pests.

MORE ABOUT THE SAN JOSE SCALE.

Every year brings to light some new feature in the treatment of the San Jose Scale. Last year the value of crude petroleum was clearly proven; three or four years ago,

potash whale-oil soap, and kerosene were first used with success in large operations. Contradictory results, however, were often obtained by different experimenters, and even by the same experimenter, results which could not be satisfactorily explained. For example, in the hands of some fruit-growers pure kerosene proved beneficial, while in the hands of others it was deadly to the trees. Crude petroleum, too, gave conflicting results, but when a straight paraffin crude petroleum, having a specific gravity test of 43 degrees or over on Beaume's oil scale, was used by Dr. J. B. Smith, of New Jersey, uniform success attended the application. It seems that the term "crude petroleum" is applied commercially to a great variety of unrefined oils widely different in their compositions, hence when used as an insecticide the term should be specific.

Again, in a recent bulletin, prepared by H. P. Gould, of Maryland, the reason for so many failures with kerosene is plainly stated. Mr. Gould shows that 20 per cent. kerosene *cannot be used on peach trees when they are perfectly dormant without serious results*; but that, as soon as the activities of the tree begins in spring, spraying with 20 per cent. kerosene should be commenced; that there is no necessity for using a stronger mixture than the 20 per cent.; and that peach trees may be sprayed with the 20 per cent. mixture with comparative safety during the summer when the young are crawling.

It is interesting to note that the results secured by Gould coincide largely with those obtained in the series of experiments carried on during January and February, 1900, by Mr. G. E. Fisher and myself, and by Mr. Fisher later on in the season. My notes on these experiments, based on a study of the

winter buds and San Jose Scales while the trees were still dormant, bring out the fact that in nearly every case the buds of the trees—apples, pear and plum, as well as peach—were destroyed when 20 per cent. kerosene and water was used.

Mr. Fisher, in his report of the Inspector of San Jose Scale for 1900, states: "As a winter treatment I regard kerosene as being more liable to injure trees than any other remedy with which I have acquaintance. It is not so fatal to fruit buds as soap applied in early winter, but so far as has been observed the effect on trees was almost invariably disastrous. It was used in a mechanical emulsion in the proportion of 20 per cent. with water, which was not so effective as an insecticide, and cannot be said to do even satisfactory work in killing the Scale."

The conclusions reached by Mr. Fisher regarding the value of 20 per cent. kerosene as an insecticide appear at variance with that of Mr. Gould, but it may be noted that Mr. Fisher did no spraying while the trees were active, and Mr. Gould does not report the effect of the kerosene on the Scale while the trees were dormant.

Regarding crude petroleum, Mr. Gould summarizes his results:

1. Crude petroleum seems to be effective in controlling San Jose Scale when properly and intelligently used.
2. Either a green or amber-colored oil may be used, provided it has a specific gravity of not less than 43 degrees at a temperature of 60 degrees Fahr.
3. It can only be used when the trees are dormant. In this respect crude petroleum and kerosene act directly opposite. (This applies especially to peach trees.)
4. It may be used either undiluted or in the 20 or 25 per cent. mixture.

W. LOCHHEAD.



FIG. 2075. GARDENS OF THE PALACE OF LUXEMBURG.
(Photo. by A. L. Saunders.)

NOTES IN AND ABOUT PARIS.

IN September, 1900, it was our pleasure to spend most of that month in France and more especially about Paris, which is a beautiful white city without any smoke to spoil its buildings or to interfere with one's comfort in any way.

The climate in September proved very enjoyable, being clear and warm, with very little rain, so our time was spent in constant sight seeing through the city and about the river, which is clear and very attractive, with so many beautiful bridges and boats in every direction every few minutes, making it very convenient for travellers.

The older parts of Paris are very interesting, and one sees quite a different life about Notre Dame among narrow streets crowded with goods and poor people on the side-

walks, from what you can see about the Arc de Triumph. This is a most beautiful arch and here many of the finest avenues in the city meet, here the fashionable people live and have their homes and here the driving, on a fine afternoon, is a great sight.

One of the greatest places of interest in the older portion is the Palais de Luxembourg and the beautiful gardens (Fig. 2071), connected with it, containing so many trees and flowers and fine pieces of statuary. The terrace can be seen in the picture with the two levels of the grounds, the lake being on the lower ground. All travelers visit these grounds and the palace itself is very old and contains much of interest.

The homes of the rich in Paris are built nearly always on the street line and are not



FIG. 2076. ENTRANCE TO BARON ROTHSCHILD'S ESTATE.

attractive, but if one can enter through the iron gate into the court yard behind, there is often a beautiful garden to be seen, as shown in this picture.

On September 29th, while we were still in the city, we were favored with an invitation from Col. G. B. Brackett, who had charge of the fruit exhibit of the United States at the Fair, to join a party and visit Baron Alphonse Rothschild's estate at Ferrieres, twenty miles from Paris. (Fig. 2076.) We had a most delightful day in that splendid estate, which covers an area of six by twenty miles, the greater part being used as a game preserve, with deer and other animals, as well as wild birds in great abundance. Twelve hundred acres of this is maintained as a most perfect park, where a vast number of trees and shrubs have a home. Great masses of rhododendrons, laurels, yews, hollies and many other tender things grow there, healthy and strong. A very large clump of cedar of Lebanon formed a lovely picture near the mansion, with its dark green heavy foliage and the long leaves hanging from the branches were very beautiful. The mansion, as shown in the picture, is very fine, and many fine trees and shrubs are planted near it. (Fig. 2078.)

This park is most beautifully kept and everything is in the highest state of cultivation, thousands of shrubs and trees and nothing in the least deformed or unshapely, and plenty of room allowed for all to grow in their natural forms and habits. The beautiful lake near the mansion, shown in Fig. 2077, is also kept in perfect order and is skimmed several times a day by men in boats to keep the surface bright and clear of fallen leaves, which are so numerous in September. This lake is the home of the wild water birds in the park, as are also the ponds near by, and adds a great deal to the beauty of the park. The tropical plants and large flower beds about the mansion are very effective.

About four hundred men were employed on these grounds and all parts of the grounds were in the most perfect order everywhere. There was a good aviary with several buildings constructed to suit the birds. The fruit garden was very attractive; forty men were employed and we saw a great collection of pears, peaches, nectarines and apples, mostly in full fruit and very tempting to hungry travelers. Many trees were trained against walls, while others were grown as cordons, espaliers and pyramids, and nowhere could a thing be seen



FIG. 2077. GLIMPSE OF LAKE AND CEDARS.



FIG. 2078. BARON ROTHSCHILD'S CHATEAU.

out of place, the care taken was so perfect, and the trees were laden with ripe fruit all

through. The vegetable garden was also very fine, with many hot-beds for tender things, as well as vegetables out of season. There were also commodious greenhouses for roses, orchids, ferns, carnations, palms, and all plants needing special care and special temperatures, with houses for raising plants and flowers for bedding out.

As it had never before been our good fortune to see such a lovely park and so perfectly kept, our day there was one of the brightest and best in all our travels.

ANNIE L. SAUNDERS.

Central Experimental Farm,
Ottawa.

THE AMERICAN POMOLOGICAL SOCIETY holds its 27th annual session in Buffalo, N. Y., Sept. 12th and 13th.

As Buffalo is close to the famous fruit districts of Western New York, Eastern Ontario, Northwestern Pennsylvania and Northern Ohio, it is anticipated that the local attendance will be large, and that the opportunity to visit these interesting regions under favorable circumstances will be embraced by many of the members from a distance.

A program covering subjects of general and vital interest to fruit growers and consumers throughout the country is being arranged, the details of which will be announced in due time. Meanwhile members are invited to inform the secretary regarding any subjects of general interest that are of special importance in their respective sections of the country.

As a better understanding of the relations of bee keeping to fruit growing is believed to be important to both industries the National Bee Keeper's Association has been

invited by the Executive Committee to join in one of the sessions for a discussion of the various practical phases of that question. This invitation has been accepted, and a joint session on this subject will be held at some time during the meeting.

Members of the Fruit Grower's Association of Ontario, desiring to attend this meeting, may receive from the Secretary a certificate of such membership, for presentation at this meeting, if desired.

The facilities for the display of fruits entered in competition for Wilder medals will be excellent, as the Exposition authorities have tendered space for the society exhibits in the Horticultural Building of the Exposition. Such exhibits will also be eligible to Exposition awards. Members who have promising new fruits or fine collections of standard varieties which they desire to exhibit are therefore urged to plan to attend the meeting and to make the best possible showing of their products, taking advantage of the rare opportunity offered.



TWENTIETH CENTURY EDUCATION.

THE members of our affiliated societies will be much interested in a new plan of co-operative work which was presented before a large gathering of Grimsby people at Maplehurst, the home of the secretary, one Thursday in May, by Mrs. John Hoodless, of Hamilton. The subject of her address was "Twentieth Century Education," and in it she pointed out the weakness of the university training for girls, in that it withdrew them too much from sympathy and touch with any kind of real productive industry; and of the school system of Canada in that it led the student too much into a mere preparing to pass an examination, without much regard to the educational benefits of the course.

The methods of the manual training of Domestic Science Schools, lead the student to study with the thought of immediately putting that book work or lecture to a practical test. At the Normal School of

Domestic Science, Hamilton, young ladies are now being prepared to become teachers, and as fast as these young ladies graduate they are at once employed in either public or high schools, conducting certain classes in this department.

As an outcome of such training, Mrs. Hoodless claims that a large number of the now unemployed women of Canada and England will be in a fair way of becoming producers, as a result of their training. To still further favor this scheme, she seeks special provision for women at the O. A. C., Guelph, where, in addition to a thorough education in the principles of agriculture and horticulture, they may be taught such practical work as egg packing, fruit packing, preparing fowls for shipment, etc., so that our produce could be exported to the great markets of the world in such a condition as to command the highest prices.

In furtherance of her philanthropic pur-

pose, Mrs. Hoodless also brought before us the objects of the Women's Agricultural and Horticultural International Union of England, which are as follows :—

1. To form a bond between women in all countries who are engaged, whether directly or indirectly, as employers or employed, or as working amateurs, in

(a) Farming, dairying, poultry-keeping or bee-keeping ;

(b) Fruit or flower growing for profit ;

(c) Laying-out of grounds, forestry and the management of estates.

2. To circulate useful information, and to compare the methods of different countries and districts.

3. To advise as to training, and to make known openings for obtaining employment, and for the disposal of produce. Members can also consult each other :—For example, one intending to settle in Canada could write to a member here, and get information at first hand.

4. To endeavour to secure an adequate rate of payment for women employed in any of the indicated lines of work. To uphold the highest standard of work.

Those desirous of joining the union as members must send in their names to the honorary secretary, stating in what branch they are engaged, and enclosing the names and addresses of two referees as to their qualifications.

The rates of subscription for such members are : 2s. entrance fee, and 2s. 6d. per annum. All employers, amateurs and others interested in the objects of the union, are classed as honorary members, and pay 5s. per annum. Donors of £5 are life members. *Subscriptions are due on January 1st.*

Membership entitles to advice from the executive committee ; to the receipt of such papers or reports as are issued periodically ; to advice as to the disposal of produce ; and to assistance in finding employment.

The papers circulated by the union will contain lists of members, and of appointments obtained by

women, articles by experts in various countries, correspondence, reports of the honorary secretary, and matters of general interest bearing on subjects coming within the scope of the union.

The council meets twice a year, the executive committee at its own option. The latter is re-elected annually. New members of council can only be elected at council meetings, and must be duly nominated and seconded.

A general meeting is held annually in May or June, in London.

Non-members corresponding with the honorary secretary or executive committee, without any intention of joining the union, must pay 1s. fee.

Mrs. Hoodless proposes that each of our affiliated Horticultural Societies, and each Woman's Institute be allowed to take one membership for the society, thus bringing the membership in touch with the union, and in sympathy with its work ; and forming an organization for receiving the publications and the visiting lecturers of the union.

This might result in the direct sale of produce, properly packed, by members of the societies in Canada to members of the union in England, or to trade with persons recommended by those members.

We wish Mrs. Hoodless every encouragement in her work. She is a charming speaker, her addresses are listened to by every one with the greatest attention and interest, and we hope to induce the Department of Agriculture at Toronto to send her out to address all our affiliated societies next season.

ADVANCES IN PLANT BREEDING.

IT IS astonishing how much there has been said and how much there has been written during the past twenty years on the subject of hybridizing of fruits and of plant breeding in general. It is also surprising in the face of this that such small advances have been made in the way of systematic production of improved varieties of fruits. Aside from the great work of Burbank

of California, the work of some other plum specialists in the south, and the monument which Rogers raised up to himself when he originated that remarkable array of hybrid grapes, there has after all been very little done in this interesting and fascinating field. However, it is cheering to note that now and then some one does work a period in the work by the production of a fruit

better in certain respects than anything which we have. Such has been the case quite recently. At the last meeting of the Eastern New York Horticultural Society there was on exhibition a very striking collection of apples, natural crosses between Spy and Newton Pippin, and Greening and Newton Pippin. These were the result of patient effort on the part of Stephen Underhill, of Croton Point, on the Hudson. The Newton Pippin trees were surrounded by several other varieties. Seeds of the Newton Pippin were planted in every case. The young seedlings were carefully reared, and in due time bore fruit, which was remarkable in the fact that it had exhibited all gradations between the female parent on one side and the variety which probably furnished the pollen on the other. In this way there were some varieties which very closely resembled Newton Pippin. Others as closely resembled Northern Spy. One of these latter appeared to have considerable value. It was a Spy in color and size, but lacked the characteristic ribs of that variety. The flesh had the crispness of the Newton Pippin with some of the spiciness of the Spy. Its principal point of value lay, however, in its keeping qualities. As a rule the Spy is not a long keeper, as ripened on the Hudson. This variety, however, is said to keep easily until mid-winter or later. Its bearing qualities have yet to be proved.

Another interesting collection of apples, illustrating the fixity of certain types, consisted of a number of seedlings of the old Lady apple. It is well known that the Lady is one of the oldest types of apples in cultivation. It is found in all the European pomological works, and as a proof of its ancient origin has probably more synonyms than perhaps any other variety of apple grown. On account of its antiquity one would expect the type to be pretty well fixed. This surmise is strongly supported by the fact that in this collection of ten seedlings there was in every instance a strong resemblance to the parent. Some of them were exact reproductions. Others were a little larger, a few lighter colored, and one or two exact Lady apples, only improved in size and color. How much might be done in this way if fruit growers would take the trouble to follow the advice of the late Marshall P. Wilder, who said in one of the last addresses given to the American Pomological Society, "Plant the seeds continually of our largest and finest fruits. Watch the product, select the seed from the finest and plant again." In this way only can those closer adaptations to suit any climate so necessary to the production of fruit of the highest quality be satisfactorily brought about.

JOHN CRAIG.

Ithaca, N. Y.

PRUNING THE ROSE BUSHES should be attended to in May, but if neglected then, attention should even yet be paid to this work. It is the new wood that alone produces bloom, and for that reason, it must be encouraged. Vick says in his Magazine :

It is an astonishing thing to see how that, year after year, the chances of obtaining the most beautiful rose blooms are frittered away through unintelligent pruning of the plants, even in gardens of great reputation. There are thousands of rose bushes all over the country which, in spite of being found in spring to have made fine growth during the previous season, never produce good flowers,

and the explanation is generally to be found in the fact that no reasonable plan is followed in pruning.

The commonest mistake is the leaving of the older branching spray wood that has already flowered. Dwarf Rose bushes at the beginning of the year generally consist of several much-branched stems which carried bloom in the previous summer, add several strong straight shoots springing from the base of the plant. In the case of hybrid perpetuals, these older branching stems should be cut completely out, leaving only the new shoots from the base which themselves should be then considerably shortened. If the old spray wood be left in it produces no flowers worth having, while the weak and crowded growths with which it becomes covered afford a perfect harborage to every known Rose pest.

THE FRUIT AWARDS AT PARIS.

SIR,—I feel that it is scarcely fair to hold back the list of awards made by the jury on fruits at the Paris Exposition last year. In handing this list to you, I do so with this explanation and caution, that while all these awards were actually made upon the dates given by the jury of group 8, of which I had the honor to be a member, the whole had to be revised or confirmed by the superior jury, whose movements and action seems to be not only slow, but uncertain. Before leaving I could not obtain this confirmation, though I made many attempts to do so, nor could I obtain any good reason why it should not be granted.

I now give the list for publication in fairness, not only to exhibitors, but to myself. The supreme jury may eventually confirm these, as they should in fairness, or they may cut out as many as they desire and give no particular reason for so doing. In any event I am informed that it will be some months ere we can look for a final decision.

Besides these awards my predecessor, Mr. Hamilton, obtained all those made from the opening of the exhibition up to the course held before Sept. 13th.

But if juries were unsatisfactory and slow there, they could not help knowing and feeling that Canada was able to hold her own against the world, especially in apples of finest form, color and flavor.

I frequently thought of discussions we used to indulge in at our meetings in years gone by, where the general sentiment went to show that in this province at all events we are growing too many apples, and that after satisfying the home demand we had no market but Britain. The fact is we have all Europe, and in order to satisfy that market our orchard capacity must be greatly

enlarged. But we must grow the quality required and to do this must get rid of enemies in insects and diseases. The fruit grower must no longer neglect his orchard if he intends to make profit. There is no use in shipping poor or even medium fruit to any market. I could buy Canadian apples at retail stores in the cities of Britain at as low a price as I would have to pay in any town in Ontario. I found cheese could be bought for as low a price and in some cases for less than at home and meat also. But mark you, all these Canadian products could only be had at low prices when the quality was inferior, these apples were spotted and wormy, irregular in form and color, and like the cheap cheese, off flavor. But fine apples, belonging to No. 1 brand, were high in price; good Canadian cheese was out of our reach in price, and prime beef, was all that the shipper could desire for profit. The poor article is not wanted in Europe, and has to be sacrificed to get rid of it.

While in Paris my time was mostly occupied in testing markets. I found abundant opportunity to enlarge our fruit market, but in order to fill my orders promptly I was compelled to purchase in Britain and repack for other markets, fearing that the Canadian shipper would not deliver such a brand as would inspire confidence in our product. I adopted mostly the bushel box, although I did sell some in barrels. To give such particulars as I could in detail of sales would occupy too much of your space. Suffice it is to say that, although Paris is not a good centre to work from, I was able to make connections sufficient to warrant me in stating most positively that our apples properly grown, selected and packed, will find a market in any country in Europe, owing to their superior quality generally over all

others. In the short stay at Paris I filled orders for France, Belgium, Germany, Norway, Sweden, Austria, Hungary, Egypt, etc. In all, my sales amounted to nearly 200,000 bushels. This was independent of sales in Britain, which of course were much larger.

If our Canadian exporters would learn a profitable lesson, let them cull and pack all their apples as you, Mr. Editor, did yours last year. Your packing was good all through, and your selection all that could be desired for any market. You tried many forms of packing, but to my mind the best for general use is to wrap every apple in paper and hand pack tightly in bushel boxes, using excelsior packing all round and in tightening layers.

The crop this season may be a very large one, at all events prospects tend that way. In such case it is well to keep the Government staff at the Glasgow Exhibition posted, so that they may prepare to handle the crop profitably. There is no better or easier point in the world from which our apple crop can be handled than Glasgow, and the staff there can easily take such orders for European countries as will ensure the handling profitably of our whole crop no matter how large it may be. Shippers should send in estimates early of probable quantities they will have for export, and, as the season advances, they should keep our friends in Glasgow thoroughly posted as to quantity and quality and form of packages. It is the lack of such information that makes the position of a fruit commissioner at such an exhibition often uncertain. He must have all the facts before him and feel that he can rely upon brands and know that there is sufficient to fill orders.

With careful culling and packing, our shippers can rely upon getting orders from Glasgow for direct shipment to most of the countries I have referred to, and thus ship only to Britain what is intended for their

own consumption. But we must be honest to ourselves as well as to our customers, and pack nothing whatever but the choicest samples, if shippers desire to make money and hold these markets, and save replacing charges and loss in culling at a British port.

ALEX. MCD. ALLAN.

Goderich, Ont., May 6th, 1901.

LIST OF AWARDS.

Sept. 13, 1900—			Gold
Dominion of Canada, apple display . . .			Medal.
Province of Ontario, “ “			“
“ “ “ “	Quebec,		“
“ “ “ “	Nova Scotia		“

Sept. 28—			
Dom. of Canada, display of apples and pears,			“
Province of Ontario, “ “			“
Prov. of Quebec, “ “			“
“ “ of Nova Scotia, “ “			“
L. Woolverton, “ “			“

Oct. 12—			
Dom. of Canada, {display apples, pears, } “			
Prov. of Ontario, “ “ “ “			“
“ “ of Quebec, “ “ “ “			“
“ “ Nova Scotia, “ “ “ “			“
F. G. A., Ontario, “ “ “ “			“
Pom. Soc’y, Que., “ “ “ “			“
F. G. A., Nova Scotia, “ “ “ “			“

Oct. 30—			
Dom. of Canada, display of export apples, pears, quinces; also apples from cold storage of 1899 crop, including samples packed in barrels, boxes and baskets of various sizes used by shippers for crop of 1900			Grand Prize.

Dominion of Canada, display of fruit of 1900, “			“
Prov. of Ontario, “ “ “ “			“
“ “ of Quebec, “ “ “ “			“
“ “ of N. S., “ “ “ “			“
F. G. A., Ont., “ “ “ “			“
Pom. Soc’y, Que., “ “ “ “			“
F. G. A., of N. S. “ “ “ “			“

Canada, display of fruit in packages, Gold Medal.

A gold medal was awarded the following Societies for contribution of fruits to make up the displays during the season: Grimsby Horticultural Society, Burlington Horticultural Society, Stratford Horticultural Society, Goderich Horticultural Society, Owen Sound Horticultural Society, all in the Province of Ontario; also the following in Quebec: County L’Islet Horticultural Society, Abbottsford Horticultural Society, Missiquoi Horticultural Society, Brome County Agricultural Society.

The following gold medals were awarded also: Agricultural College of Guelph, Dominion Experimental Farm, Ottawa; the Minister of Agriculture, Ottawa; the Ministers of Agriculture of Ontario, Quebec and Nova Scotia.

The following individual gold medals were awarded for special contributions of fruits: In Ontario—Dr. Wm. Saunders, Ottawa; A. McD.

Allan, Goderich; McKinnon & Sons, Grimsby; G. C. Caston, Craighurst; H. Curwin, Goderich; W. H. Dempsey, Trenton; W. Sanderson, Stratford; S. Furse, Goderich; A. C. McDonald, Dunlop; M. Burrell, St. Catharines; J. G. Mitchell, Clarksburg; W. M. Orr, Fruitland; A. W. Peart, Freeman; M. Pettit, Winona; Isaac Salkeld, Goderich; A. E. Sherrington, Walkerton; A. M. Smith, St. Catharines; W. Warnock, Goderich.

In Quebec—Auguste Dupuis, Village des Aulnais; Robt. Hamilton, Grenville; R. Brodie, Montreal; R. W. Sheppard, Como; W. Craig & Sons, Abbotsford; W. W. Dunlop, Outremont; G. B. Edwards, Covey Hill; J. M. Fisk, Abbotsford; J. M. Le Moyne, Compton.

Silver medals were awarded to the following individuals: In Ontario—G. W. Andrews, Blyth; Charles Wells, Goderich; H. Dempsey, Rednersville; Geo. Fowler, Goderich; R. L. Huggard, Whitby; E. H. Read, Port Dalhousie; A. H. Pettit,

Grimsby; John Tiffin, Goderich; Alex. Glenn, Carlow; N. Monteith, Stratford.

In Quebec—Miller & House, Quebec; C. P. Newman, Lachine Rapids; A. Aubertni, Cote St. Paul; Hon. Judge Caron, L'Islet; Asa Johnston, East Farham; J. A. Molson, Lachine Rapids; B. Renaud, Grenville; Rev. Peres Oblats, Lachine.

In Nova Scotia—C. C. Brown, Greenwich.

Bronze medals were awarded as follows: In Ontario—Thos. Acheson, Stratford; J. Beattie, Clinton; E. C. Beman, Newcastle; W. Bishop, Guelph; J. F. Brennan, Grimsby; J. K. Burt, Paris; Frank Dempsey, Albany; John Dempsey, Fairview; A. Grey, Burlington; L. L. Hagar, Grimsby; Horace Horton, Goderich.

In Quebec—Joseph Archambault, St. Linn; J. J. R. Bell, Knowlton; J. C. Chapais, St. Denis; Mme. Joseph Clontier, Quebec; James Currie, Montreal.

In Nova Scotia—G. W. Ripley, Napan.

THE STANDARD APPLE BARREL.

THE apple barrel being adopted by the Dominion is not exactly the one asked for by our association, but one holding about half a quart less. The following is the text of Section 4 of the Act which passed its first reading April 2nd, 1901:—

1. All apples packed in Canada for export for sale by the barrel in closed barrels shall be packed in good and strong barrels of seasoned wood having dimensions not less than the following, namely—twenty-six inches and one-quarter between the heads, inside measure, and a head diameter of seventeen inches, and a middle diameter of eighteen inches and one half, representing as nearly as possible ninety-six quarts.

2. When apples, pears or quinces are sold by the barrel, as a measure of capacity, such barrel shall not be of lesser dimensions than those specified in this section.

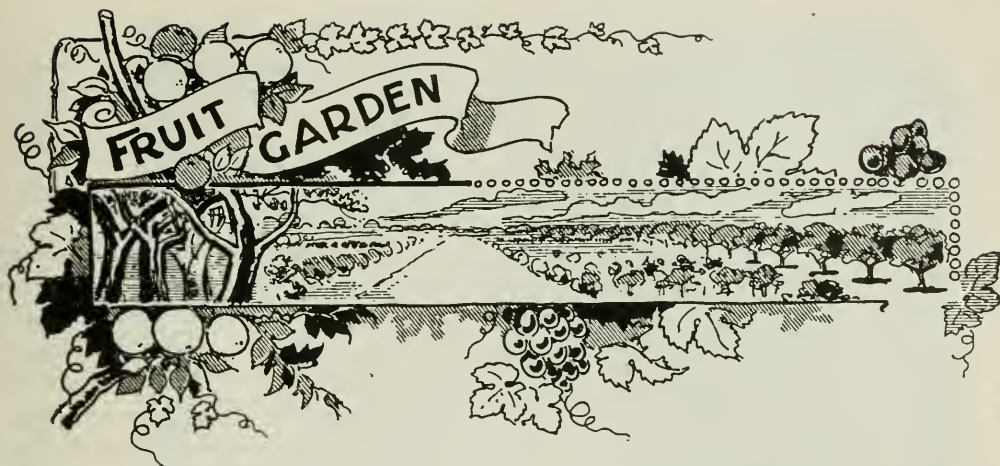
3. Every person who offers or exposes for sale, or who packs for exportation, apples, pears or quinces by the barrel, otherwise than in accord-

ance with the foregoing provisions of this section, shall be liable, upon summary conviction, to a penalty of twenty-five cents for each barrel of apples, pears or quinces so offered or exposed for sale or packed.

Mr. Wm. A. Taylor, Assistant Pomologist of the Department of Agriculture, Washington, writes as following regarding this barrel: "If the capacity of the Dominion standard apple barrel is 96.51 imperial quarts, then it is evidently about 100 quarts dry (Winchester) bushel measure, or approximately about six quarts dry measure less than the American apple shippers' standard barrel which has been adopted in New York. Your barrel is evidently of the same capacity as the pear, quince and potato barrel of New York, the capacity of which is 100 quarts.

BOULEVARDS.—A proposal has been made in Orillia, according to the Packet, to build the sidewalks outside the line of trees instead of the inside. The boulevards would then be between the fence and the sidewalks, and so would be effectively curbed and protected from the raids of the drivers of de-

livery wagons. People who took any interest in their property would also be compelled to keep the grass on the boulevard cut, as otherwise it would greatly detract from the appearance of their own lawns, of which it would virtually form a part.



HINTS FOR FRUIT GROWERS.

STRAWBERRIES.—With the month of June the fruit season begins with most fruit growers, for usually the strawberry begins about the second week and continues until about the end. The wise fruit grower will so plant his fruit crops as to keep up as nearly as possible continuous shipments throughout the summer, and thus provide for himself a steady income, and for his employees constant work.

It is surprising how slow the growers are in becoming acquainted with the many new varieties of strawberries, and instead of procuring those large, showy varieties which are described in the report of the Fruit Experiment Stations, or of the O. A. C., Guelph, they continue on with played out varieties which bring low prices in the markets.

Accounts with berry pickers form no small part of the work of management. If you trust each one to keep his own account you will often be cheated by the dishonest and by the careless, and if you give cheques for every lot brought in some will lose them, and others waste much valuable time counting them over. Stahl, of Illinois, gave in

Popular Gardening a design of bulletin board for daily accounts, which we copy with his description, hoping it may be of some practical use to Ontario small fruit growers. He says :

A bulletin board is erected just outside of the door of the receiving and packing room. For each day a paper is prepared, to be tacked on the bulletin board. Heavy book paper of the required size can be got at almost any job printing establishment. This paper is ruled with lines half an inch apart, and horizontal when the paper is on the board. Along the left margin there is a space ruled off for the numbers, next for the names of the pickers, and then a dozen or more spaces in which to put down the number of quarts brought in by each picker. Every picker has a number. This is important ; let the pickers be referred to by their numbers, not by their names.

The numbers on the paper begin with one at the top and come in regular order on the paper. Then any picker can at a glance find his or her record. No checks are used during the day. As each picker brings in a load, the number of quarts is marked in a space opposite the number of the picker. As an indelible pencil is used the pickers cannot accuse you of altering the record in their absence. As you put in the number of quarts in the presence of the picker there will be no oversights or mistakes. The pickers have no checks over which to spend time in counting or disputing when in the field. But the entire record is open to any picker at any time during the day, when she comes to deliver berries. You can see at a glance how each picker is working ; or if you desire to know at any time how many quarts have been brought in you can foot it up in a minute.

Each evening the record is footed up, the total number of quarts brought in during the day by

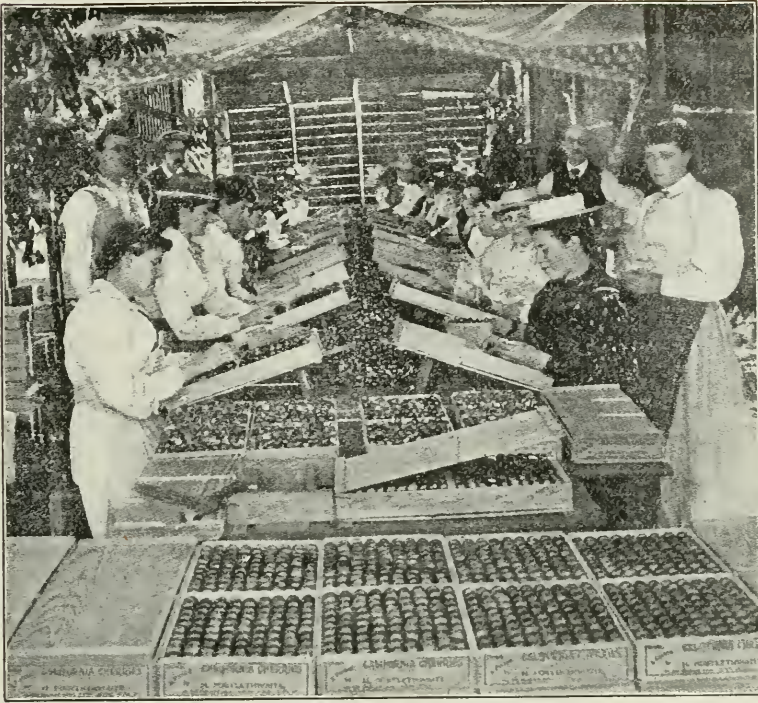


FIG. 2080. SCENE IN A CHERRY PACKING HOUSE AT SAN JOSE, CALIFORNIA.

are high and long ladders are needed. In the younger orchards, however, where the trees are smaller and can be reached by step ladders, we often employ women and girls, and find them excellent pickers.

In the packing house we employ women, for it is work they enjoy and they do it with excellent taste.

In the large cities we see the California cherries offered for sale in shallow boxes, holding about two layers, the top beautifully placed in regular rows, without a stem to be seen. Our engraving, taken from the Fruit Trade Journal, shows a scene in a cherry packing house at San Jose, California, where the fruit is being put up in these boxes.

The size of these boxes is, outside measurements, 18 inches in length, $10\frac{7}{8}$ inches in width, 3 inches in depth. Inside measurement, length $16\frac{1}{2}$ inches, width $10\frac{3}{8}$ inches, depth $2\frac{1}{2}$ inches. The capacity is 10 lbs of cherries.

It is an open question whether it would not be an advantage for us to adopt this package for our choice cherries.

REFRIGERATOR CARS have proved of great service to our fruit growers, enabling them not only to reach cold storage steamers with fruit for export, but also to reach the home markets with tender fruits in far better condition and at less cost than by express. The immense quantities sent forward from the Niagara district, for example, at one time so congested the service of the express trains that the goods were handled most carelessly. Now we can load a refrigerator car at leisure and forward by fast freight to such a centre as Ottawa or Montreal, and have confidence in the safe arrival even after a journey of forty-eight hours.

A great mistake is often made by overloading such cars. The hot air is driven to the top, so that there should be a space over the goods of about two feet, and, besides

this, there should be a space of $1\frac{1}{2}$ or 2 inches between the packages for the free circulation of the cold air. For want of attention to such provisions many large shipments have arrived in bad condition, and the car blamed for what was really the fault of the shipper.

THE BORDEAUX MIXTURE.—Early treatment with this remedy for fungi of all kinds should be faithfully persevered in, if the best

results are to be obtained, always remembering that it is a prevention rather than a cure.

The lime and copper sulphate solution should be made separately, with about half the amount of water required for each. Then the copper sulphate solution should be poured into the lime water, stirring vigorously all the time. Never reverse this operation and pour the lime into the copper sulphate.

EXPORT OF THE FAMEUSE APPLE.



AT THE recent meeting of the Provincial Pomological Society at Huntingdon, P. Q., on the 31st of January, Mr. R. W. Shepherd read a paper on the exportation of the Fameuse apple, in the course of which he said :—

The facilities for exporting apples in cold storage, on board our ocean steamships, at the present time, are limited and quite inadequate. Rarely has it been possible, in my experience, to obtain cold storage just at the particular time when most needed. The fact is, that for the short season during which it is absolutely necessary to have cold storage in transit for Fameuse or other apples, the steamships are generally overcrowded with such commodities as butter, bacon, eggs, etc., which demand storage space throughout the whole summer season, and it cannot be expected that the companies will be able to provide space always for fruit, which takes quite a different degree of temperature from butter. Just here I wish to give my experience of a shipment of Duchess apples, sent to Liverpool in August last. The fruit had been picked rather on the green side, and packed in barrels was sent to the cold storage warehouse in Montreal about the 15th August.

On the 27th August, I engaged space by telephone for shipment in cold storage, and I supposed everything was all right. I gave instructions to the Cold Storage Company

to ship the barrels the following day. I left for Ottawa that evening; but what was my amazement to find when I returned, a couple of days after, that the apples had not been shipped in cold storage. I fully expected at that season, during very hot days in August, the apples to arrive in a mush and made up my mind to suffer considerable loss. The returns were, for the fifteen barrels, £4 11s 10d, or \$1.50 per barrel. My profits after deducting freight and charges were small, but on the other hand I was pleased not to make a big loss in the transaction. I attribute it altogether to the fact that the fruit had been thoroughly well cooled in cold storage before being shipped.

But there are times, even in the month of October, when cold storage chambers on board ship are badly needed for our apples. I have noticed the Fameuse shipped during the first few days of October—that is to say immediately after being picked; or rather the first of the Fameuse picked—and when the fruit is in a hard and crisp condition, carry to England remarkably well. But in a large orchard it is not possible to pick all the apples during the first weeks of October; in fact it generally takes the whole of that month to harvest the fruit. I have also observed that almost without exception, during the picking season, we have a week or more of really hot weather in October; the thermometer frequently touching 65 to 75

degrees of temperature. It is not advisable to ship our apples to England in October in the ordinary freight compartments, if the temperature at the time of shipment is 50 degrees or over that mark. A reference to the maximum temperatures of the month of October, at Montreal, will be interesting. In 1899, the average maximum temperatures for the four weeks of October were as follows:—First week, 47 degrees; second week, 58; third week, 65; fourth week, 45.

In 1900 it was much warmer, viz.:—First week, 70 degrees; second week, 55; third week, 62; fourth week, 63.

It is strange that the third week of this month, in each year, the temperatures averaged over 60 degrees maximum—much too hot weather to pick, pack and ship Fameuse, at a time when the fruit is pretty well matured, and expect it to arrive on the other

side in a satisfactory condition. My advice is not to ship at all, except in cold storage, during the hot term. The holds of the ships are much too hot to carry the fruit over in good condition, and hence it is that we frequently hear of fruit arriving slack, and in bad order. The plan I have adopted, the last couple of seasons, is to send the cases of apples to the cold storage warehouses during the hot term, immediately after being picked, and to keep them there a month or so in cold storage, and they reach their destination in splendid order.

Last season in the month of November, I successfully exported Wealthy, in cases, which had been put in cold storage six to seven weeks before being shipped, but I could not have expected to ship the same cases in the months of September or October, and meet with the same success, unless transported in cold storage.

THE BALDWIN CHERRY.

IN a publication, issued by the State of Kansas, entitled the *Cherry in Kansas*, (for which the writer is indebted to Mr. Wm. H. Barnes, Secretary Kansas State Horticultural Society), is an account of a cherry originating in Kansas which seems to give promise of being a desirable variety for fruit growers in Ontario.

It is stated that the origin of the tree was on this wise: In the spring of 1888 S. J. Baldwin, of Seneca, Kansas, planted an orchard of eight hundred cherry trees, that the bud part of this tree got broken out, that a vigorous sprout shot up from the stock, which was suffered to become a tree, and in 1892 began to bear fruit. After having borne fruit for four consecutive years, Mr. Baldwin was so well pleased with the quality and early ripening of the fruit, and the vigorous habit and productiveness of the tree that he decided to propagate from it.

In the spring of 1898 he set out two hundred trees grown from this new variety.

The following winter, 1898-99, was unparalleled in severity, causing the death of a great number of trees of English Morello, Early Richmond, Montmorency and others of that class, and so badly injuring those that survived that there was scarcely half a crop in the season of 1899. Notwithstanding the extreme cold the original tree bore a full crop in 1899, and of the 200 young trees set out in 1898 only four died.

The fruit is thus described by Mr. Baldwin: "Large, almost round, very dark transparent wine color, flavor slightly acid, yet the sweetest and richest of the Morello type." With commendable naivete he says that at first he named the new cherry "Kansas Queen," but learning that the rules of the American Pomological Society forbade giving compound names, at the suggestion of Mr. W. F. Heikes, Huntsville, Alabama, it is named "Baldwin."

D. W. BEADLE.

Toronto.



GREENHOUSE, WINDOW AND GARDEN—VII.

THE GREENHOUSE. There will be little doing in the greenhouse during the hot weather, as the garden and lawn will now be the chief attraction, until the chilly autumn weather arrives. The greenhouse must not, however, be entirely neglected, especially if chrysanthemums are being grown in it, as recommended in the May issue of the Journal.

Chrysanthemums require a liberal supply of water, and must never be allowed to become quite dry at the roots. This liberal supply of water mentioned does not mean that the roots of the plants must be saturated all the time, as an excess of moisture is almost as hurtful to them as an extreme of drought would be. Keep the roots of these plants moist but not soddened. Syringe the plants once or twice daily during the hot weather. Throw plenty of tobacco stems under the benches. Start early in the season with the tobacco stems, so as not to allow the green and black fly to get a strong hold on the plants. Very little, if any, shading is necessary for chrysanthemums grown under glass.

Plants of primulas, ferns, begonias, seedling gloxinias, cyclamen and odd plants that are kept in the greenhouse all the summer,

must be given shade, and the watering must not be neglected. If the greenhouse is wanted to grow chrysanthemums in, all of these and similar plants will do very well until late in September placed in frames, with a sash over them. The sash should be shaded and ventilation given the plants the same as if they were in the greenhouse.

Gloxinia bulbs, when out of flower, should be gradually dried off, and the pots, bulb and all, placed on a shelf in a cool dry shed or out-building until fall. No water should be given them until toward spring, when they are again started into growth. The pots must be removed early in the autumn to a position where they are secure from frost.

Plants of Azalea should be stood outside in partial shade, and not be allowed to dry out at the roots. Sprinkle tobacco stems about around the pots, and syringe the plants daily.

All plants not required in the greenhouse should be stood or plunged outside, in ashes if possible, and in a partially shaded position, so as to save unnecessary labor in watering them.

WINDOW PLANTS.—Windows facing the east or north furnish good positions for al-

most all kinds of plants during summer, whether in window-boxes or otherwise. Windows facing the south are not so desirable, as the shutters or blinds are of necessity kept too closely drawn in summer for the plants to succeed well on the inside, and if the plants are placed outside even in window-boxes, they usually present a shabby burnt up looking appearance in a very short time, unless some means can be found for shading them during the extreme heat of the day.

Many of the choicer kinds of what are often termed house plants, viz., plants that have occupied vases and jardinières during winter and spring, or that have perhaps been kept in a south window during that time, will succeed much better if removed to windows facing the north or east during the summer months. This is often even better for the plants than standing them out in shaded positions on the lawn or in the garden, as plants that are stood out in this way are often neglected, and allowed to become too dry at the roots for the well-being of the plants.

Plants such as dracenas (cordylines) aspidistras, cyperus (umbrella plant), farfugiums (leopard plant), ficus elastica (India rubber plant), ferns, begonias, abutilons, fuchsias, and other tender plants taken from the house or window, will however find an ideal position for the summer in window-boxes on the north side of the house. Boxes placed on the rails, or on the steps of a verandah facing the north, also provide a good position for these plants in summer, the plants often helping materially to brighten up a part of the house that might otherwise look dull and uninteresting.

Avoid giving the plants too much water when placed in positions where the sun scarcely ever reaches them, as the evaporation and exhaustion of moisture is very slow, the plants requiring much less frequent watering than in more exposed situa-

tion. Water should be given plants when they require it, and not on stated fixed days, when oftentimes water would be better withheld from them. Plants are not like clocks and watches, to be regulated and run with mathematical precision, according to dates and figures, but are more like children who thrive best when given their bite and sup when they are hungry and thirsty. The prompt and practical application of experience, gained by close observation of the needs and requirements of different plants, under perhaps widely varying conditions, is really the best guide for their successful culture and care. Nature, in plant-life especially, is constantly presenting itself to our notice in ever-varying, ever-changing conditions. Intelligence and diligence are essential features necessary to be brought into active use to be successful in plant culture.

But these remarks are perhaps out of place in what should be a really practical article, so I must not diverge from the line of practicality again.

It may perhaps be thought undesirable to have boxes of plants either in windows or on the verandah, on the score of cleanliness, as it is impossible to have these without a little dirt and disorder under almost any circumstances. This objectionable feature may in a great measure be done away with if pot plants only are used in the boxes. By packing the pots in the boxes firmly around with fresh green moss, the plants will not dry out so rapidly, and will grow and succeed almost as well as if planted in soil, especially if a little liquid manure, or a mild fertilizer of some kind be given them about once a week. Many of the commercial fertilizers can be successfully used for plants in positions of this kind, with no objectionable feature to prevent them being used.

I have used moss on the outside of boxes and tubs of plants with great success, sticking the clumps of moss on the boxes with



FIG. 2081. CYCLAMEN (3 years, from seed).

hot melted pitch. This latter material, however, is not pleasant to use. Large clumps of moss can, however, be successfully tacked on the boxes; this can be brightened up and made to look very rustic and natural looking by dotting here and there a few pieces of lichen or fungus taken from old decayed trees or stumps. Large strips of coarse bark, taken from old basswood or similar trees, makes a good outer covering for plant boxes, not only giving them a natural, pleasing appearance, but these coverings are very beneficial to the plants, preventing the soil from drying out as rapidly as it otherwise would do.

Cactus, amaryllis, clivias, pelargoniums, calla lilies, and a few other plants that it is necessary to remove from the window to undergo their customary period of partial rest during summer will require only very moderate waterings.

This is the only practicable method of giving these plants the rest that they get naturally during the dry seasons that usually prevail where they are natives, and that is so essential to most of them to produce good flowering results during the winter months.

If you have a pot of freesia bulbs, the growth of which is beginning to look shabby and yellow, stand them just as they are in

the pot on a shelf in a dry shed or out-building. No more water should be given them during the summer. In August the bulbs can be shaken out and re-potted, and grown on for next season's flowering.

Old plants or corms of cyclamen should be given very little water during the summer, only just sufficient to barely keep the soil moist. A cool position under a small sash, so as to prevent them from getting too much water, is a good position for cyclamen bulbs until about September, when they can be watered, re-potted, and placed in the window, so as to grow on for next season's flowering. If the convenience of a sash is not available during the summer, stand the plant in the shade out of doors, and place a piece of board above it to prevent it getting too much water. Extremes of either drought or moisture in summer when the bulb should be resting is almost certain to rot and destroy them.

THE GARDEN.—Many of the perennials will now be at their best in the flower garden. Some of the early sown annuals will also be producing their welcome blossoms.

If you notice the sweet pea vines looking unhealthy, and perhaps a vine or two here and there withering and dying without any apparent cause, make an examination around near the bottom of the vine; you will very likely discover that the trouble is cut-worms. These destructive grubs are quite partial to either the sweet-pea vines or those of the garden pea. By searching underneath the surface of the soil around the roots of the plants these voracious grubs can generally be unearthed. The cut-worm feeds at night, and can be often caught at its destructive work if searched for by the aid of a lantern after dark.

Most of the transient or summer occupants of the flower beds or borders, will be established for the summer by this time. It is best to water these early in the morning during June, as oftentimes the nights are



FIG 2082. CABBAGE ROSE.

chilly, and watering them at night increases the danger of chilling the plants.

If you have any plants of the pretty summer and autumn flowering salpiglossis, keep a close look out for attacks of the potato bug. The Colorado beetle is just as partial to these as it is to any of the numerous varieties of solanum, to which order or class of plants the salpiglossis as well as the potato (*Solanum tuberosum*) belongs. It takes but a few hours for these voracious Colorado bugs to destroy a good sized clump of salpiglossis plants. Some of the new varieties of this pretty annual have very beautifully marked flowers, and in shades of color so seldom seen in annuals that make them doubly attractive to flower-lovers, in spite of their being such a favorite mark for the potato bug to attack.

Syringing the rose bushes with tobacco water must be kept up if the rose-thrip is very bad, or ample supplies of stems or to-

bacco dust sprinkled about and around the bushes. This pest has of recent years attacked all varieties of the ampelopsis very badly, as well as out-door grape vines. Strong tobacco water, or a very weak solution of Paris green water, as recommended in last month's journal, applied early in the season and often, is the best remedy for these white, lively pests.

VEGETABLE AND FRUIT GARDEN.—There will be little to do in the way of planting and sowing, except perhaps to plant out late cabbage and cauliflower toward the end of June or early in July. Sweet corn and the late varieties of beans can be planted for use after the earlier sown crops are done. One of the best beans for planting for a late crop is the I.X.L. bean, it is the best variety of the dwarf bean that I have found to produce a crop in hot weather. If you have a rich piece of soil under the partial shade of a fence or a low building, plant a row of the asparagus pole bean early in June. This is a delicious bean, and crops right along until frost sets in. They will succeed in an open rich piece of ground, if well watered and the season is suitable for them.

Weeding and hoeing must be attended to; stirring the soil often, increases the growth of plants and helps to give good crop results.

Currant and gooseberry bushes must still be watched for caterpillars. Hellebore is the only really safe remedy to use for them now at this advanced stage of the fruit. Spraying the plum and other fruit trees with Bordeaux mixture must be attended to as soon as the blossoms have dropped. The crop of all small fruits in this section promises at this date (early May) to be very good if the amount of blossom on the trees is any criterion to go by. Apples do not promise such a heavy show of blossoms as last season. The steady and continuous cool weather experienced during the end of April, with north east winds, has helped to keep back and harden fruit buds and early growth

considerably, so that late frosts should not, if they come, do very much damage. Complaint is made in a few localities of a sparsity of peach-blossom. This only seems to occur in spots where heavy crops were taken from the trees last season. Over-cropping the young trees is probably the cause. There is no excuse for this injurious and unremunerative practice of allowing trees to over-crop themselves, when only one or

two trees of each kind is grown. Thinning the fruit brings better fruit, increases the weight of the crop if properly done, and lessens the liability of damage, as well as of too great a strain on the vitality of the tree, both of which evils are almost certain to occur if the trees are allowed to bear too heavy a crop.

W. HUNT.

Hamilton.

ALDERMAN BLACK AND HIS GARDEN.

Among the horticulturists of Ottawa there is none more enthusiastic than Alderman Black, who is shown in the engraving, framed in a background of the lovely roses he grows so successfully. Good as is the half-tone plate, it but very imperfectly represents one of the most beautiful June sights of the many to be met with in the gardens of Ottawa. The splendid display of color, the exquisite shading, the grace and variety of form, are almost lost in the engraving. All the roses are from the nurseries of Hugh Dickson, Belfast, Ireland. The white rose in the foreground is one of the latest and best of Dickson's productions—Mrs. R. J. Sharman-Crawford. Next in order among the taller roses come Magna Charta, Ulric Brunner, Mrs. John Laing, Gloire de Margottin and Mad. Gabriel Luizet, while in the corner, on Mr. Black's right, is shown a fine Crimson Rambler. The Margottin had at the time the photograph was taken 214 fully expanded blooms. Among the dwarf roses is a very beautiful La France, which Mr. Black has had no difficulty in bringing through the severe winters which prevail at Ottawa. His method of protecting roses is worthy of especial notice, and has, it is said,



FIG. 2083. ROSES GROWN BY ALDERMAN BLACK, OTTAWA.

been adopted at the Central Experimental Farm, where H. P. roses have in the past suffered greatly in winter. After the surface soil freezes, the canes are bent down to the ground and securely boxed in between 16-inch boards. Dry leaves are then packed loosely among and over the canes, and a cover nailed closely to the sides. The canes are thus completely encased, and snow and rain, which cause more damage than frost, are excluded. The leaves and casings are removed on the first warm day of early spring, and the canes come out perfect to their very latest growth, and quite uninjured by the mold which has wrecked the hopes of so many rose growers.

Ottawa, April 12th, 1901.

L.

TIMELY TOPICS FOR THE AMATEUR—XVI.

USE AND ABUSE OF FLOWERING SHRUBS.

THERE is no class of plants that adds more to the beauty of the lawn and its surroundings at this season of the year than flowering shrubs, especially if the little care and attention which they require, compared with other plants, is taken into consideration. But how seldom do we see anything like a really natural looking, nicely shaped specimen of these shrubs, with their long, graceful, drooping racemes, or perhaps their bold upright spikes of growth, laden down or almost completely covered with their beautiful buds and blossoms, as most of them should be in their flowering season if the plants have been properly cared for.

Too often, however, instead of the wealth of bud and blossom that these plants produce in such profusion, if only fairly well treated, we see stubby, miserable shorn-and-shaven looking specimens, clipped—not pruned—into all sorts of ugly indescribable shapes and forms, with perhaps a few of their bright blossoms sprinkled here and there on the stubs of young growth of the preceding year, that the destructive clipping shears had not been so severely used upon; or perhaps, in some cases, a few blossoms may be seen scattered through the centre of the shrub where the clipping shears did not reach the young flower-producing growth.

This annual clipping process, which usually takes place in July or August, when most of the flowering shrubs have about completed the season's growth, is, in the majority of cases, responsible for the miserable looking apologies for these plants so often seen on lawns, and in small plots of flower-gardens, at this season of the year.

There are few flowering shrubs, excepting perhaps tall or strong growing kinds, such

as *syringa* (lilac), *Cydonia japonica*, *Philadelphus* (mock orange), and the tartarian honeysuckle, etc., that cannot be effectively pruned and thinned out when in flower, so that the plants can be kept in sufficiently good shape and condition, without having recourse to the destructive system of clipping so often resorted to. Even these strong growing varieties cannot endure the clipping shears and give satisfactory flowering results as well.

*Weigelia*s, *spireas*, *tamarisks*, most varieties of the *deutzias*, and even the more straggling growing *forsythias* and other dwarfer growing shrubs, should never have the clipping shears applied to them at any season of the year.

Almost all flowering shrubs, with a few exceptions, produce their wealth of blossom on the growth made during the preceding summer. If this is clipped off as soon as growth is completed, the result is disastrous to the next season's crop of flowers. If those, who have a plant or two on their lawns of the shrubs mentioned, will only take notice during the flowering season on what part of the growth the flowers are produced, the evil effects of this clipping process can easily be understood.

Varieties of the *hydrangea* such as *H. paniculata*, *H. japonica* and the different varieties of the shrubby *hibiscus* (*althea*) produce their flowers on wood of the same season's growth. These shrubs should be pruned back to within three or four buds of the preceding year's growth, either late in the fall or early in the spring.

But with most of the other species and varieties of shrubs before mentioned, almost all the pruning they require can be done whilst they are in flower. By cutting out



FIG. 2084. A GLIMPSE OF NINETEENTH CENTURY FLOWERS AND FOLIAGE—PHOTO OF FLOWER BEDS AT INGLESWOOD, HAMILTON, SEPT. 12, 1900.



FIG. 2085. WEIGELIA ROSEA.

with a sharp knife here and there at different parts of the plant, the most prominent and straggling sprays or branches, the plant can be made to assume a shapely and natural appearance. The sprays or branches thus removed, will not only leave the plant in a more symmetrical condition than before, but the sprays will be found very useful and pretty for indoor decorative purposes. Care must be taken, however, in thinning out the sprays or branches, not to cut out too much of the growth of any one part of the plant, so that the beauty or shape of the plant will be marred or disfigured by the operation. By observing closely when and where the flower producing growth of the plant springs from, even the most inexperienced amateur can thin out almost any of the flowering shrubs mentioned when they are in flower, without spoiling the appearance of the plant. So little attention, however, do most of the

dwarfer growing flowering shrubs require, that it is better not to attempt to prune them at all, than to disfigure and render them useless as decorative plants, by the use of the clipping shears, as is so often the case.

The little pruning and care that flowering shrubs require is generally recommended to be done during late autumn or early spring. The summer pruning process, however, that I have attempted to describe, unless carelessly and ruthlessly carried out, does the plants no harm, and in many cases does away with the necessity of any further pruning, as well as giving a supply of their beautiful sprays of blossom so useful for indoor decorative purposes. The sprays should be placed in water at once as soon as cut, as when once wilted they seldom recover their freshness again, as most flowers do that are cut from softer wooded plants than shrubs.

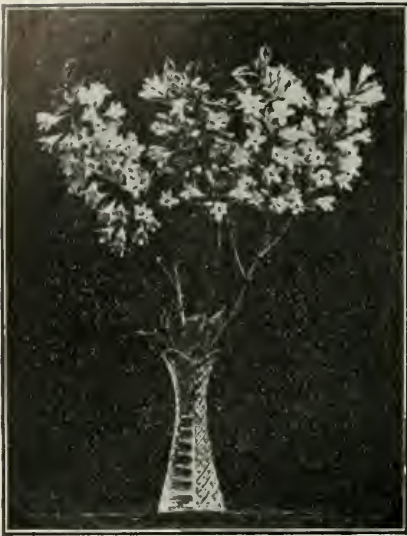


FIG. 2086. WEIGELIA VARIEGATA.

I have summer pruned a shrub of forsythia annually for the past fifteen years. Only once or twice during that period have the plants had but little fall or spring pruning. The plant is now (May 6th) a pretty and conspicuous feature on the lawn, jaden as it is with its wealth of golden-bell flowers from the ground to the tips of its longest branches, before but few flowering trees or shrubs are showing any signs of their coming summer beauty. It is also a matter of regret that the forsythias are not quite hardy in the more northern parts of Ontario. Even in this section during very severe winters the tips of the growth are sometimes partially killed out. The past winter seems to have been favorable not only to this variety but also to the varieties *F. suspensa* and *F. viridissima*, as plants of the three varieties are giving splendid flowering results this spring on the lawns here at "Inglewood."

The *Weigelia rosea* as shown in the centre of Fig. 2085, is another shrub that has had no pruning for the past twenty years, excepting the summer thinning before described, when both this and other similar plants

have furnished quantities of their beautiful sprays of rosy-pink blossoms, to supply large vases and jardinières for house-decorative purposes.

Many of the spireas and deutzias and other shrubs are also useful to furnish a supply of cut-flowers in summer, but the blossoms of many of them do not retain their freshness for as long a period as do those of the forsythias and weigelias, after being cut.

Flowering shrubs are one of the most suitable classes of plants for decorating the surroundings of our homes, if judiciously planted and a little care bestowed on them afterwards. But the growth of the plants must not be ruthlessly slaughtered by unnecessary and unnatural clipping or pruning, if the best results possible of their free-flowering habit is to be attained.

Old plants that have endured the clipping process for years will be hard to redeem, so as to induce them to give good flowering re-



FIG. 2087. SPIREA DOUGLASHII AND BUMALDA.

sults. Young plants, however, if commenced on early enough, and attended to annually, will be found quite amenable to this system of summer pruning, when they are in flower, and will not, unless the growth is very vigorous, require any further attention so far as pruning is concerned.

Hamilton.

W. HUNT.

THE NEW HOLLYHOCKS.

THE hollyhock is being greatly improved and is becoming one of the first lawn flowers of the day. The improved sorts seems to be more of a biennial order than perennial. It is one of my special favorites, and why should it not be? Here is a stately stock six feet high, full of flowers, pure crimson scarlet, without the usual rough brownish lines; very large, five inches in diameter this dry season, perfect in shape and full double. It has been named "Crimson Jackmanii." I gave it a good strong soil and good cultivation, and get lots of flowers.

Seed may be planted any time. I prefer to plant the new seed as soon as ripe where intended to flower, under a covering of brush and hay, and I also protect during winter with same. I now have plants in full bloom (July 15) from seed so planted last August. They generally come true from seed, but not always; one in ten may be inferior, which should be pulled at once, and one in fifty be an improvement, from which the seed should be saved from a few of the first flowers and planted at once; also cut down the stalk as soon as ripe, and at same time take up and divide the root into as many parts as eyes are showing growth, and plant each part separately, shading them until established. Such divided plants will give superior flowers next year. To leave the plant undivided over winter, the chances are it would be dead in the spring.—

American Florist.

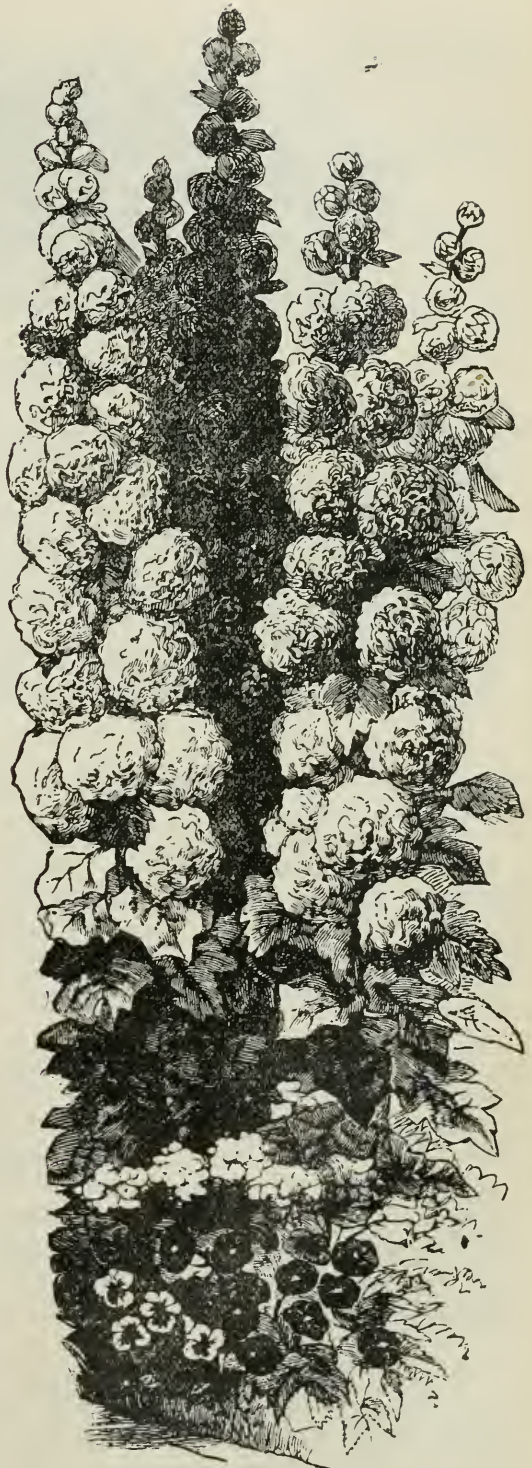
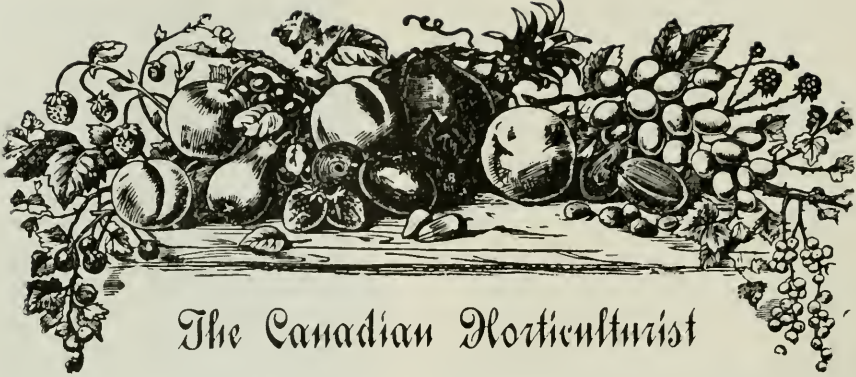


FIG. 2088. HOLLYHOCKS.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

GRAPES FOR EXPORT.—The Department of Agriculture at Ottawa is making arrangements to push forward the experimental export of grapes from the Niagara district this autumn. About 100,000 lbs. of Rogers black and red varieties will be forwarded.

A BASKET PICNIC of the Halton Farmers' Institute and Women's Institute, was to be held on the farm of A. W. Peart, our experimenter, on Victoria Day. Lunch was to be served at noon and a stroll through the orchard was to occupy part of the afternoon. We fear the storm has postponed this outing, which is but the beginning of a series which will follow.

GILLETT'S LYE.—Mr. E. W. Gillett writes: "We are getting good reports from all sections and are confident our goods are first-class for the purpose of spraying, when

used properly. While it may be true that the majority of brands of concentrated lye is nothing but caustic soda, it does not follow that that is true of Gillett's goods."

ABOUT fifty varieties of the finest French cherries have been imported for trial at Maplehurst. They came from the famous nurseries of Chas. Baltet, Troyes, France.

O. M. A.—Mr. G. B. Bracket, U.S. Pomologist, has just been decorated for conspicuous services at the Paris Exposition, with the ribbon of the Order of Merite Agricole.

THE FIFTH ANNUAL MEETING of the American Park and Out-door Association will be held Wednesday, Thursday and Friday, June 26, 27 and 28, 1901, in Milwaukee, Wis. The secretary is Mr. W. H. Manning, 1146 Tremont building, Boston, Mass.

THE GEORGIAN BAY FRUIT GROWERS' ASSOCIATION held meetings last month at Creemore, Stayner, Collingwood, Thornbury and Meaford, addressed by Mr. Alex. McNeill. The object is to organize branch associations at these places. The secretary is Mr. Chas Lawrence, of Collingwood.

THE VICTORIA MEDAL OF HONOR in horticulture was established in 1897 with the assent of Her Most Gracious Majesty, in commemoration of the Golden Jubilee of her reign. The limit in number of persons upon whom this honor may be conferred is sixty-three, a record of the number of years of her late majesty's glorious reign. Among these we notice the name of Miss E. A. Ormerod, L.L.D.

FRUIT GROWERS' INSTITUTE MEETING.—Supt. Creelman is planning a series of June meetings of Farmers' Institutes, several of them to be Field days at our fruit experiment stations. The South Wentworth Institute, for example, will make an excursion by special cars, along the line of electric railway from Hamilton to Grimsby, visiting the more important fruit farms on the way. Some of the Cabinet ministers will also be invited to attend. This will be a departure in the right direction.

TRAP LANTERNS FOR INSECTS.—This scheme for destroying insects is very plausible as a substitute for spraying, but the difficulty with it is that nearly all kinds of insects and moths are attracted by the light and caught in the trap, some of them friends of the fruit grower, while the codling moth, the one most injurious, is the one least liable to be caught.

Prof. Stedman, of Missouri Experimental station, says :—

I find that the following injurious insects, that are claimed to be caught by certain trap lantern agitators, are either not caught at all or are caught in such rare cases as to be only accidents: Codling

moth, potato beetles, plum curculio, gouger, flat and round-headed apple-tree borers, peach-tree borers, tobacco worm moths, tomato worm moths, squash bug.

The following injurious insects are caught by trap lanterns: Corn worm moth or boll worm moth, cut worm moths, June or May bugs (beetles), tent caterpillar moth, pickle worm moth, army worm moth.

On the other hand, a great many species of Ichneumon flies, which are our most beneficial insects, were caught in immense numbers, and outnumbered all other species in my traps. These insects sting and lay eggs in or upon the bodies of injurious and other insects, and their larvae prey upon their tissues and destroy them. It is in this way that many injurious insects are kept within bounds; and these Ichneumon and other parasitic insects do vastly more good than all trap lanterns and sprays combined. These Ichneumon fly parasites are what a certain trap lantern agitator calls in his circulars "Stinging fly or wasp-like insect that stings the fruit." (This is as perfect a short description as could be given). Now these parasitic creatures never sting fruit or plant at all.

Any person can see from the above facts that a trap lantern is of no value in an orchard, but on the other hand is a great injury, because of the immense number of parasites it kills.

A trap lantern is of great value in its place, and one of these places in Missouri is in the corn field at the time the corn tassels out.

IMPROVEMENT ASSOCIATIONS is a department in the journal "Park and Cemetery," conducted by Frances Copley Seavy, giving suggestions for the improvement of village and home grounds. Of late many local associations of this sort have been formed and much work done through the schools and otherwise, by arousing public interest. Wherever one of our affiliated horticultural societies exist there should be no room for any such society, for it is for just such work that these societies have been fostered.

Some useful suggestions are given in the following reports:

The City Improvement Society of Lincoln, Neb., was organized for the improvement of civic conditions. Its specific work has so far resulted in cleaner streets, better sidewalks, the cutting of weeds, placing boxes at street corners for rubbish, bettered sanitary conditions generally, the decoration and improvement of school grounds, the opening of a city park and park concerts. A comprehensive and satisfactory showing and one that should make for increased membership and influence. But, in addition, it has graded, established lawns, set trees, planted flowers, made window boxes and built protecting fences for its factory grounds, and is planning to offer prizes for well-kept lawns, flowers,

etc., and furnishes an arbor day program for use in the public schools.

The Riverside Press, Riverside, Cal., gives an account of a lecture delivered by Mr. C. M. Loring to the citizens of that town on beautifying the streets, in which he gave some practical hints that other cities would do well to observe. After telling how many European cities made even their business streets attractive by trees and grassy spots, Mr. Loring emphasized the natural beauties of Riverside, and gave some specific directions for improving their streets and home grounds as follows: Authorize trustees to plant, remove and care for street trees, and assess property owners for cost of the work; create the office of city forester; reduce width of driveway on residence streets, and keep planting spaces clean; induce property owners to adopt a regular alignment of buildings, and to maintain neat lawns; prohibit advertisements from trees, other natural objects, telegraph and electric light poles; enforce the ordinance against hitching horses to trees; keep drives and streets well sprinkled; plant trees where needed, and remove them where too thickly planted; plant more deciduous trees. "The whole city," said Mr. Loring, "should be a work of art. Even packing houses and manufacturing institutions can be made more attractive with vines."

FRUIT REPORT.—Barns, Secretary Kansas State Horticultural Society, under date of May 8th, sends us the following early report of fruit prospects, which, from present appearance of our blossoming season, will be duplicated in Ontario, except perhaps in apples:

Promise of fruit of all kinds was never better at this time or the year in this state.

Apricots and raspberries do not promise over one-fourth of a crop, and in some low spots peaches will fail; otherwise, all kinds of fruit promise a full crop.

We have 120 reports, from seventy-five counties, fully distributed over the state, as follows: *Apples*—77 report full crops; 13, seven-eighths; 12 three-fourths; 8, one-half; 2, one-fourth. *Pears*—68 report full crop; 4, seven-eighths; 13, three-fourths; 11, one-half; 2, one-fourth; 1, one-tenth. *Peaches*—78 report full crop; 8, seven-eighths; 12 three-fourths; 6, one-half; 6, one-fourth. *Plums*—83 report full crop; 8, seven-eighths; 12, three-fourths; 5, one-half; 2, one-fourth. *Cherries*—99 report full crop; 9, seven-eighths; 10, three-fourths; 11, one-half; 1, one-fourth; 4, one-tenth. *Apricots*—31 report full crop; 9, seven-eighths; 10, three-fourths; 1, one-fourth; 1, one-fifth; 4, one-tenth. *Mulberries*—83 report full crop; 4, seven-eighths; 1, three-fourths; 3, one-half; 1, one-fourth. *Grapes*—75 report full crop; 8, seven-eighths; 9, three-fourths; 1, one-half; 1, one-fourth. *Berries*, excepting raspberries—74 report full crop; 10, seven-eighths; 13, three-fourths; 4 one-half.

The central and western counties are especially

elated over the peach and cherry prospects; it was a little early for full reports on grapes.

Very few insects are noticed. More new planting than usual.

SWEET PEA WINDOW SCREEN.—A writer in the Ladies' Home Journal suggests a sweet pea window screen as a good screen against the ugliness of the sun at the back window. The following is the paragraph:

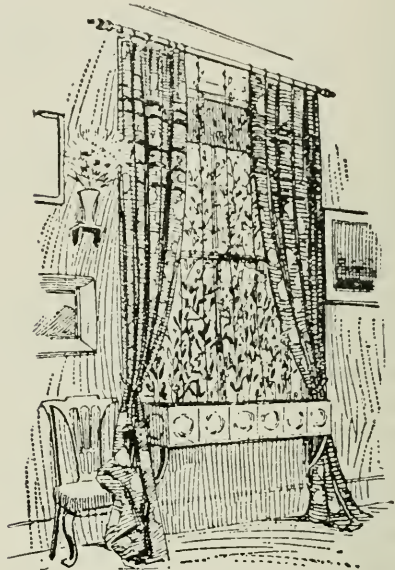


FIG. 2089.

Given a long, narrow box for this purpose with a simple trellis work of ordinary wire or twine, well pulverized and enriched earth, with a small addition of sand and a moderate amount of sunshine (sweet pea vines being easily scorched) and a pretty window, a fragrant room, and plenty of blossoms for cutting may be confidently counted on, says the authority quoted, and an accompanying illustration verifies the statement.

A peculiarity of sweet peas is that the higher they are trained the more profusely they will bloom, and if all fading blossoms are removed before they can go to seed, a constant succession of bloom is secured.

QUESTION DRAWER.

Spraying.

1219. SIR.—Please give me some information about spraying. When is the best time? In what proportions would you mix the ingredients for the different times? How many times should apples and plums be sprayed?

I have set out a plum orchard of five hundred trees, which are now in their second year, and they are growing finely. Would you advise spraying them before they begin bearing? Could you give me the name of a good fruit journal?

Senda, Ont.

W. T. NUTT.

The questions of our correspondent, who evidently does not receive this journal, reveal a common lack of information throughout Ontario, with regard to the purpose and manner of spraying. Much has been done by the Ontario government to make known the benefits, and yet much remains to be done. Indeed it has become a large subject, and to write a detailed reply would take much space.

Before one thinks of spraying, he should have a definite purpose. To spray those young plum trees, growing vigorously, would probably be a waste of time and money. When they begin bearing, should they be subject to rot, spraying with Bordeaux mixture as soon as blossoms fall, and every two weeks thereafter according to judgment, might prevent.

If curculio is making havoc in the plum orchard, a spraying with Paris green, three ounces to forty gallons of water, immediately after blossoms fall, is sometimes very helpful.

If the tent caterpillar or canker worm is eating the leaves of any of your trees, poison them by spraying with Paris green.

If apple scab affects your apples badly, year after year, better spray faithfully with Bordeaux every two weeks, from before bloom until the dry weather becomes constant.

If your cherries rot badly, keep them covered with Bordeaux, and the spores

that light upon the fruit cannot find a place to enter the skin.

If your grapes are inclined to mildew, begin spraying before the leaves come out with Bordeaux, and keep the vines and the fruit green with it until settled dry weather, in July or August.

Bordeaux mixture is made by dissolving four pounds of lime in one barrel of water, and four pounds of sulphate of copper in another, and then pouring the latter with the former, stirring vigorously. When mixed together the whole should make about forty gallons of Bordeaux mixture.

Spraying is a wide word, so many mixtures are used. For aphids we spray with kerosene emulsion; for San Jose scale with crude petroleum or whale oil soap, and so on. Soon a tree doctor will be needed to diagnose the disease and tell us what remedy to apply.

Apples Compared.

1220. SIR.—I would like you to tell me in your open letter columns what is your opinion as to the relative merits of the Northern Spy, Cranberry Pippin and Blenheim Orange. Are the two last named superior to the Spy in quality and bearing. The Spy is an apple that is being extensively planted in this vicinity. It bears early and is very productive—that so far has been the experience of those who have tried it. Is there any raspberry now grown in the east that can compare favorably with the Cuthbert as to productiveness and shipping qualities. By answering the above questions you will greatly oblige me.

Salmon Arm, B. C.

J. D. MCGUIRE.

There is no apple of its season, grown in Ontario, that excels the Northern Spy. In size, beauty and quality it is the best apple we grow. With us, however, it is a long time in coming into bearing, which is its chief fault. It needs high cultivation, close pruning and plenty of fertilizer.

The Cranberry Pippin is a very showy apple and first-class for export, but somewhat uncertain in bearing, and of poor

quality compared with Spy. It is also a winter apple. With us at Maplehurst it has borne remarkably well some seasons, giving a crop of magnificent apples, and then again the fruit has been irregular in size and scant in quality. We have planted it next in quantity to Spy for export purposes.

Blenheim Orange is an early winter apple, indeed some call it a fall variety, though in northern sections it keeps fairly well. It is a magnificent apple and no one can go astray in planting it. It succeeds in places where the Spy is too tender, and is a great favorite as a market apple with some growers.

These three are all first-class commercial apples, and deserve almost equal places as money makers.

Double Pear Bloom.

1221. SIR,—I have mailed you to-day one cluster of bloom taken from a young pear tree, three years planted. I noticed last year that the bloom on this tree was double, in comparison like a single and a double flower.

About two-thirds of the blooms on the tree were double. The tree is in bloom just now. In looking over my other pear trees comprising about twenty varieties all in bloom, I could not find one double bloom on any of them. As I have not noticed double bloom on any fruit trees before, I thought I would call your attention to it. I have been wondering if a double bloom would develop finer fruit than a single.

Galt, Ont.

WALTER M. TURNBULL.

Double flowers are ornamental only, for the more double they are, the less likely are they to fruit. This is because the stamens which bear the pollen are transformed into petals. No doubt the peculiarity could be propagated by grafting.

Border Plants.

1222. SIR,—Could you give us a list of plants that once planted would come up every year. I want to plant a border and some beds. Also could you name some shrubs that would go with them.

Toronto,

H. G.

Our correspondent will find, on page sixty-two, a good list of border plants given by a professional gardener, Mr. Wm. Hunt, of Hamilton. The herbaceous perennials

there described, such as arabis, dielytra, iris, perennial phlox, pæonies, columbine, coreopsis, rudbeckia and delphinium would give great satisfaction, and make a beautiful display, year after year. They are much better than annuals for a border, because once planted they will come up year after year and give a certain permanent character to the beds.

As for a list of shrubs, our correspondent can do no better than to read over the article on deciduous shrubs, on page 197, written by Mr. R. Cameron, chief gardener Victoria Park, Niagara Falls, and select his list accordingly.

Destroying Ants.

1223. SIR,—Can you give me an effectual remedy for ants in lawn without injury to the grass. Am much bothered with their nests, which are not only unsightly, but interfere with the work of the lawn mower. Kindly answer in Horticulturist and oblige, yours, truly,

Erasmus.

GEO. WOOD.

The following method of destroying ants is quoted from a bulletin of the Mass. Exper. Station: "Make holes with a crowbar or convenient stick from six inches to a foot deep, and about fifteen inches apart, over the hill or portion of the lawn infested by the ants, and into each hole pour two or three teaspoonfuls of bisulphide of carbon, stamping the dirt into the hole as soon as the liquid is poured into it. The bisulphide of carbon at once vaporises and, permeating the ground, destroys the ants but does not injure the grass. One should remember while using this substance that it is highly inflammable, and not bring near it a flame or even a lighted cigar.

Oyster Shell Bark Louse.

1224. SIR,—Enclosed is a cutting from an apple tree which appears to have some bark disease. Will you kindly inform me if it is anything requiring attention, and if so, kindly advise a remedy and greatly oblige.

Limehouse, Ont.

SUBSCRIBER.

These twigs are covered with Oyster Shell Bark Lice. No samples are more fre-

quently sent in for identification, which proves how wide spread this insect now is in Ontario. It increases very slowly, but if neglected for years, the trees become so incrustated with them as to become unfruitful. To destroy them the bark should be scraped in early spring and washed with whale oil soap, two pounds to five gallons of water, or with Gillett's Lye, one ten cent package to five gallons of water; and then about the first week in June, when the young lice are moving, the trees should be sprayed with kerosene emulsion.

Value of Fruit Land.

1225. SIR,—In your March issue you question the correctness of Prof. Macoun's valuation of bearing orchards at \$1,000 per acre. It would be interesting to see published what you consider a conservative estimate of the value of (1) small fruits, and (2) bearing plum, peach, pear and cherry orchards per acre, in say the Niagara fruit district, convenient to shipping points.

Vancouver.

A. W. F.

A small fruit plantation does not so much increase the value of the land because it is so easily placed or removed. An acre of land to currants would be worth little more than land without these plants, the value of the crop is so little. Planted to strawberries it would be worth about the net value of one year's crop more than without, say \$100 more than the land without, and we would estimate raspberries about the same, so that if the land is worth \$100, the crop value would add as much more, making it \$200.

A peach or cherry orchard, and of the best varieties, would mean a much larger productive investment, and much higher value. Two acres of garden land near Grimsby, with peach and plum trees in bearing, and raspberry bushes between, have just been sold at \$600 per acre, but then the land was counted worth \$400 before the trees were planted.

We think that as an investment, any man who pays more than \$500 per acre for the finest orchard of any kind of fruit trees, is paying an outside figure, and, as for an apple orchard, some have valued it so low that they consider it an encumbrance, and begun digging the trees out; but of course this is under special conditions.

Vine Weeds.

1226. SIR,—What remedy is best to kill that troublesome weed commonly called vine weed, or a species of wild convolvulus among raspberries, etc. It resembles a morning glory and has a small flower.

Oshawa.

JAMES A. RIDER.

We know of no simple method of eradicating this weed, generally called bind weed. If hoe and rake won't answer, better start a fresh raspberry plantation on cleaner ground.

Amaryllis.

1227. SIR,—Can you tell me how to make my amaryllis regina flower. I have had it 6 years and have had no bloom. Should it be left in one pot all the time or moved and the earth renewed. It has thrown out offsets till it completely fills the pot.

Prescott.

C. W. BEAVEN.

The abundance of offsets that have been allowed to grow is probably the cause of the amaryllis mentioned not flowering. Leave the plant undisturbed and grow it on until its next resting period, then just before active growth commences again, remove all the offsets. Repot the old bulb into rich loamy soil, giving plenty of drainage; water sparingly until the bulb has well started into growth. Remove all offsets as soon as they appear, these can be potted singly and grown on if required. The best time to repot amaryllis bulbs is just as growth commences after the resting period. Oftentimes a top dressing of rich soil is preferable to repotting, if the bulb is healthy and the drainage in the pot perfect.

W. HUNT.

Questions Answered.

Memorandum re Addition of Sal Soda to Paris Green Mixture.

In answer to the enquiry "can sal soda be used instead of lime in the preparation of paris green mixture?" the following information is submitted:—

When paris green mixed with water (at the usual rates 1 lb. to 100-200 gallons) is applied to certain classes of delicate foliage (as of stone fruits) a corrosive or "burning" effect has been noticed to follow, the leaves showing decided marks of injury as the insecticide dried upon them. This injurious effect may be entirely overcome by the addition of a small quantity of lime, the usual quantity advised being 1 lb. to each 1 lb. of paris green, though this is probably much more than is absolutely necessary.

Sal soda (more commonly known as washing soda) should chemically effect the same purpose as the lime, though in the apparent absence of recorded experimental data it would not be wise to generally advise the substitution. Arsenate of soda, as is well known, is more or less injurious to foliage, but the compound formed in the mixture under discussion would rather be arsenite of soda, regarding the action of which on foliage I cannot find any reference. I, however, am of the opinion, drawn from a general consideration of the whole subject, that lime would be better, or rather, safer to use, since the lime-arsenic compound is insoluble, while the soda-arsenic compounds are easily soluble in water and hence more likely to affect the foliage.

To obtain the neutralizing effect of 1 lb. of slaked lime, approximately 4 lbs. of ordinary crystallized washing soda would be required. This quantity of lime, however, as already pointed out much exceeds that absolutely necessary, and most probably 2 lbs.

of washing soda (equivalent to $\frac{1}{2}$ lb. of lime) would be ample. An experiment recently made in our laboratories showed that when 4 lbs. of sal soda were added to a mixture of 1 lb. of paris green in 160 gallons of water, considerable traces of arsenic went into solution; in other words, that there had been a slight decomposition of the paris green. When, therefore, through inability to conveniently obtain lime, sal soda is substituted, we should advise not more than 2 lbs. to each pound of paris green in the spraying mixture; but in view of the general results of soluble arsenic compounds on foliage, and in the absence of any definite data from spraying experiments with the mixture under discussion, it would be safer to use lime whenever possible. The arsenate of lime that may be formed in the fluid from following this course has been shown to be non-injurious to foliage and an excellent insecticide.

Perhaps it may be pointed out that when paris green is used in bordeaux mixture, there is no need for further addition of lime or other alkali to prevent injury to foliage, and that in this mixture both the fungicidal and insecticidal properties are unimpaired.

FRANK T. SHUTT, Chemist.

Dominion Experimental Farms.

The Sweet Chestnut.

Under notes and comments in the May number of the Horticulturist, I see you ask for information regarding the hardiness of the sweet chestnut in the north.

I have grown them here in nursery rows for the past 25 years; have 50 of them permanently set out and in bearing, and have proved them to be perfectly hardy, the frosts of all these years never having injured even a single tip of any of the thousands of the

trees we have had under cultivation. I am quite sure they would well withstand a climate much farther north than even Port Elgin. Please bear in mind that I am speaking of the American sweet chestnut, never having had much experience with the Japan varieties.

For family use there is no reason why every farmer or farmer's boy should not have a few nut-bearing trees of his own growing, and we know of no more enjoyable thing than a plentiful supply of sweet chestnuts with which to treat our acquaintances when they make us a friendly visit.

Port Elgin, Ont. J. H. WISMER.

Analysis of Certain Brands of Lye.

In order to furnish information to orchardists regarding the relative strengths or values of certain lyes used in Canada in making spraying solutions for the destruc-

tion of scale insects and cleaning the bark before the foliage appears, analyses have recently been made in our laboratories of the following brands: Gillett's Perfumed 100 % Lye, Greenbank's Soapmaker, Babbitt's Pure Potash or Lye, Rock Potash.

ANALYSES.

	Alkali as Caustic Soda.	Alkali as Carb. Soda.
Gillett's Perfumed 100 %.....	92.48	2.77
Babbitt's Pure Potash or Lye...	85.15	4.98
Greenbank's Soapmaker.....	71.44	5.51

There is no potash in Babbitt's brand, the alkali present being soda.

A sample of rock potash obtained from a wholesale drug firm in Montreal gave the following data:—

Alkali as caustic potash.....	36.72%
“ as carbonate potash.....	43.24%
Total potash present, calculated as oxide (K ₂ O).....	69.31%

FRANK T. SHUTT, Chemist.

Dominion Experimental Farms.

Open Letters.

Hardy Nuts.

SIR,—In your question drawer a Mr. Kidd asks for information as to hardy nuts, etc. Mr. W. T. Macoun, in his reply, speaks of the filbert and hazel as not likely to set fruit in the neighborhood of Toronto, and gives his reasons.

I have grown the common English hazel for several years in the township of Tuckersmith, and the trees bear plentiful crops of nuts every year. The experience of several of my neighbors accords with mine.

Mr. Macoun may be correct in his remarks as applied to Ottawa, but as Toronto is in about the same latitude as Tuckersmith, I fancy the hazel will fruit there as well as it does in this locality; at any rate the cultivation of the hazel tree should not be condemned because it does not succeed at Ottawa. Yours respectfully,

Egmonville, Ont. EDWIN CRESSWELL.

Tulip Culture.

DEAR SIR,—I understand from a Holland agent for the above bulbs that it is a common complaint all through America with the gardeners and florists that they cannot grow the double tulips with long enough stems to be of much service as cut flowers. This agent informed me this spring that he cannot sell the bulbs on this account, al-

though they are prized more by florists than the single varieties and would be in demand if they could be grown with long stems like those grown by me and which he had seen here this spring. For the above reason I had the accompanying photograph taken for your valued journal. There are eight varieties in the bouquet, both doubles and singles, with stems from twelve to seventeen inches in length; they were grown in the following manner:—

The bulbs were potted in the usual way, into six inch pots, 3 bulbs in each; the crown or bulbs out of the soil; the soil was a rich composite, three parts were of decayed sods cut from an old sandy loam pasture, and one part was composed of leaf mould, river sand and bone meal all mixed together. When all were potted, the pots were thoroughly watered, and I then appropriated a cold frame which was set up in a sheltered situation facing the sun. In the bottom of the frame I placed about two inches of sifted coal ashes, the pots were then placed on top of the ashes as close as they would set together; then they were covered about three inches deep with the sifted ashes and left until the first severe frost, when all was covered over with about a foot deep of coarse farm yard manure; there was no sash put on the frame. The first of the pots were brought into the greenhouse about Christmas, the blooms were about perfect in about 6 or 7 days after being taken in, so



FIG. 2081. TULIPS.

that by taking in a fresh batch from the frame every week there would be a continuous display throughout the winter. The manure acts for two purposes, first to prevent severe freezing, secondly to allow a person to get at the pots to take the same inside when wanted. The coal ashes act for several purposes also, as to prevent worms entering the pots from above or below; to prevent mice or rats eating the bulbs of which they are very fond; the young growth does not freeze so hard in ashes as any other material; thirdly, the growth made by the plants seems to stay just below the surface of the ashes until they are taken inside, and the time may be months—in any other material

the growth would be drawn and spoiled; fourth, if the ashes is left upon the pots or boxes containing the bulbs they will not require any water until the blooms are matured and cut; fifth, if the bulbs are in boxes, when the blooms are cut, the boxes may be placed outdoors, where the bulbs will be secure from frost, and mature bulbs for another season; sixth, it seems that the ashes prevent insects; seventh, unnecessary watering, and the cool temperature that the bulbs and roots are kept at by the ashes seem to encourage long stems. Be sure there is no wood ashes among the coal ashes used.

Niagara Falls South.

R. CAMERON.

Our Affiliated Societies.

WOODSTOCK.—The Horticultural Society held an interesting, though not very largely attended meeting in the council chamber last night, May 14th.

The following questions were received from J. C. Creelman, superintendent of the Department of Farmers' Institutes, and were answered as below.

What was the attendance at your meetings? Fairly good.

How were your members pleased with the addresses of the delegates? Very well pleased.

Was the lady speaker who addressed your society appreciated? Yes, very much.

Were the delegates well received at the schools and do you think this new departure a useful feature of the work? Yes.

In what branch of horticulture are your members most interested? Floriculture has the preference.

Have you any suggestions to offer in regard to next year's work? This was left in the hands of a committee, composed of the president, T. H. Parker, M. Dawes, J. S. Scarff and Robt. Woodroffe.

The matter of awarding prizes for the best kept cottage garden was discussed at length and left to the committee. The encouragement of the decoration of School grounds was also considered.

The secretary, J. S. Scarff, reported that 724 plants and shrubs had been given to 102 members as follows:

134 Cumberland raspberry plants.

35 shrubs.

38 apple trees, 38 pear trees, 38 grape vines, 63 palms, 126 rose bushes, 63 clematis, 63 geraniums, 63 asparagus plumosus and 63 asparagus springerii.

Mrs. Dawson, Mrs. J. H. Finkle and Mrs. Harry Davidson have consented to read papers before future meetings of the society. A number of accounts were also passed. The members of the society expressed themselves highly pleased with the attendance at the recent public meeting held at the Collegiate, under the auspices of the society, and a cordial vote of thanks was tendered the musicians and others who kindly gave their assistance on that occasion.

Mr. Whaley followed President Patullo's suggestion with regard to a prize for cottage gardens, with a suggestion to give one to school children, who would make the best flower garden—work and care of same to be done exclusively by themselves. This was endorsed by the meeting and a committee was appointed to carry out both suggestions. It consisted of President Patullo, Secretary Scarff, R. W. Woodroffe, M. Dawes, T. H. Parker and M. Richmond, who will probably meet at 4 o'clock this afternoon in T. H. Parker's office.

MITCHELL.—A most enthusiastic meeting was held under the auspices of the Horticultural Society here on April 16th. In the afternoon the pupils of the high and public schools gathered at the town hall, in charge of the teaching staff, to hear Mr. Alex. McNeill and Miss Rose, of Guelph. The scholars were very much interested in what

they heard and were asked to write an essay on the subject matter of the lectures the next day.

In the evening the hall was crowded to the doors by the most select and enthusiastic audience that ever came together in the town. President A. Dalton Smith, M.D., occupied the chair and with him on the platform were Vice-President W. Elliott, B.A., all the clergymen of the town and outlying districts and a few others. The hall was splendidly decorated with plants and flowers, and the musical selections given throughout the program by Mrs. F. B. Holtby, piano, Mrs. F. A. Campbell, vocal; Miss Pearl Waterhouse, violin, and Prof. Bridgeman, piano, were very choice. Miss Rose spoke on the subject, "Why I have a garden," and Mr. McNeill on "Plants, Shrubs, etc., for the home plot," and both received a splendid hearing. Each of the clergymen present said a few encouraging words expressing their sympathy with the objects of the society and their interest in its operations. This is what I have long contended for—the co-operation of the churches with us in our work, and in this town we are getting it. Everybody seemed to be pleased with the meeting and the society is likely to grow in popularity and usefulness as one of the results. We have now a membership of seventy-four and expect to go on increasing. Already a deeper and more active interest is being manifested throughout the town in fruit and flower culture and general home ornamentation.

T. H. RACE Secretary.

ORILLIA.—The joint committee of representatives of the Horticultural Society, the Board of Trade and the Town Council which has of late been considering ways and means of beautifying Orillia, is this week issuing a circular to the citizens, appealing to them to lend their assistance, an appeal which it is to be hoped will not be made in vain. After referring to the great business benefit that Orillia had derived from the tourist trade during the past three years, and to the unfavorable impression which our dirty streets had made on many visitors, the committee makes these proposals as a remedy:

(1) That shade trees be planted along the boulevards throughout the town, wherever there are not trees already. The Town Council offers to supply trees and have them planted at a cost of fifteen cents per tree (less than one-half of the actual cost), provided application for trees be filed with the Town Clerk before May 1st. The committee would recommend maples and elms as the best ornamental trees for this purpose. The last named will thrive best in any moist, heavy clay soil, and probably in most of the southerly portion of the town. Trees should be planted during the latter part of April or first part of May, and should be protected from cattle and small boys by posts or tree boxes, and from drought by a small quantity of sawdust on the surface of the ground round the trunk. The maples should be watered regular-

ly about once a week (not oftener) for the first month or two after planting, but the elms should be watered twice each week.

(2) The Town Council has decided to have the shade trees on the streets regularly and properly trimmed by competent men, and in future private citizens wishing to have the trees on their boulevards trimmed must not have it done themselves, but should make application to the Town Clerk, when it will be promptly attended to.

(3) That the grass and weeds be kept cut on the boulevards and that an effort be made by all individual citizens to improve the appearance of the boulevards throughout the town. Arrangements can be readily made to have such work done for the season at a very reasonable rate, and any member of the Horticultural Society, Board of Trade or Town Council will gladly furnish you with the names of persons willing to undertake such work.

(4) That each citizen be asked to assist in the work of keeping the streets clean, by refraining from throwing on the streets scraps of paper or other refuse, and to endeavour individually to keep others from doing the same. Receptacles for waste paper, etc., will be placed at the principal street corners, so that there will in future be no excuse for littering the streets with such refuse.

(5) That each individual citizen will not only do all in his or her power to beautify the streets of the town, of which we are all so proud, but that each will also endeavor to improve his or her property, so that we may have in every sense a clean, healthy and beautiful place of residence. If all, or a majority will assist in this, the result will be a vast improvement in the whole. Any member of the Horticultural Society or of this Joint Committee will consider it a pleasure to assist by information or advice anyone desiring such, in the earnest hope that concerted action will be taken upon the suggestions embodied in this circular, and result in the general good.

The Joint Committee is composed of Messrs. C. L. Stephens, chairman; G. H. Clark, secretary; E. C. Roper, W. S. Frost, G. Street, S. Reeve, S. H. Black, F. Sollitt, J. H. Wilson, Wm. Bacon, A. B. Thompson, J. P. Secord and G. T. Tipping. There is no doubt that if the committee perseveres in its good work, and receives the backing it should get, the result will be to revolutionize the appearance of the town, and to make Orillia the neatest as well as the most picturesquely situated summer resort in Canada.

ELMIRA.—The local paper of this town devotes a whole column to an account of the meeting held by Mr. McNeill and Miss Rose, whom they call "two plain everyday people who will make hosts of friends wherever they go; two lecturers who have not merely the theory of the subject, but who also speak from practical experience."

KINCARDINE.—On Friday evening, Mr. McNeill, of Walkerville, and Miss Rose, of Guelph, delivered addresses in the town hall under the auspices of the Kincardine Horticultural Society. The former took for his subject: "Plants, trees and shrubs for the ordinary town lot," and the latter gave an admirable address in which reasons were set forth "Why I have a garden." The attendance was

not nearly so large as the excellence of the addresses warranted. Those who were present received much practical instruction and valuable suggestions were made as to beautifying the plots, lawns and streets of the town in which we live. In some towns prizes are given for the best kept gardens, plots and lawns, and if the Kincardine Horticultural Society would take the matter up the town would be greatly beautified. There should be two or three classes so as to give the working-man's little cottage and plot an equal chance in his class with that of his neighbor of larger premises and facilities in his class. The Horticultural Society could do very practical work by instituting such a competition. Mayor Mackendrick presided as chairman of the meeting.

LONDON.—During the first week in April each member of the London Horticultural Society received from the executive of the Society a package of seed, consisting of one large packet of the following varieties.—

Asters, New Victoria; Scabiosa, mixed; Antirrhinum, mixed; Phlox Drummondii, mixed; Nasturtium, dwarf mixed; Dianthus Heddeggii, mixed, and one packet each of the following Sweet Peas: America, Navy Blue, Blushing Beauty, Mars, Countess of Radnor, Black Knight, Katherine Tracey, Emily Henderson, Mrs. Eckford, Mrs. Joseph Chamberlain.

The members were exceedingly well pleased at receiving so liberal a distribution.

R. W. RENNIE, Sec'y.

LONDON.—The London Horticultural Society held their second open meeting this year on the evening of May 3rd, in the auditorium of the Y. M. C. A. Building, the meeting being called to distribute the plant premiums provided by the Canadian Horticulturist. The meeting was very well attended considering the short notice given. Dr. C. J. S. Bethune occupied the chair, the president, Mr. J. A. Balkwill, having a severe cold.

Before proceeding to distribute the premiums Dr. Bethune gave an exceedingly interesting and instructive address on the commoner destructive insects, illustrating his remarks by greatly enlarged colored drawings of insects. Mr. Wm. Gammage, who has been so successful with his carnations at the Pan-American, was to have spoken, but owing to indisposition was unable to do so.

During the evening the members were favored with songs by Mrs. Geddes and Miss Agnes Templeton, accompanied by Miss Templeton. The Society tendered these ladies a hearty vote of thanks for contributing so largely to the enjoyment of the evening.

R. W. RENNIE, Sec'y.

CAYUGA.—The horticultural society here proposes putting out a cedar hedge in front of the High School two hundred feet in length. When is the best time? The soil is heavy clay, but we can dig a trench and fill in with good loam.

J. E. SKEDE, President.

The hedge may be planted any time this month, when the ground is in good condition; indeed most experts claim that June is the very best season for transplanting evergreens.

Lectures Before Horticultural Societies

Below will be found a list of the dates and places where arrangements have been made to hold meetings of the societies during April.

The work of arranging these has been transferred from the Fruit Growers' Association to the Department of Farmers' Institutes, and hereafter all communications in reference to lecture work connected with these societies should be addressed to G. C. Creelman, Superintendent of Farmers' Institutes, Parliament Buildings, Toronto.

The meetings as arranged this year differ somewhat from those held in former years, in that in some instances a lady has been added to assist the regular delegate at their meetings.

It has also been arranged that all speakers shall visit and address the children of the Public and High Schools in the afternoon of the date on which the meeting is to be held. It is hoped that in this way the pupils may be instructed in matters pertaining to horticulture and nature study, and that the meetings at night may also be helped by the advertisement given them in the schools.

DELEGATES—W. N. HUTT, Southend, and Miss BLANCHE MADDOCK, Guelph.

Subjects—W. N. Hutt: (1). Insect Friends and Foes. (2). Birds in Relation to Horticulture. (3). Pruning of Trees and Plants. (4). Beautifying the Home. (5). Spraying Mixtures and Their Application.

Miss Maddock: (1). Fruits and Vegetables as Articles of Diet. (2). Window Gardening.

Lindsay	April 9th
Port Hope	" 10th
Cobourg	" 11th
Stirling	" 12th
Picton	" 15th
Iroquois	" 16th
Cardinal	" 17th
Thornbury—Mr. Hutt only	" 18th
Owen Sound— " " "	" 19th

DELEGATES—WM. BACON, Orillia, and Miss BLANCHE MADDOCK, Guelph.

Subjects—Mr. Bacon: (1). A Talk on Some Really Desirable Plants, Their Season and Care. (2). The Bulbous Family Presented in a Popular Manner. (3). The Verandah, Its Shade and Environment.

Miss Maddock: (1). Fruits and Vegetables as Articles of Diet. (2). Window Gardening.

Niagara Falls	April 22nd
Grimsby	" 23rd
St. Catharines	" 24th
Simcoe	" 25th
Oakville	" 26th

DELEGATE—A. MACNEILL, Walkerville.

Subjects—(1). The Fertilization of Flowers. (2). House Plants. (3). Plants, trees and shrubs for the ordinary town lot.

Cayuga	April 8th
Port Dover	April 9th

DELEGATES—A. MACNEILL, Walkerville, and Miss LAURA ROSE, Guelph.

Subjects—Mr. MacNeill: (1). The Fertilization of Flowers. (2). House Plants. (3). Plants, trees and shrubs for the ordinary town lot.

Miss Rose: (1). Why I Have a Garden. (2). Economic Gardening.

Woodstock	April 10th
Paris	" 11th
Hespeler	" 12th
Guelph	" 13th
Elmira	" 15th
Mitchell	" 16th
Seaforth	" 17th
Clinton	" 18th
Kincardine	" 19th

DELEGATE—DR. JAMES FLETCHER, Experimental Farm, Ottawa, Ont.

Smiths Falls and Perth, dates to be arranged later.

For Perfect Fruit

SPRAY YOUR ORCHARDS

WITH THE

Spramotor



Intelligent and timely spraying will make your orchard profitable. The Spramotor is the result of careful experiment and is kept right up to date. Met the world in open competition on the invitation of the Ontario Government and won the award.—This should mean something to you. The Spramotor has never been defeated.—All castings solid brass, cylinders made from drawn brass tubes. All parts interchangeable. Saves fifty per cent. in labor. Most economical because solution goes farthest and most effective because it throws anything from a misty spray to a solid stream. Will also whitewash or paint your buildings. Free treatise for your address,

THE SPRAMOTOR CO.,
LONDON, ONT.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap.*" It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says :

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel.** Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it :

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new** and **valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them and report where these novelties are as described.



Photo by Miss Erodie

FIG. 1836. THE KITTATINY BLACKBERRY.

THE CANADIAN HORTICULTURIST

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* * JULY * *

THE KITTATINNY BLACKBERRY.

SOON after its first introduction the writer had a plantation of Kittatinny blackberries at Grimsby, Ontario. The old Lawton had been the commercial variety there for many years, the first plantation of that variety having been made away back in the sixties by Mr. Chas. Woolverton, but it quickly gave place to this new introduction. How little we knew about blackberry cultivation in those days, when, instead of pruning the top into reasonable form, we tried a trellis to keep up the branches, and nevertheless the projecting limbs caused sore punishment to man and horse when working among them. The Lawton was a pretty good market berry, but though it turned black enough to sell on the market, its hard core never seemed to be ripe enough for eating.

It was indeed an agreeable change to grow the Kittatinny with its large shiny black berries, ripe through and through, and most excellent, either for eating fresh, or with cream and sugar at table, or in pies. It was early in the eighties when we first began shipping this variety into Toronto, where it was handled for us by Mrs. Bilton who kept a high-class fruit and game store

and who sometimes sold it as high as 23 cents a quart. Those were the palmy days of fruit growing, when grapes brought 8 to 10 cents a pound, and currants about the same, and yet no one of us seemed to think it worth while to extend our plantations. Now the blackberry brings only from 6 to 10 cents a quart, and we are planting by the acre.

When the peach fails the blackberry is in great demand, for it is of the same season, and the thrifty fruit grower will try to be prepared for such an emergency. It is useless, however, to plant Kittatinny plants too freely outside the peach belt, for it is not very hardy. Better success will be had with the Synder, which is very hardy, enduring even the climate of Algoma, and producing wonderful crops in the Muskoka district, although it is neither so large, nor so beautiful as the Kittatinny.

The orange rust is a serious disease affecting the latter while, strange to say, we have never yet seen it upon other varieties of blackberries, no doubt because their foliage is more vigorous and more resistant to attack. This rust (*cœoma nitens*) is exceedingly difficult to destroy because it

lives through the winter on the underground stems, and while the spores may be killed with Bordeaux the vegetative portion is out of its reach. The accompanying engraving shows a section of an affected leaf, *a a* the epidermis of the lower side ruptured by it and exposing to view at *b* a mass of golden colored spores, each of which is capable of

Technically we would describe the Kittatinny for Ontario as follows :

ORIGIN—Kittatinny Mountains, N. J. ; found growing wild by a Mr. Woolverton in 1874 ; but not much disseminated until many years later.

PLANT—Very vigorous, but tender outside of the peach belt ; productive ; pro-

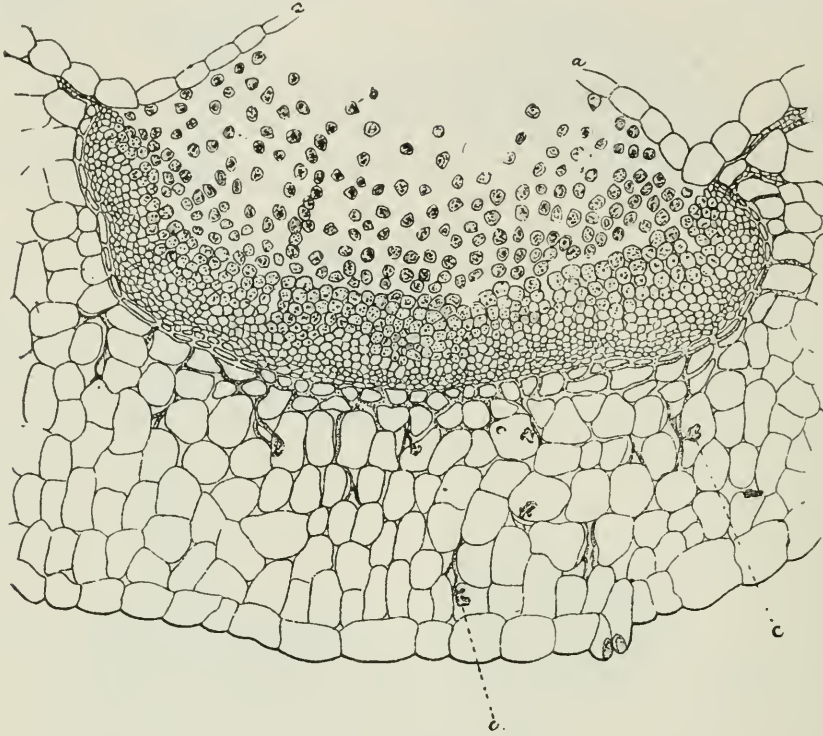


FIG. 1837. ORANGE RUST.

conveying the disease to other plants ; *c c* represents haustoria by means of which the fungus draws nourishment from the cells.

In setting blackberries the rows should be not less than eight feet apart, and the plants three feet apart in the row, though if plants are plentiful, they may be set one foot apart in the row. Every spring the last year's fruit canes should be cut back a little to permit cultivating and fruit gathering, while the new growth will grow above and shade the fruit.

pagated by suckers, and by root cuttings ; very susceptible to the Orange Rust.

BERRY—Large, averaging about $1\frac{1}{2}$ inches in length ; oblong, slightly conical ; shiny black when ripe, becoming gradually duller after gathering ; flesh, moderately firm, sweet, rich and excellent.

SEASON—July 25th to August 25th.

QUALITY—Good for dessert ; good for cooking.

VALUE—First-class for home market.



FIG. 1838. IRIS BED AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

CENTRAL EXPERIMENTAL FARM NOTES—IX.

THE weather during the latter part of May was cool and showery up to the 19th, when it became warmer, the temperature being 18°F., 82°F. and 83°F., on the 26th, 27th and 31st. Rain was beginning to be needed by June 1st, but on the 2nd about 1½ inches fell, which did much good. As the weather has continued warm since then, growth has been rapid. The warmest day so far this month was on the 6th, when the temperature was 84°F. No frosts have occurred during the past month.

The blossoming season of apples, plums, pears and cherries was very favorable this year, the weather being bright and warm, as a result of which these fruits, as a rule, set well. There were exceptions, however. Cherries only set fairly well, and there will not be a heavy crop of any of the varieties fruiting here. The severe frosts which occurred here on the 10th and 11th May probably did more injury to the apple and cherry blossoms than was at first supposed. Among the apples, several varieties growing in

sandy soil, but apparently quite healthy, did not set much fruit, although the trees bloomed freely. As records are kept of the approximate amount of blossom on each tree and records of the yields from these trees, also, we hope soon to learn the various causes of their unfruitfulness. It may be from lack of certain plant food; from some disease, not apparent; from frost, or from self-sterility, but, there being plenty of opportunity for cross-fertilization where so many varieties are growing in close proximity, the last cause suggested is not likely the true one. The trees of the Wealthy and Duchess are particularly well loaded with fruit this year. The McIntosh Red apple, which is one of the most satisfactory trees to grow in this part of the country, is an annual bearer at the Experimental Farm. It never fruits heavily, but each year there is a medium to good crop of fine apples, which are all the better on account of the tree not over-bearing. The hardiest apples have set fruit best in most cases.

The pears are making good growth this

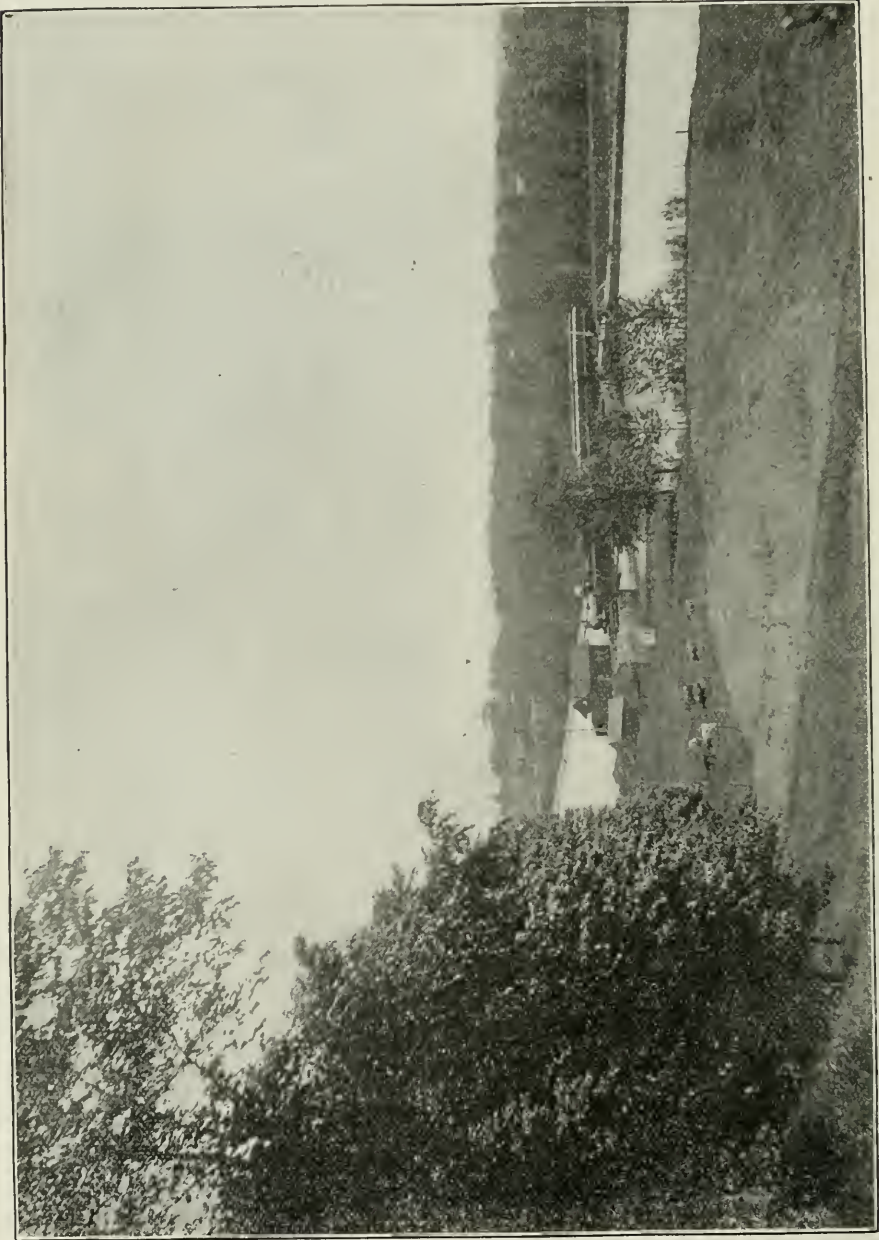


FIG. 1839. VIEW IN ARBORETUM, CENTRAL EXPERIMENTAL FARM, OVERLOOKING RIDEAU CANAL.

year, and quite a number of varieties are fruiting, though most of them are of Russian origin and inferior in quality. A tree of the Flemish Beauty, however, which has been in the orchard for ten years, is bearing this year. It bore, also, two years ago. The pear orchard has been almost free of blight for several seasons.

Plums set well, on the whole, and a good crop of the American varieties is expected. A few European sorts are also bearing this year.

A plentiful crop of strawberries is also anticipated, the rains which we have had recently being especially favorable to that fruit. The Warfield is apparently one of the hardiest varieties of strawberries grown, and, taking everything into consideration, few varieties excel it for a shipping berry. It, however, becomes rather small if more than one crop is taken from a plantation, and being a pistillate variety requires to be fertilized by some other sort. The Glen Mary, which has succeeded well in many parts of Canada, promises to produce a good crop of berries this year. The Wm. Belt, which is an excellent strawberry in many respects, does not appear to be quite hardy enough in all locations here. Both last winter and the winter before, it suffered considerably at the Experimental Farm; its irregular shape also is against it. On the comparatively light soil here, Clyde did not make many runners last year, and the crop from it will not be as large as if it were on heavier soil.

Under the system of treating the orchard at the Central Experimental Farm, the cover crop of common red clover is now ready for cutting the first time. The crop is very heavy, the clover being from 22 to 24 inches in height and just showing flower buds. As mentioned in a previous number of the Horticulturist, the apple, pear and plum orchards have not been cultivated during the past two seasons, nor this year. Most of the soil in the orchards is a light moist sandy loam,

surface of which is easily moved by the wind. Cultivation in these orchards gives the wind an opportunity of blowing the soil, the result being that the roots of the trees are liable to be bared, or nearly so, and the trees are thus more likely to suffer both in winter and summer. Since an almost continuous cover crop has been maintained, the trees are becoming more vigorous. The following plan is adopted: Two-year-old clover is ploughed under in the spring, the land harrowed and clover re-sown without a nurse crop at the rate of 12 lbs. to the acre, after which the land is rolled. During the summer it is cut a couple of times with a field mower to prevent weeds from going to seed, and a cover crop of clover from 10 to 12 inches high is left in the autumn to hold the snow and protect the roots of the trees. The following summer, this same clover is cut from four to five times with a field mower and the crop left to rot on the ground. By cutting the clover each time before it blooms, the vigor is maintained and the fourth crop is usually still a heavy one. In 1898 when the amount of green clover cut was approximated, it was found that more than 25 tons per acre were left to rot on the ground in one season. In 1899 the crops were as good, or better than in 1898, and this year the first crop is better than either in 1898 or 1899. As red clover is a biennial, a large proportion of the plants kill out the second winter, and on this account, partially, it is ploughed under the following spring and re-sown as previously stated. While this system is not recommended to orchardists who may have conditions which would render it unsatisfactory; for instance, where droughts are of common occurrence, or where the soil is dry, it is giving good results under the conditions at the Central Experimental Farm, and will be continued until bad effects are noticed; fertilizers to balance the food supplied by the clover being applied from time to time as deemed necessary.

The German Irises make a fine show during the month of June. A very large collection has been brought together at the Experimental Farm, and they are the delight of all who see them. There are such a large number of varieties of exquisite shades and markings that it is difficult to choose a limited number which would be suitable for a small garden. Among the best, however, are Mad. Chereau, Darius, Gisele, Mrs. H. Darwin, Coquette, Ossian, Walneri, Lord Seymour, Sappho, Prinz Frederic, Marginata, Jacquesiana.

In July and August the annuals are so plentiful that perennials often take second second place, but if one has a good collection of Pæonies, Japanese Irises, Lilies and the Hybrid Perennial Phlox, he can have a

good show of flowers. There are other good perennials, however, which bloom in July, among which being the Cashmerian Larkspur, (*Delphinium Cashmirianum*), Showy Fleabane (*Erigeron speciosus*), Infant's-breath (*Gypsophila paniculata*), Autumn flowering Sneezewort, (*Helenium autumnale*), large flowered Chinese Bellflower (*Platycodon grandiflorum*), Caucasian scabious (*Scabiosa Caucasica*), Meadow Sweet (*Spiræa Ulmaria*), Queen of the Prairie (*Spiræa Venusta*), Broad-leaved sea lavender (*Statice latifolia*), Aster, Amellus bessarabicus, and the fine Rudbeckia, Golden Glow, which begins to bloom about the last of the month.

W. T. MACOUN,
Horticulturist.

Central Experimental Farm.



FIG. 1840. LARGE FLOWERED SYRINGA AT C. E. F., OTTAWA.

SHADY NOOKS FOR SUMMER DAYS.

ANYTHING which adds to one's comfort during the warm weather is welcome, and as the life in our climate during the summer months is largely an outdoor one, any bit of shade which Nature or art may provide to temper the rays of the sun is welcomed. The ideas illustrated on this page may all be carried out at slight expense.

The illustrations for crows' nests suggest places where one may retire with a favorite volume. If the climb into these retreats is too venturesome for the older members of the household, they will afford much enjoyment for the younger ones. Of course the proper trees are necessary, and as no two are alike the

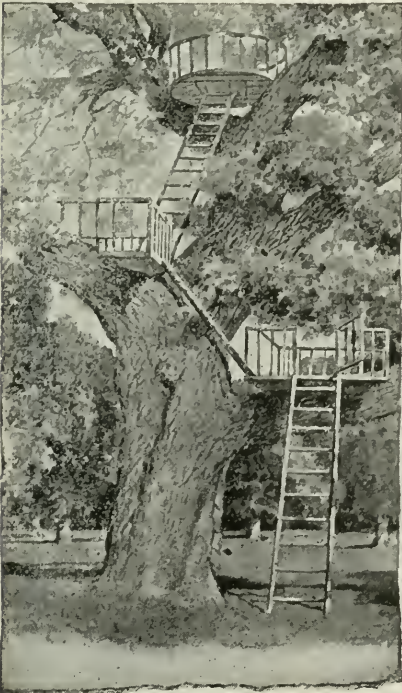


FIG. 1841. A LOFTY CROW'S NEST.

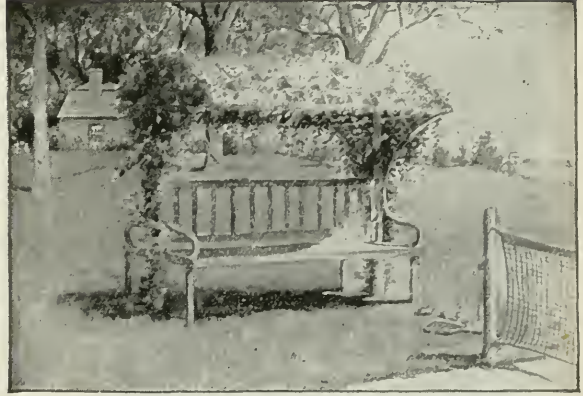


FIG. 1842. A SHADY SEAT AT THE TENNIS COURT.

carpenter will have to adapt his construction to the enforced requirements of size and growth.

In the arrangement for the shady seat at the tennis court, rough cedar posts are planted firmly about eight feet apart, three feet below and seven feet above ground, and a framework is built across at the top, and a double seat with back constructed between. The framework at the top should come forward four and a half feet from the end parts on each side, making the top nine feet over all. A series of hoops is carried along one foot apart, giving a curved top. The brackets for this top and the arms and legs of the seat may be made from rough limbs with the bark left on. The same material is used for braces. If gnarled limbs can be obtained for these all the better, but the framework is of secondary importance as it will be covered with vines by the middle of the summer.

A more simple mode of construction would be to make the top flat. For this use straight pieces instead of hoops. The effect will be less picturesque, but when covered with vines it will make but little difference. If possible face the seats north and south, as more shade will be obtained from the ends when the sun is low in the afternoon.

Often shade is needed at some special point on the lawn, and the illustration given of a summer-house with a double-domed roof and two circular seats offers suggestions for that purpose.

In the arrangement for this summer house six corner posts are planted. Of course, the size of these bowers must vary according to individual needs, but they must not rise too high above ground. They will be useless for shade if carried up more than eight feet.

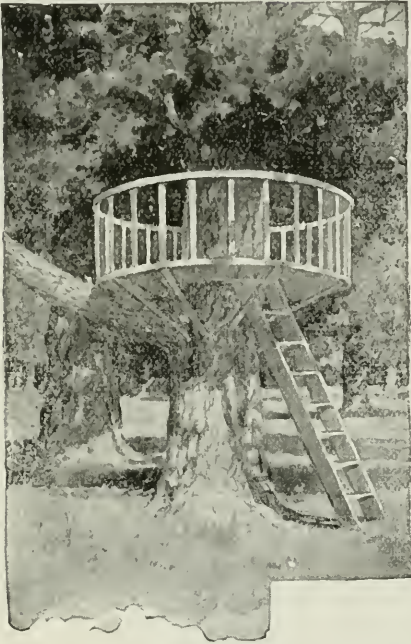


FIG. 1843. A SHADY RETREAT.

Centre posts rise to a height of eleven feet, and long hoops are carried diagonally from corner to corner. These are firmly nailed to the centre posts, on which they cross. Straight pieces are carried around horizontally from post to post; these are supported by brackets. The hoops may also be connected by light stuff. A seat is constructed around each centre post, and a light railing runs around these sides. At the base the entrance is generally left free of adornment of any sort.

Many vines which flower lovers would like to use are worthless for



FIG. 1844. A SHADED DOORWAY.

the purpose of shade. The sweet pea would be a general favorite if it grew to a sufficient height, but it does not. The morning-glory and the wild cucumber are both desirable. The former will grow to a height of twenty feet in a season. The wild cucumber also has

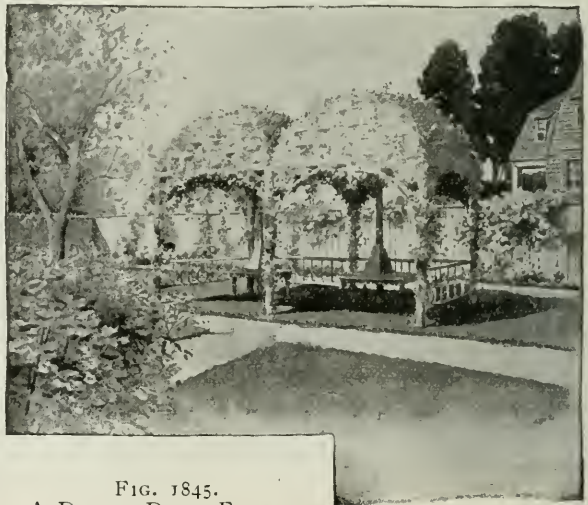


FIG. 1845.
A DOUBLE-DOME EFFECT.

a rapid growth, and its flowers when seen in masses are very effective ; it is to summer plants what the native clematis is to our perennial vines. Some of the ornamental gourds are available for covering summer houses, their large leaves overlap and afford a dense shade, which is, of course, indispensable in a summer-house. The variegated Japan hop will answer for the purpose of shade ; it has a rapid growth and an attractive foliage.

An illustration which needs little description is the one in which an old sketching umbrella frame is utilized for the canopy at the top of the centre post, or constructed of a large wooden hoop supported on a wire properly bent. A pot is set on or in the post on each side, and a ladder-like framework of light sticks connects them with the canopy. If desired, wooden boxes may be built in place of the pots. In fact, it would doubtless be a wiser plan to use boxes as they may be nailed securely to the posts. The centre post must be carried up to a height of seven feet so that it may be passed beneath without chance of brushing the hat of one's tallest guest. Paint in harmony with the house. Nothing will be so pretty

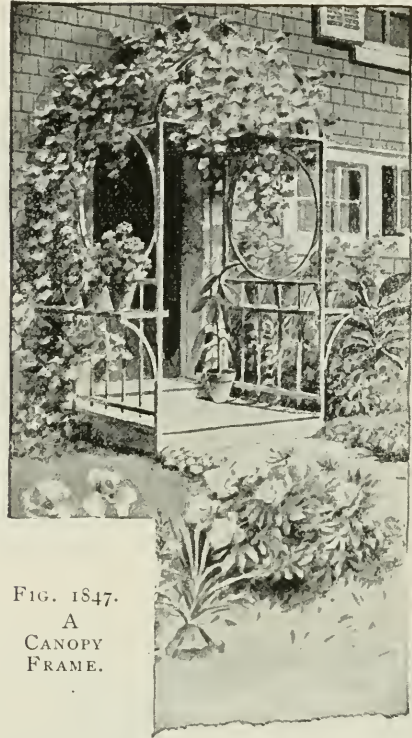


FIG. 1847.
A
CANOPY
FRAME.

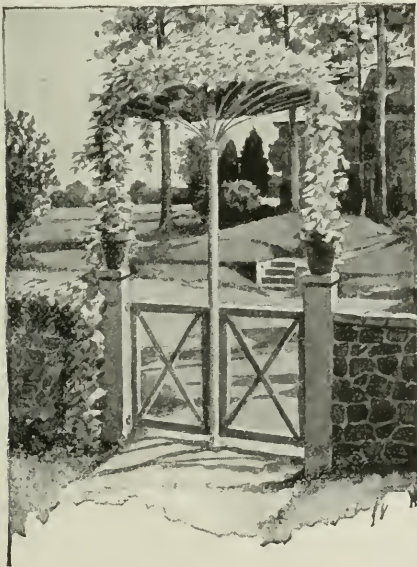
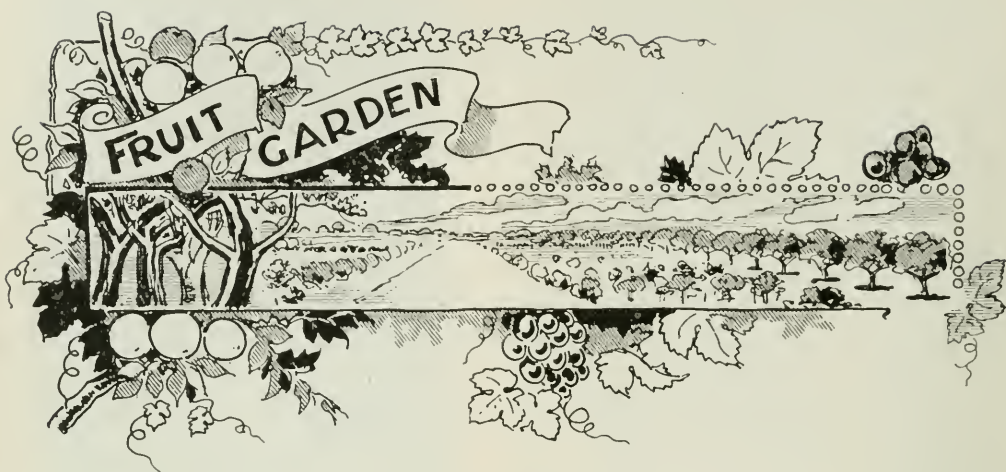


FIG. 1846. A SHADED TURNSTILE.

or so attractive to plant about this gate as nasturtiums.

Very often the entrance to a house lacks a canopy or porch, in which case the arrangement shown in illustrations show two light canopy frames, which, when covered with vines, will afford a grateful shade. A feature of one is the shelf for potted plants. Brilliant geraniums are especially effective for the purpose, their glowing blossoms fairly burning against the dark green of the grape vine's broad foliage. When constructing the simpler one bring the brackets down toward the base of the doorposts. The doorway may be flanked with cacti or other plants of a decorative character.

For planting a door having a canopy I would advise *Celastrus scandens* or *Ampelopsis*. The native grape may also be used. All three of the above are attractive and nearly always prove satisfactory.



FRUIT CULTURE.—VI.

THE PEAR.

THIS excellent fruit, so generally and deservedly esteemed, should always secure a prominent place in the orchard of the commercial grower and in the amateur's garden. By a judicious selection of varieties fruit can be enjoyed from August to January. It was one of the few fruits successfully marketed in England in 1898, and a profitable trade in that direction might be built up if the right varieties are grown and the packing carefully done.

SOIL.—The soil conditions favorable for the apple are equally favorable for the pear. On a wet soil it will soon become diseased and sickly. As long as the subsoil is fairly porous and dry the tree will thrive and produce fruit of excellent quality on moderately heavy clay. In short, if the drainage is good and the ground tolerably rich the pear can be successfully cultivated in almost any soil from sand to clay, though a strong clay loam may be regarded as the best type of soil.

SELECTION OF TREES, PLANTING AND PRUNING.—There are two types of pear trees com-

monly grown—standards and dwarfs. With the standard sorts the variety is grafted or budded on pear stock, and trees of this kind will last a life-time. To render the tree of a dwarf habit the quince stock is used. This allows of a much closer planting, twelve or fourteen feet apart, while the standards should not be nearer than twenty. The quince stock creates an early bearing habit, but the tree is comparatively short-lived. Some varieties succeed better on quince stock, even the flavor improving. The most notable are *Duchess d'Angouleme*, *Beurre Diel*, *Easter Beurre* and *Louise Bonne de Jersey*. Two-year old trees are decidedly preferable to three for planting; the root of the pear is not very fibrous at any time, and, as trees are usually dug in the nursery (see Figs. 8, 9, 10), the older the trees the less of the fibrous roots left. Planting has been fully described already. Figs. 36, 37 illustrates the manner of pruning back the newly set standard tree. As the limbs of the pear have a more upright habit of growth than those of the apple, the head may be started somewhat lower, and the shading of the



trunk will lessen the danger of sun scald. The subsequent pruning of the pear consists in thinning out the head, removing any lower sprouts and shortening any very rampant growths. In pruning back these strong twigs cut close to an outside bud, the tendency being then to grow a more spreading top. Dwarfs are grown on the pyramid system or the "inverted cone" plan, usually the latter. The head should be started lower and pruning be constant and systematic. Fig. 38 represents a tree cut back in the second year, a well branched head and no bad crotches. Fig. 39 exemplifies a poor type of dwarf pear, where sufficient care has not been given to the formation of the head. A better type is seen in Figs. 41, 42, and the requisite pruning clearly indicated.



The manuring and tillage of the pear orchard should be similar to that of the ap-

ple orchard. Cultivation should be kept up late with young trees or a rank growth is induced, especially on rich soils, in which the wood may fail to ripen, and winter killing and blight will probably result. Old trees of the "choke-pear" variety may be



profitably grafted with better kinds. Figs. 43, 44 show the process. The old top, as in the case of grafting large apple trees, must be gradually reduced and not all taken off in one year. A tree over sixty years old of this kind on the writer's farm, had about seventy grafts of Bartlett and Beurre Bosc put in some years ago. A fair proportion of the grafts took, and many baskets of fine fruit of these varieties have since been gathered.

VARIETIES.—In the choice of varieties consideration must be given to the structure of the blossom. Some varieties are almost self-sterile, and should be intermingled with varieties having an abundance of pollen. Among those more or less self-sterile are *Anjou*, *Bartlett*, *Clapp*, *Clairgeau*, *Lawrence*, *Louise Bonne*, *Sheldon* and *Winter Nelis*. Self-fertile varieties include *Duchess d'Angouleme*, *Beurre Bosc*, *Beurre Diel*, *Flemish Beauty*, *Keiffer*, *Seckel* and *Tyson*. In the coldest districts of Ontario pear culture can hardly be successful. One or two Russian varieties might be tried, and the Central Farm Horticultural Department, Ottawa, will give full information on this point. If it is desired to plant a few of the better kinds, the following are suggested for trial: *Flemish Beauty*, *Anjou*, *Keiffer*, *Clairgeau* and *Clapp*.

For sections where the sweet cherry succeeds, and the finer kinds of *Domestica* plums, the following list is suggested in order of season: *Clapp*, *Tyson*, *Bartlett*, *Flemish Beauty*, *Duchess d'Angouleme*, *Boussock*, *Beurre Bosc*, *Beurre Diel*, *Beurre d'Anjou*, *Beurre Clairgeau*, *Keiffer* and *Lawrence*. For home use, *Rostiezer*, *Sheldon* and *Seckel* must be added—three varieties of the highest quality. In a commercial orchard it is doubtfully wise to have many varieties. In southern Ontario a good short list would be *Bartlett*, *Bosc*, *Anjou*, *Clairgeau*, *Keiffer* and *Lawrence*.

In the culture of pears for the home use, it should be added that, to secure the highest flavor, the fruit should be picked when the stock parts easily from the stem on lifting the pear, and ripened indoors. The winter pears should be kept in a cool dry place until about ten days from the ripening time, at which time all pears should be placed in a room with the temperature of from 65 to 70 degrees.

DISEASES.—Blight—This bacterial disease is the most serious drawback to pear culture. The life-history of this malady has been thoroughly explored and described. The disease usually effects an entrance into the tree through the blossom or the ends of the young twigs, penetrating to the lower part of the branch, and often communicating itself to many of the larger limbs. If all affected wood is not properly cut out and burned, enough of the bacteria will survive the winter to spread the trouble broadcast next year. It has been often suggested that putting the orchard into sod will minimise the danger. The evidence is, however, very contradictory on this point, and there are manifest disadvantages attending the practice. The more sod the less fruit, as a rule, and the fruit on the cultivated ground is invariably larger. The better way is to avoid heavy manuring of non-bearing trees, and late cultivation, and choose varieties which

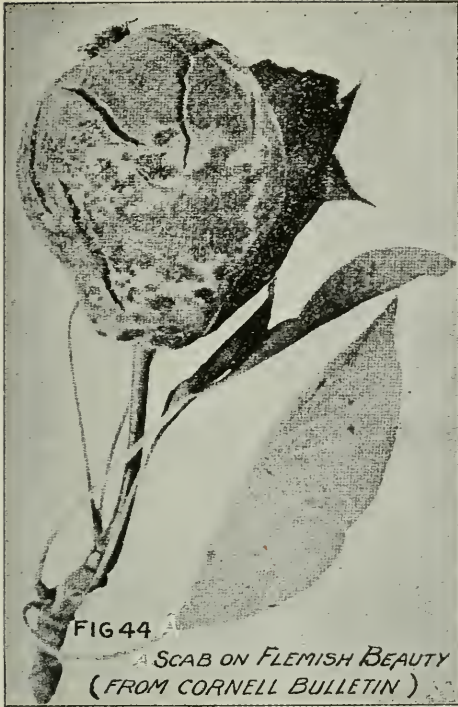


FIG 44
SCAB ON FLEMISH BEAUTY
(FROM CORNELL BULLETIN)

are more or less resistant. *Clapp's Favorite*, *Souvenir de Congress* and *Bartlett*, especially the first, are highly subject to blight, while *Keiffer*, *Seckel* and *Tyson* have rarely suffered. This is a question which the intending pear-grower would do well to study closely.

Pear-scab.—(See Fig. 44). Though distinct from the apple-scab fungus, it must be fought in the same way and by the same means.

INSECTS.—The curculio, codling moth and pear-slug are the commonest insect enemies given on p. 176 of the 1897-98 Inst. Report.

THE PLUM.

Nothing need be said as to the claims of of this fruit on the amateur or commercial grower. The productiveness and hardiness of the tree, and the many good qualities of the fruit, speak for themselves. From the three types now cultivated, the *Domestica* or *European*, the *Japanese* and the *native American* class, can be selected varieties

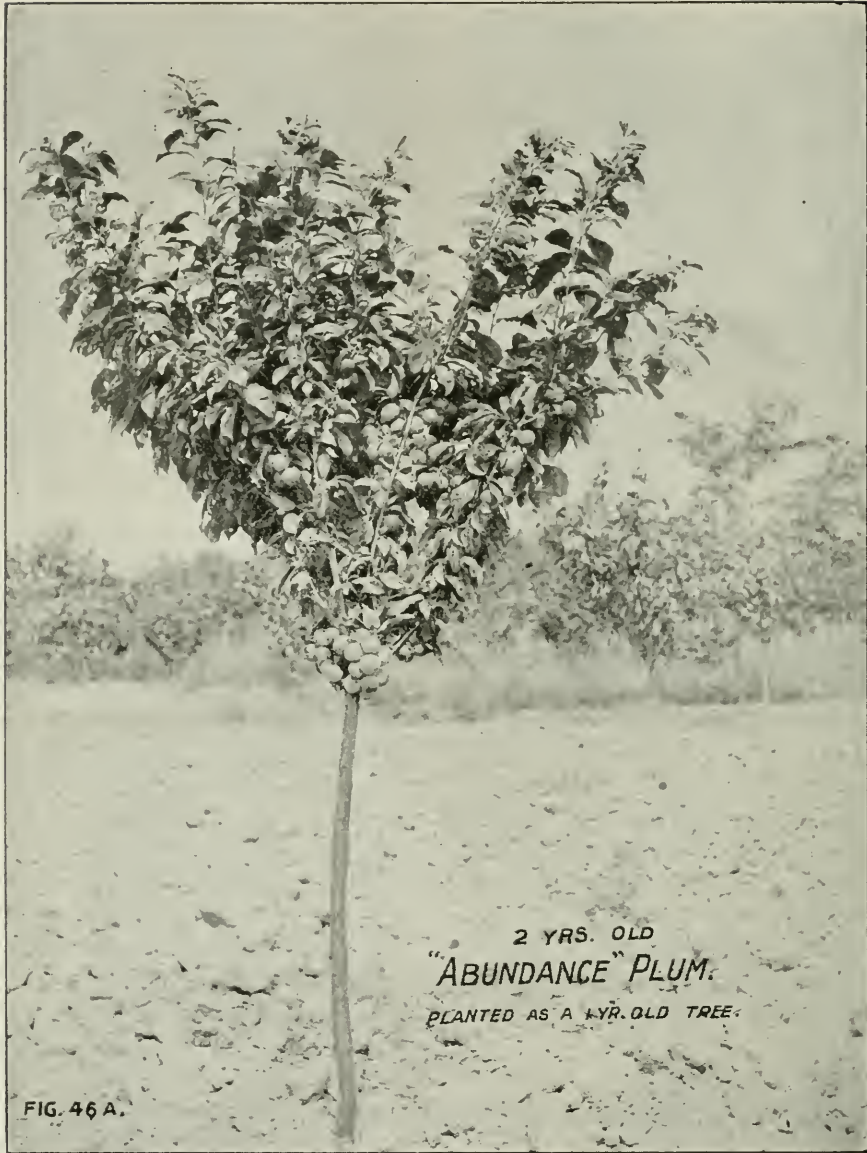
that will be successful in all parts of Ontario. It will survive conditions fatal to many other fruits, but will abundantly repay careful attention and high culture. Like the pear, it may be profitably grown on all kinds of soil, but will succeed best and give the highest quality of fruit on heavy ground. Strong clay soils, properly drained, will be found perfectly suitable.

PLANTING AND PRUNING.—The planting and pruning of the first three years are much the same as with the apple. Fig. 45 indicates the manner of pruning the young trees. This, however, is a two year old tree, and with all the vigorous varieties it is far better to plant one year old trees.

Such stock is cheaper, the root will be more fibrous than in Fig. 42, the losses in planting will be less, and in a few years' time it will catch up or surpass the older tree. Fig. 46 is a picture of a block of young Burbank trees planted on a rather hard clay soil in the spring of 1897. The trees were strong one year olds, were cut back to a whip about three feet high. Not a tree was lost, and the whole block is exceptionally thrifty. The head of the young tree should be kept fairly open, and the vigorous growths may be shortened in one half. Some growers practice the shortening-in method year after year. This may be done to advantage with vigorous and erect growers like *Pond's Seedling* and *Bradshaw*, but as soon as the tree bears, these long growths will be checked naturally,



FIG 45 BAILEY
Young
plum stock
well trimmed.



and after the head is once formed it is questionable if any pruning is advisable beyond the thinning out of crowding shoots, and the removal of broken or injured branches.

MANURING AND CULTIVATION should be the same as with other fruits trees. When the trees are bearing a full crop, a good dressing of cow manure and an application of wood ashes will give good returns, as the

maturing of so large a number of seeds is necessarily an exhaustive process of both tree and soil.

VARIETIES—In the coldest sections of Ontario it would be advisable to attempt the growing of many plums of the European and Japanese types. A few trees might be tried. *Glass Seedlings*, a large blue plum of only medium quality; the *English Damson*, *Yel-*

low Egg, *Lombard* and *Reine Claude* will be found amongst the hardiest, notably the two first. Among the native plums, *Wolf*, *De Soto*, *Hawk-eye* and *Rollingstone* may be recommended. These are very hardy, comparatively free from disease, and though small, are excellent for canning purposes. In the milder sections the following list of the European class are suggested for commercial purposes, in order of ripening; *Bradshaw*, large blue; *Imperial Gage*, greenish-yellow; *Washington*, large greenish-yellow; *Smith's Orleans*, blue; *Lombard*; *Yellow Egg*; *German* or *Italian Prune*, blue; *Reine Claude*, green; *Coe's Golden Drop* and *English Damson*.

For the planter's own use, *Hulings Superb* and *McLaughlin* may be added, both plums of the gage kind, and of the highest quality. Other excellent sorts are *Prince of Wales*, *Duane's Purple* and *Goliath*. *Lombard*, the most commonly grown plum, is probably over-planted. It is a vigorous grower, productive and fairly hardy. On the other hand, it comes in at a bad time—mid-season—is very subject to rot and black-knot, and is of poor quality. It needs good care and thinning to do really well. The Japanese types are proving as hardy as many of the European class, but many of them are of inferior quality. *Abundance* (see Fig. 46a), *Red June* and *Burbank*, are the ones recommended here. The *Abundance* is an upright grower with slender branches, a good and early bearer but rather subject, as is *Burbank*, to rot. Fig. 47 shows the characteristic growth. This variety should be shortened in to outside buds to encourage a spreading habit. *Burbank*, Fig. 48, runs to the opposite extreme, throwing out strong, wide-spreading limbs, and must be pruned accordingly.



A PRECOCIOUS SPECIMEN.
"BURBANK".
2 YRS. FROM THE BUD.

FIG. 48 A.

M. BURRELL.

DISEASES.—*Monilia*, or rot, is by far the worst thing to contend with in plum culture. It has been referred to under the peach. Thinning will tend to lessen it, as will systematic spraying with Bordeaux mixture. When the plums are ripening, all specimens showing rot should be gathered separately and destroyed. None should be left on the tree, as the shrivelled plums that pass the winter on the tree will undoubtedly carry the spores of the fungus to the next year's crop.

Black-knot is also a fungus, maturing its spores twice a year, in May or June, and again in February or March. Constant cutting out and burning of all knots will control this disease in any orchard, but it becomes a difficult matter to subdue the disease unless the whole neighborhood cooperates in the task with something like thoroughness.

Curculio and plant lice are the insects

most troublesome to the plum. Both are dealt with in the publications referred to previously. It may be added that the four ounces of Paris green to the barrel will by no means kill all the curculio, and in a season when this insect is plentiful an undesirable number of plums will still be de-

stroyed. Five and even six ounces can be used to forty gallons as long as plenty of lime is used to neutralize the caustic effect of the arsenic.

M. BURRELL.

St. Catharines, Ont.

THE PEAR—PIRUS COMMUNIS.

THE pear tree has been under cultivation for a period unknown. It is found wild in the British Isles, and is a native of most parts of temperate Europe, it is also found in the Himalayan region.

The pear is well worthy of the title, the "Queen of Fruits," in the Province of Ontario, where it is grown as near perfection as can be done in any country.

The pear attains to a greater height than the apple, and is more upright in growth; it also lives to a great age. There are instances known where the pear lived to over four hundred years.

Every person knows what uses the pear fruit is put to. It is first used for decorating the table, then for dessert, stewing, baking, drying and for manufacturing into perry.

The pear has its insect enemies and diseases like the rest of our fruits, the worst disease being the blight. Having had considerable experience in growing fruit, and, being a keen observer of their habits, I had the good fortune to overcome this disease called fire blight, and it may be that some growers would like to know my methods of checking the disease.

I learned my first lesson from the Seckel pear tree. I noticed that this variety seldom blighted, nor are the other varieties resembling the Seckel in its short-jointed wood so subject to blight as are the soft willow long-jointed growth of many other varieties.



FIG. 1838.

I noticed that the Seckel pear tree ripens its wood before the dry hot weather sets in, or in other words it ripens its wood as it is made.

My observations led me to imitate the Seckel growth by inforcing the same on all other varieties, which can only be done by pruning on the severe spur system—such as the cut herewith represents—a system, I think, not too well known in this country. This system is one of the good ones that must be imported.

To prune the pear in this way from the baby tree up tends to prolong the useful life of the same ; it makes the shy bearing varieties more fruitful ; it increases the size of the fruit ; it gives it higher color, as well

above operation, but the older the trees get the less will become the wood growth which will be replaced by fruit buds, and that more numerous year by year as the pruning on this system goes on.

A very important factor to make the cultivation of the pear tree a success is the soil. The pear tree succeeds in any good deep loamy soil, provided the subsoil is well drained to three and a half or four feet deep so as to be free from stagnant water.

The pear will generally thrive where the apple will grow well. The pear will thrive

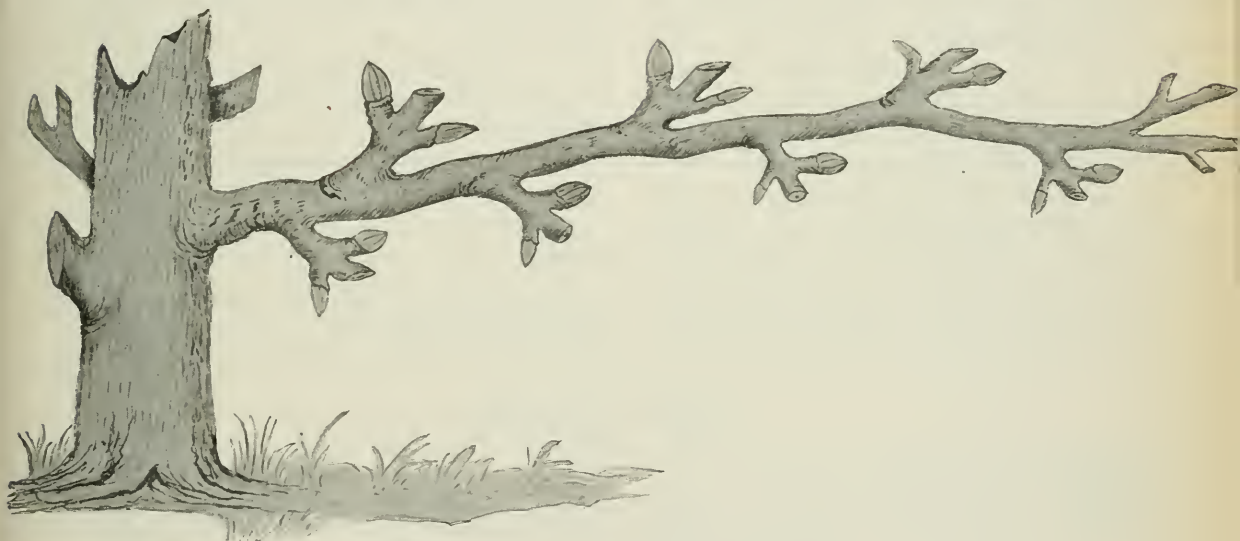


FIG. 1839. PEAR BRANCH SPUR PRUNED.

as much better flavor ; it distributes and equalizes the sap throughout all the branches alike, which causes a more healthy vigor, when in turn the cultivator may expect uniform fruit of the largest size and best quality. This system is the greatest preventive of the blight known at the present time.

When pruning on the spur system is completed, which should be in the month of March, and that each year to be successful from the time the tree is planted.

The first few years of the trees' growth may appear to be rather rampant from the

well on a deep clay loam, but seldom succeeds on a stiff clay.

To complete the work necessary to the successful cultivation of the pear each tree should have a mulch of coal ashes as far as the spread of the branches in order to keep the roots cool and moist, to keep the clay soil from baking and shedding the rain or artificial water from the roots. This mulch is doubly beneficial to the dwarf pear on account of its being worked upon the quince roots which feed and spread near the surface. The quince does not like a dry hot soil to grow in, when the heat of the

sun and the drouth at the roots stop the sap from flowing into the half matured young twigs. In such conditions they have to stand still during the hottest part of the summer, and by the time the cool nights and the fall rains come, the pith in the centre of the young twigs is dried up and dead, the disease continuing downwards until the tree is dead. It will be seen then that any cool and porous material on the surface of the soil will be of great benefit as a preventive. It will also be seen that the pruning on the above system, stimulating an equal and earlier growth, will have the tendency to make the growth ripen earlier or mature earlier and even on the young twigs. I am also a great believer in wood ashes and bone meal as a fertilizer.

I also strongly believe in using lots of lime in the soil for all tree fruits. I think there is more virtue in lime to our fruits than is known to the majority of fruit growers; it certainly warms and sweetens the soil and there are few insects that like lime.

Slacked lime is as good as sulphur to prevent mildew on the grape vine; it helps to prevent the rot in the plum fruit; it will partly check the curl leaf in the peach tree; it will kill the slug that eats the coating of the cherry tree leaves; it will check the ravages of the caterpillars on the gooseberries and currants; the black fly does not like it on cabbage, or turnips, or radishes, and it will help check the scab on apples and pears. Whitewash the trunks and branches of all trees with a wash of lime, soft soap and clay to thicken as a paint; scrape first the trunks and branches of all their rough bark; if the trees are stunted and hide-bound run a strong jack-knife lengthwise through the outer bark along the trunk and branches, but never cut across the trunk or branches, then apply the whitewash, and, I think you will be agreeably surprised at the results derived from the operation.

R. CAMERON.

Read before the Niagara Falls South Horticultural Society 9th April, 1900.

WORMY APPLES.

THERE is nothing new about wormy apples except the way to avoid having them. There are several species of grubs or worms which work in apples, but the one which does nearly all the damage is the core worm. The core worm is the offspring of the codling moth, and this is the insect which a man wants to fight in his apple trees.

The best general remedy for the core worm, or codling moth, according to information furnished by the Vermont experimental station, is Paris green. Some apple growers use London purple; others use white arsenic; but they amount to the same thing. They all poison the core worms. Other insecticides like hellebore, kerosene or sulphur, are not effective in this case.

In the hands of the average man Paris

green is the best medicine for the codling moth. The poison should be thoroughly mixed with water at the rate of a quarter of a pound to the barrel—that is about one pound of paris green to 160-200 gallons of water. About a pound of lime ought to be added to each barrel of water, which will prevent scalding of the foliage. It should be applied with a spray pump and fine nozzle. In case Bordeaux mixture is used on the trees the Paris green may be added directly to that solution at the rate already recommended.

The first spraying for the codling moth should be made as soon as the blossoms fall, or within a week afterward. It is very important to do this before the little apples begin to hang down their heads, as after that time they do not catch and hold the poison.—*Vermont Experimental Station.*

CULTIVATION OF AN ORCHARD.

IN The Farming World of June 12th, W. J. P. says that simple mechanical cultivation of the soil may be detrimental, whereas the seeding down of an orchard is most economic and scientific. In a previous sentence he says that fruit specialists do not give reasons for their views in favor of tillage. Does it not occur to W. J. P. that he has omitted giving reasons for his views? He gives an example of a large fruit grower in eastern Ontario who always keeps his orchard in grass, and has good results, but an example is not a proof, for conditions are so various. The writer has an apple orchard on moist, deep sandy loam, that has not been plowed for fifty years, and yet produces excellent crops; and our friend, Mr. E. C. Beman, of Newcastle, has a pear orchard of similar soil, which he never plows, but allows the grass year by year to remain and decay. But these examples are not for every one to follow, for on a dry or heavy soil, with blue grass sod, for example, an apple or a pear orchard would soon become stunted in growth and barren of fruit.

It is in years of drouth, to which we are often subject in Ontario, that the greatest injury is done to our apple orchards by lack of tillage. The wood and fruit buds do not fully develop, and the crop for the succeeding season will be of small size, and scant in quantity. This is of course an assertion only, but it can easily be proven, both by example and by theory. Now of what use is tillage any way? We grant W. J. P. that it cannot put fertility into the soil, but we do

assert that it makes available to the tree roots the fertility which would otherwise remain locked up. So important do we consider this that we always hesitate to apply manure to any part of the orchard that is not under cultivation, thus exposing the particles of the soil to the action of the oxygen: the air has a chemical action which the study of agricultural chemistry shows will (1) set free plant food, (2) promotes nitrification, (3) decompose vegetable matter.

Tillage also exerts a great mechanical benefit, increasing soil depth, and breaking it up into fine particles, easier penetrated by the rootlets of the trees; but the most important benefit is the conservation of moisture. When untilled the moisture is constantly being brought to the surface by what is known as capillary attraction, while cultivation fines the soil and breaks up this action, thus preventing the rapid escape of moisture.

These are a few of the reasons why tillage of orchards is so strongly advocated by specialists in fruit culture, but they might easily be amplified. The writer started out thirty years ago with the same view as that expressed by W. J. P., even planting a heavy clay field to an apple orchard with the fond hope of thus avoiding the hard work of plowing that field; but that fond hope was doomed to sad disappointment, and every succeeding year converts him more and more to a sense of chargin that he should ever expect any good results without labor.



RELATION OF CULTIVATION TO THE GROWTH AND DEVELOPMENT OF APPLE TREES.

WHITTEN, of Missouri, has been making some useful experiments on the effect of tillage on the growth and vigor of apple trees. These conditions have long been considered by us at Maplehurst and by many of our best growers, who once thought that an orchard needed no tillage. Almost all have now become convinced of the necessity of giving their orchards the very best cultivation if an abundance of fine fruit is to be harvested.

The following are some of Whitten's points as given in Bulletin 49, University of Missouri, Columbia :

The greatest growth has been made by those orchards that have been cultivated most. Cultivated trees are uniformly healthier, more vigorous, and produce larger fruit than those not cultivated.

Cultivated trees make more uniform growth than do those not cultivated. The more cultivation the less they are effected

by drouth. The principal height growth of trees is made early in the season, when moisture supply is ample, so that a drouth later in the season does not affect the height growth of the current season ; its effect is, however, noticeable in the imperfect development of the fruit, and failure to properly mature and ripen the wood and buds for another season. The evil effects, therefore, will be more noticeable in the year succeeding a drouth than in the same year, when in the case of uncultivated orchards a generally devitalized condition may be looked for.

It is commonly thought that cultivation should always cease about August 1st, and no doubt for a wet season this would be wise in order to check the wood growth and allow it to be ripened in good time before winter ; but in a dry summer and autumn the orchard soil should be kept in good tilth until the crop matures, or at least until rains come.

FRUITS, OLD AND NEW.

SIR,—I would like to express through the columns of the Canadian Horticulturist, my admiration of the very valuable information and the many pointers contained in that column relating to Horticulture and Arboriculture, especially during the last few years. Having spent nearly 60 years in this country, and being familiarly acquainted with nearly all the counties from Kingston to Goderich north and south, for the last 25 years, I am fully persuaded that we, as Canadians, are not as far advanced in the art of Horticulture as we might be nor as we ought to be. If you take a drive, as I had the opportunity of doing last week, to the county east of us,

viz., Durham, and also west of us, viz., York, and through our own county, you would be not only surprised but disgusted at the number of nests of tent caterpillars to be seen on the route, and I assume that it is largely due to the neglect of spraying the orchards with the proper mixtures at the proper time, and I am sure it is not for the want of timely warning. As our Ontario Government has given practical lessons and advice which, if carried out, would rid the province in a few years of one of the worst enemies the orchardist has to contend with. I am pleased to be able to note the rapid advance made in the last few years in the way

of opening up new markets for our surplus fruits and the prices obtained for the same when properly put on the foreign markets, and just as soon as our people find out that it is more money in their pockets to grow one pound of choice Canadian fruit than to grow and handle two pounds of mixed or inferior stuff, more spraying, thinning, sorting and packing will be attended to, and certainly no shipper will attempt to forward to the European markets inferior fruit and expect the importers to make it O. K. unless the goods are as represented, and then we may look for a rise in the price when the purchaser knows before hand what he is getting. As a fruit grower, I think our system of selling not the right system. I believe our fruit ought to be handled more profitably if handled the same as grain or wool or other farm commodities, that is, for every one or two men in a municipality for instance, to receive all fruits subject to inspection, that grows in their district, forward it and sell it and pay the patrons what the goods are sold for. Our present system here is usually to sell to exporters and take what they give, which sometimes amounts to very little, but I anticipate considerable difficulty next season in getting the inspectors to pass the fruit unless more care is taken by shippers in having their fruit more properly graded and packed than formerly. Our fruit in this district appears at present to be the largest on record, beating the crop of '96. The apple, pear and cherry orchards has been from about the 20th ult. to the present time, one magnificent display of bloom, and the air was laden with the perfumes of the flowers. I notice, too, that the fruit on the apple, pear and cherry trees are very abundant, and unless thinning is resorted to a large proportion of the fruit will be below the standard sizes. In plums there was no bloom consequently we will have no fruit. In small fruits the crop will likely be above the average, in other words, a full crop. There are not many strawberries grown here for

export, but what are growing are looking very fine. Grapes have made a vigorous growth and are setting their fruit well. Currants will be a good average and raspberries a full crop. Nearly all our planting of 1896 and '97 are or have been in bloom and I expect to add largely to our exhibits of new varieties, especially in pears. Quite a number planted in '97 have fruit on them, some are not 3 ft. high. Take all in all the fruit prospects in this district are very favorable, and bid fair to eclipse any former year. The timely rain last night was of immense benefit to the growing crops of this county ; it was much needed. Tent caterpillars are very plentiful where spraying has not been attended to, but the careless will reap the result. Regarding newer varieties that I have tested and find very satisfactory, are the Salome, Shackleford, Gideon and Stark; they are all good growers, early bearers, good keepers and good color. The Stark is the fastest grower of any apple in the orchard, the Gideon coming a good second. The Salome is the longest keeper that I have ; the Shackleford is a beautiful apple, but rather small if allowed to over bear. I have a large number more new varieties that had a few apples last year, a detailed account of which I propose to give you later on, as most of the trees planted in '96 have set their fruit this year and many will require severe thinning. In pears, the Dempsey takes the lead in growing and is also loaded with young fruit. Winter Nelis, Doyenne 'd Ete, Beurre Easter, Bartlett, Seckel (a most delicious pear), Petite Marguerite and some others fruited last season and are again loaded this season ; I would just say that according to present prospects the apples and pears will be a record breaker this year. Cherries are well set and will be a good crop, but plums will hardly be found in this district. The weather is delightful and all sprayed orchards are looking fine at present.

Whitby.

R. L. HUGGARD.



TIMELY TOPICS FOR THE AMATEUR—V.

THE hot weather usually prevailing during the month of July brings a period of comparative rest and relaxation in garden work that is most acceptable after the busy time experienced during the spring and early summer.

Although routine work may not press so heavily as earlier in the season, sufficient can still be found to occupy all the spare time that one usually feels inclined to devote to the garden during the hot sultry weather; especially when, perhaps, other, and apparently more attractive sources of recreation present themselves to lure the plant lover away from his favorites. The garden, however, must not be entirely neglected as insect pests and weeds will still require constant attention to keep them under control. Fruit picking will be an acceptable relief to the usual routine of work in the garden.

Watering lawns and plants will also occupy considerable time and attention.

Extra care will be necessary in watering greenhouse plants, as many of these plants should now be enjoying a period of comparative rest that comes naturally to them when growing wild in their native haunts. This dormant, or semi-dormant, period in

plant life, requires to be of a much more decided character in some classes or germs of plants than in others, and, unless the plant grower has some knowledge of the requirements of the plants under his care, partial, or, perhaps, total, failure in their culture must of necessity be the result. Careless and indiscriminate watering of plants is responsible for many failures in plant culture at all seasons of the year.

THE GREENHOUSE.—The management of the greenhouse or conservatory during the hot months of summer, when most of its customary habitants are out of doors in their summer quarters, depends entirely on the class of plants that are still occupants of its benches. If Exotic ferns, fancy Caladiums, Anthuriums, Diffenbachias or similar plants that require great heat and moisture, are the principal occupants, the greenhouse must be kept well shaded and top ventilation almost entirely used in the day time, as these plants dislike anything like a draught. Very little ventilation, if any, must be given at night. Keep the floors well dampened and close the house an hour or two before the sun is off. This will keep down red spider. If the floors are kept well moistened very little spraying, if any, will be required.



FIG. 1840. PELARGONIUM.

Tobacco stems sprinkled under the benches, dampened occasionally and renewed every two or three weeks, will keep down thrip—an insect to be as much dreaded as red spider amongst a collection of these plants. If summer flowering Tuberous, or Rex Begonias, or Gloxinias are occupants of the greenhouse, ventilation may be given more freely, leaving the top ventilation open all night. Oftentimes there is little else but a climbing rose, planted out in a box or border, that has of necessity to be left in greenhouse during summer, or, perhaps, some other climbing plant that requires to be kept dormant so as to ripen its wood to produce a supply of flowers in the winter. In this case the house should be only partially shaded, the top and bottom ventilators should be kept open day and night, and only sufficient water used to keep the roots of the plant from drying out completely.

The beautiful climbing Allamandas that are sometimes seen in greenhouses, and

that give their wealth of large golden flowers so profusely during summer and early autumn, require plenty of shade, heat and moisture to produce the best results possible.

Most varieties of winter flowering Begonias succeed best, stood or plunged, out of doors in partial shade during the hot weather.

Fancy Caladiums may, perhaps, need re-potting into larger pots; care must be taken not to disturb the roots during the operation.

Chrysanthemums will require plenty of water at the roots, and syringing once a day in very dry weather. Tobacco stems spread around near these plants will help keep down the black aphid or fly.

Fuchias require plenty of shade and water; a little weak liquid manure will help them to continue flowering.

Old leaves of Rex Begonias or Gloxinias will strike readily in sand in the cutting bed. In cutting these for striking leave about half of the stem attached to the leaf, insert the stem and a small portion of the leaf into the sand. Keep the sand moist, but not saturated with water. About half of the outside of the Begonia leaf should be cut away before inserting in the sand. Pot into light sandy soil in small pots when rooted.

Early sown Cinerarias and Calceolarias will require to be potted into small pots, or transplanted into shallow boxes, as soon as they are large enough to handle. A sowing of both of these for later flowering may be made now. A sash and frame in a cool, shaded position out of doors is the best place to start the seeds, also, to grow the young plants, until they are taken into the greenhouse in the autumn.

Roses should be planted out on the benches toward the end of the month if any are grown in this way, but I do not consider bench roses profitable in a small greenhouse where a general collection of plants is grown.

The Niphetos Rose, budded on a lamarque or cloth of gold rose stock, will give good results in a small conservatory or greenhouse. Pot roses, for fall and winter flowering should be stood outside in partial shade, and given only sufficient water to keep the roots from drying out. Pelargoniums and Fuchsias that have done flowering can be treated in a similar way; as withholding water partially from these and similar spring and early summer flowering plants induces a period of rest and helps to harden the wood necessary to produce flowering results next season.

Any repairs required to the greenhouse should be done now when most of the plants are out of doors. Give the sashes and woodwork a good scrubbing and cleaning with whale oil soap and water.

WINDOW PLANTS.—Watering and keeping free from insects are the principal features in window gardening just now. If any old plants of Geraniums are required for next winter's flowering they should be cut back to the old wood, and, as soon as the young buds appear, shake the roots partially out from the soil, cut off a portion of the roots and repot into a size smaller pot if possible; water very sparingly until well rooted. These will do best stood or plunged out of doors in the open ground. Fuchsias and many other plants required for winter flowering will succeed best stood out of doors in partial shade and not watered too heavily for a few weeks.

FLOWER GARDEN.—Watering and keeping down the weeds will be the heaviest work probably in this department, as the lawn will require very little attention during the dry season so far as cutting the grass is concerned.

Most of the perennials will be past their flowering season, Gaillardia Grandiflora, Rudbeckia (Golden Glow) and a few others may still give a few flowers. Early sown Asters, Zinnias, etc., will soon be coming into flower.

Dahlias will require plenty of water at the roots, syringing the foliage liberally in the evening will materially assist the growth of these autumn favorites. Some of the Cactus and single-flowered Dahlias are very pretty, and better suited for decorative purposes as cut flowers than the more massive blooms of the show varieties.

The double Rudbeckia (Golden Glow) is indispensable in the flower garden, its wealth of golden blossoms being produced in great profusion during the hottest weather, and it often gives quite a sprinkling of flowers until quite late in the fall. It requires very little care and seems to flourish in almost any kind of soil.

The herbaceous Hibiscus (Crimson Eye) makes a showy decorative plant for the lawn or border. Its large funnel-shaped flowers, produced in July, or early in August, when flowers are scarce, make it a conspicuous object when in flower. Being herbaceous in character it can be easily protected by a heavy mulching in winter, although, it has proved quite hardy in this section without any protection.

FRUIT GARDEN.—Currants, gooseberries, raspberries and late cherries should claim quite a share of the time that can be devoted to the fruit garden during July.

Plums, pears and peaches if too thickly set may be thinned to advantage. Green peaches make a splendid pickle if pickled just before the pit hardens. These should be treated the same as for walnuts in the pickling process. Plums when green can be used for stewing, but they make tremendous inroads on the contents of the sugar bowl.

Grape vines must be gone over occasionally and useless and lateral growth removed. For prevention and cure of mildew on grapes a good composition can be made by putting one pound of lime and half a pound of sulphur into three gallons of water, and boil slowly until reduced nearly one half. Allow the liquid to stand and cool, skim and

strain carefully. A teacupful of the liquid may be used once or twice a week, diluted in four gallons of water. If the liquid is strained carefully it will not spot or discolor the fruit when the vines are syringed with it. The liquid can be kept for a long time corked up in bottles or jars.

VEGETABLE GARDEN.—There should be a good supply of fresh vegetables ready for use now in this department that will be most acceptable, as potatoes, beans, peas and early planted cabbage and cauliflower should now be giving returns for labor and care bestowed on them earlier in the season.

A row or two of beans may be planted, if the weather is suitable they will furnish a supply of this useful vegetable until the first pinch of frosty weather touches them.

Late cabbages should be planted at once if not already done; these can be planted where crops of early peas or potatoes have been taken off. Dig and manure the ground well before planting them.

A row or two of beets may be sown, these are much more tender eating during fall and winter than those sown early in spring. Sow a few rows of spinach seed, it may come in nicely for use in early autumn.

Plant celery in shallow, well-manured trenches. Celery requires plenty of water during dry weather. The end of July will be early enough to plant celery for winter use.

White turnips may be sown if you have a spare piece of ground; mix a few Chinese rose or white radish seeds with the turnip seed before sowing. Light, rich soil suits white turnips best.

Spray or sprinkle potatoes with Bordeaux mixture; a little more Paris green may be used than is usual in this mixture to keep down the potato bug.

Keep the hoe busy, surface stirring the soil helps to keep it moist and cool as well as to destroy the weeds.

HORTUS, Hamilton.

TRADESCANTIA.



FIG. 1841. TRADESCANTIA.

TRADESCANTIA, or WANDERING JEW, is such a favorite with all amateurs being so easily grown and withal so pretty that our readers will be interested in the following note from *Vick's Magazine* concerning the florist whose name it bears: Its botanical name is associated with a celebrated florist, John Tradescant, gardener to that unfortunate monarch, Charles I. Tradescant was a

Dutchman, and was called Tradescan by his associates. He established a botanic garden in Lambeth, England, as early as 1629, which was then a rare thing. He also collected a botanical museum, of which Flatman, the painter-poet, said

Thus John Tradescan starves our wandering eyes
By buying up his new-born rarities.

He bequeathed this museum to his friend Elias Ashmole. His wife contested the will, but failing in her suit, and not willing to be resigned to the loss of the museum, she foolishly drowned herself; this tragedy so affected Ashmole that he did not care to keep it in his possession, and he presented the museum to the University of Oxford in 1677.



FIG. 1842. AZALEAS GROWN BY S. AYLETT, HAMILTON.

AZALEA CULTURE.

AZALEA INDICA is one of our most popular winter and spring flowering evergreen plants. With a good collection, the Azalea may be had in flower from Christmas to May, if kept in a cool house and a few plants brought into a higher temperature as the buds advance.

SOIL.

The best soil for the Azalea is a compost of two parts good leaf-mould, one of light fibrous loam, and a little well-rotted manure.

DRAINAGE.

Thorough drainage of the pots is most essential. Pot firmly, and do not use too large sized pots. Be sure the ball of roots is thoroughly soaked before potting. Large plants do not need repotting very often, but should be given a little weak manure water occasionally. The best time to repot the Azalea is soon after it has done flowering.

After potting they should be kept in a close atmosphere for a few days, and freely syringed. About the end of May they should be plunged outside in partial shade, and kept well syringed and watered every day during the hot months to encourage new growth and the forming of new flower buds. They should be taken inside before the first frost and given less water until they begin to flower, when they again require a free supply.

The Azalea as a house plant has not hitherto been a success. The atmosphere of an ordinary dwelling is too dry, thus encouraging red spider and thrip, which soon destroy the foliage. If the plants are syringed with water every day they will be greatly benefited, and by this means some have managed to grow them successfully for at least three successive seasons.

Hamilton.

SAMUEL AYLETT.

A NOVEL TRELLIS.

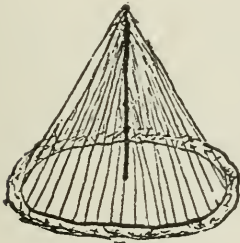


FIG. 1843.

A NOVEL TRELLIS for morning glories is thus described in Park's Floral Magazine: I make a trench four inches wide, in a circle

eight feet in diameter. After the soil has been enriched by rotted manure, and well pulverized, plant the seeds. The plants grow quickly and in a few weeks they will be large enough to string. Put a pole eight feet high in the centre of the circle; insert one end in the ground, and in the other drive a nail; put the strings four inches apart at the bottom, carrying around the nail in the top of pole and down again. If a door is made in one side it makes a novel tent for the little folks, besides being beautiful.



PALMS.

THERE are a great many varieties of palms grown for decorative purposes, some of the most popular, in the order in which they are most favorably known, are the following :

Kentia Balmoriana. This is probably the best house palm grown, and is increasing in favor every year. It is not a rapid grower, but in a light place in a warm room and with sufficient water, the leaves being kept sponged off and clean, it makes an ideal house plant and improves from year to year. I have seen several of these house-grown palms better than any coming from green-houses.

Next in order comes *Kentia Fosteriana*, a fine palm, but generally a stronger grower than the preceding. Some of this variety shown last fall prove what can be done in the house with it. The fine *Kentia Canterburyana* is rather expensive. The hardy and very graceful *Cocos Weddelliana* is fine for a warm house, but is not so long-lived as the Kentias; it stands the wear and tear of the house very well for one season.

The *Phœnix Rupicola* is one of the most graceful palms grown, and like nearly all of the Phœnix tribe stands the house treatment well. It is a slow grower and rather expensive, but with a little care will last many years—which may be said of several other varieties of the Phœnix, viz., *Canariensis*, *Tennessima*, *Sanderiana*, *Dactylifera*, etc.

Latania Borbonica is a favorite house plant in places where it can have considerable room to spread. But a much finer variety, with something of the same character, is *Levistonina rotundifolia*, of a more compact growth than Borbonica, and quite as hardy and useful.

Rhapis flabelliformis is rather a slow grower, but one of the best hardy decorative palms we have. *Rhapis humilis* is quite as

hardy and is more graceful and of a brighter green, but is scarce and expensive, and so it is seldom seen here.

The very graceful *Areca lutescens* is much in use in the United States, but has not proved a good house plant here, seldom lasting more than one season, even with careful treatment.

Chamærops fortunei will stand much ill-treatment, but grows slowly and looks stiff, while *Geonoma Gracilis* is pretty, but tender and scarce. *Areca Verschaffeltia*, a good, hardy variety for a warm house, has a distinct appearance, but is rather expensive.

Several varieties of *Caryotas* are known to growers as pretty plants, but are seldom seen outside of private collections in this country. The same may be said of varieties of *Calamus*, several fine specimens of which are in the collection at Exhibition Park.

There are a great many plants called palms that are not really palms, such as the *Cycads* and several varieties of *Pandanus*. Very many more varieties of the palm beside those above mentioned, are well known to florists. The edges and tops of the leaves turn brown from various causes—from want of water, from getting too much water; sometimes furnace gas is the cause, or the air becoming too hot through radiators, stove pipes, etc. Palms do not want large pots unless they are growing very freely, and even then it is best, in repotting them, to give them a pot only one size larger than the one they have been growing in.

The soil I like best for palms is made up of one-half sandy loam and one-half well-rotted manure. The soil should be worked evenly down around the sides of the pot and pounded tight with a potting stick. Before repotting the plant should be well watered, and also after the potting is done, so that all the soil may be equally moist.

A great mistake is often made by amateurs in potting up plants that are not doing well. Many fancy that when a plant looks sickly it should be repotted. Perhaps it is in an eight-inch pot; they procure a pail, some nicely sifted soil, and carefully transfer their plant, putting the soil in as lightly as possible and never pressing it down for fear of hurting the roots. The plant soon dies,

while the owner thinks he has given it the best of care. A plant never needs a larger pot unless the pot it is in is full of healthy roots. A sick plant with few roots may want repotting, but it is into new, sweet soil, and a smaller pot, the soil without much manure and the plant firmly set.

By MR. THOS. MANTON, of Manton Bros., Florists, Eglinton.
Read before the Toronto Horticultural Society.

LAWNS AND WALKS.—These, if kept trim and neat, as they should be, add to the appearance of and contribute greatly to the enjoyment of a place by its proprietor and friends. The lawns should be mown and the edges cut at least once a week, and if there are any "bents" or flower stalks of weeds or grasses which the machine will not cut, these should be cut with a scythe. Where the grass is thin the collecting box may with advantage be left off the mowing machine. Gravel walks should not be hoed, but all coarse weeds are best pulled up, and if there are many small weeds appearing,

one of the simplest methods of getting rid of them is to dress the walks with rough salt obtained from manure dealers. This should be applied during hot, sunny weather, and in sufficient quantities to just whiten the surface. Crude carbolic acid used at the rate of one ounce to a gallon of water and liberally applied with a rose watering-pot, is both a cheap and effective remedy. Whatever destructive agent be employed, care must be taken not to let it touch either the roots and tops of box or other edgings, nor the lawn grass.—*Garden Work.*

WINDOW BOXES.—A charming arrangement was noticed recently. The plants employed were nasturtiums only, and the entire cost could not have exceeded fifty cents. The box was of rough boards evidently, strongly joined, and set upon a pair of iron brackets. The box was covered with floor oilcloth, tacked on, and the design was such that it looked like tile work. The colors were cream and brown. A pine frame the width of the window, and six inches across, was nailed to the top of the window for attaching the strings on which the vines were supported. The nasturtiums were of both the dwarf and climbing sorts. A drapery

of trailing nasturtiums fell over the edge of the box, and dwarf nasturtiums filled the centre, and all were of the deepest, richest colors known to this flower. The nasturtiums that were trained up the supports were of lighter colors, lemon and orange, and cream. The middle strings had been loosened and the vines had been drawn back from the centre to each side by strong strings; the whole appearance being a diamond-shaped aperture surrounded by a drapery of living green. The effect was equally charming from within and without.—*Vick's Magazine.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th. —
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th. 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 it 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.

NOTES AND COMMENTS.

THE NOVA SCOTIA School of Horticulture had 69 students last year. The expenses of the school were \$1,843.47.

CHERRY CURCULIO.—This insect is often very injurious to the cherry crop, and must be fought persistently with Paris green. Three ounces to forty gallons of water is the usual amount, and two or three times that quantity of lime should be added to prevent injury to the foliage, and help to hold the Paris green to the same.

THE CANKER WORM has been exceedingly troublesome in many of our apple orchards this spring, especially on Spy trees. The infested trees should be early sprayed with Paris green, 4 to 6 ounces with the same of lime to 50 gallons of water. The lime should be reduced to milky consistency and run through a wire sieve to avoid clogging the nozzles. When the worm is well grown

Paris green is said to be less effective, and Bowker's arsenic lead, 3 ounces to 50 gallons of water, is an effective remedy. The Ohio Experimental Station says this mixture does not injure the foliage. It is milky white in appearance, as thin as water, and adheres for weeks. It may be procured from the Bowker Chemical Works, Boston.

KEEPING WINTER APPLES IN WAXED PAPER —Youngers, of the Nebraska H. S., has reported on his experiments under this head. In fall of 1897, about November 1st, all available varieties were put in cold storage, each apple wrapped first in a sheet of waxed paper—9x12 inches for the smaller and 12x12 for the larger ones. Another cover of newspaper was added, and then all packed tightly in barrels and put in cold storage with temperature at 36°. A few were stored in barrels without wrapping. On June 1st, 1898, the first examination was made, and

of those not wrapped 70 per cent. were decayed, of some wrapped in newspaper only, about 30 per cent. were decayed, while those with the double wrapping of waxed sheets and common paper remained in almost perfect condition as late as November 1st.

RUSSIAN APPLES have been very much decried in some quarters to the south of us as of little benefit to America. On the other hand we claim that much has been gained by the Budd-Gibb and other importations. Here is a list of valuable varieties which we owe to that country, viz.: Duchess, Tetofsky, Yellow Transparent, Longfield, Hibernial, Anisim, Charlemoff, Yellow Sweet, Regal.

BANDS FOR TRAPPING CODLING MOTH.—The following is a copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 24th day of May, A. D. 1900.

Upon the recommendation of the Honourable the Minister of Agriculture, the Committee of Council advise that pursuant to the provisions of "The Noxious Insects Act" (63 Victoria, Cap. 47) the following regulations be made for the prevention and destruction of the Codling Moth:

1. It shall be the duty of every occupier of a lot within the municipality, or if the land be unoccupied, it shall be the duty of the owner of such lot, within one week after receiving notice as provided for in the Act, to place bands (as hereinafter described) upon the orchard trees located upon said lot, as follows: Upon all bearing apple trees and pear trees, and upon all orchard trees of bearing age within forty feet of such bearing trees.

2. The bands shall be made of "burlap" or "sacking," or similar suitable material, and shall not be less than four inches in width and of three thicknesses, and shall be securely fastened at a convenient point between the crotch of the tree and the ground.

3. The occupant or owner shall have these bands removed and inspected, all larvae therein destroyed, and the bands replaced at intervals of not more than two weeks during the months of June, July and August.

Certified, J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

An attempt is being made to put these regulations in force in the Township of

Saltfleet, in Wentworth County, and we shall look with great interest for the results attained.

APPLE RAISING FOR PROFIT is the subject of an address lately given by Mr. J. H. Hale before the Massachusetts Horticultural Society. In his address he said:

"New England, as regards soil and climate, is better suited to the apple than other sections of the country. We can grow apples of finer color, flavor and texture in New England than anywhere else. The first thing necessary beyond soil and climate is to have good trees with perfect foliage from the beginning to the end of the season. Frequent and thorough tillage is necessary. Trees must have room enough for air and sunlight. Next they must have intelligent feeding. They need potash and phosphoric acid, with a moderate amount of nitrogen. Fungous growth will attack even the best cared for trees to some extent, so that spraying is essential.

"Let us first consider our old orchards. What can we do with them? Old trees should be pruned, and this should be done by a man of experience. Cut out all dead wood and some small branches. Don't try to do it all in one year; take two or three. If you do not want to plough your orchard, put on a top dressing and harrow. But if your orchard is to be devoted to apples alone, plough it and put on fertilizers. Scrape off all old, rough bark, and spray with a potash wash while the trees are dormant. Carry on the ordinary summer spraying for the codling moth, etc. If your land is rocky or rough, it may be mulched with any old material that is available—anything that will kill out the sod—but ploughing is better. You may pasture swine or sheep in your orchard, if you wish. I know of a man who has used an orchard of eight acres as a pasture for hens, and he is 50 per cent. ahead of the former owner, who made the same

orchard a hayfield. After cultivating a year or two, it will be necessary to thin out the fruit.

"You cannot have good fruit without thinning. If a young tree attempts to bear ten apples, pick off eight and leave only two to come to perfection, and you will have two fine specimens. The talk of an "off year" is nonsense. There should be no "off year." When the climatic conditions are such that the crop is ruined, the next year the trees will be so full that the fruit cannot ripen and at the same time form buds for the following year. By thinning off 75 to 80 per cent. every year you can bring the tree into the habit of annual bearing. Watch your trees closely and as soon as the apples are ripe pick them, even if it be August or September. Pack them at once in the barrels or boxes in which they are to be shipped, and place where there will be a good, even temperature. Grade according to size and pack honestly from top to bottom."

GILLET'S LYE has been used at Maplehurst on rose bushes, both for aphid and rose hopper with marked benefit. We used one ten cent package to five gallons of water, which, in a few cases slightly burned the foliage, but wholly routed the enemy. We also used it with success to destroy the aphid on the cherry trees, applying it with Mitchell's atomizer, but it injured the foliage considerably.

KEROSENE is also used for destroying the insects above mentioned. The 10 per cent. solution is the proper strength in summer, made in the proportion of one gallon kerosene to ten gallons of water.

WHALE OIL SOAP used in the summer time where the foliage is out, should be used at the rate of one pound to five or more gallons of water. This will destroy the young of the San Jose Scale and Aphid.

IRRIGATION in fruit growing is the title of Bulletin No. 116, U. S. Department of Horticulture. After showing that the trees of the Citrus family require more water than our deciduous trees, he attributes three evils to insufficiency of moisture, viz.: Poor growth, poor fruit and intermittent bearing. Summer irrigation before fruit ripening of three acre-inches per acre after the early ripening fruits have reached good size and just before they begin the final swell, is claimed to reach the circulation of the tree in time to materially aid in the attainment of satisfactory size. More than this it also helps the tree to hold its foliage and growth the balance of the season. A large portion of the bulletin is taken up in explaining the various methods of utilizing irrigation water which we cannot enter upon here; for these details we refer our readers to the bulletin referred to.

FERTILIZING SELF-STERILE GRAPES is the title of Bulletin No. 169, by Prof. S. A. Beach, Geneva, N. Y., who has for several seasons been testing the self fertility of the grape. Many of our cultivated American grapes will not produce perfect bunches unless cross pollinated by some more fertile variety, and Mr. Beach has been seeking to find out the best varieties to use for this purpose. Detailed statements of the results are given with quite a number of varieties upon which experiments were made, and of these we give the instance of the Brighton, a self-sterile variety, fertilized by different varieties, the first five more or less self-sterile also, and the others more or less self-fertile. The illustration speaks so fully for itself that nothing more is necessary to prove the necessity of planting self-fertile varieties in our vineyards instead of large acreages of one variety, and in any degree of a self-sterile kind, such as Lindley, Salem, Barry, Merrimac, etc.

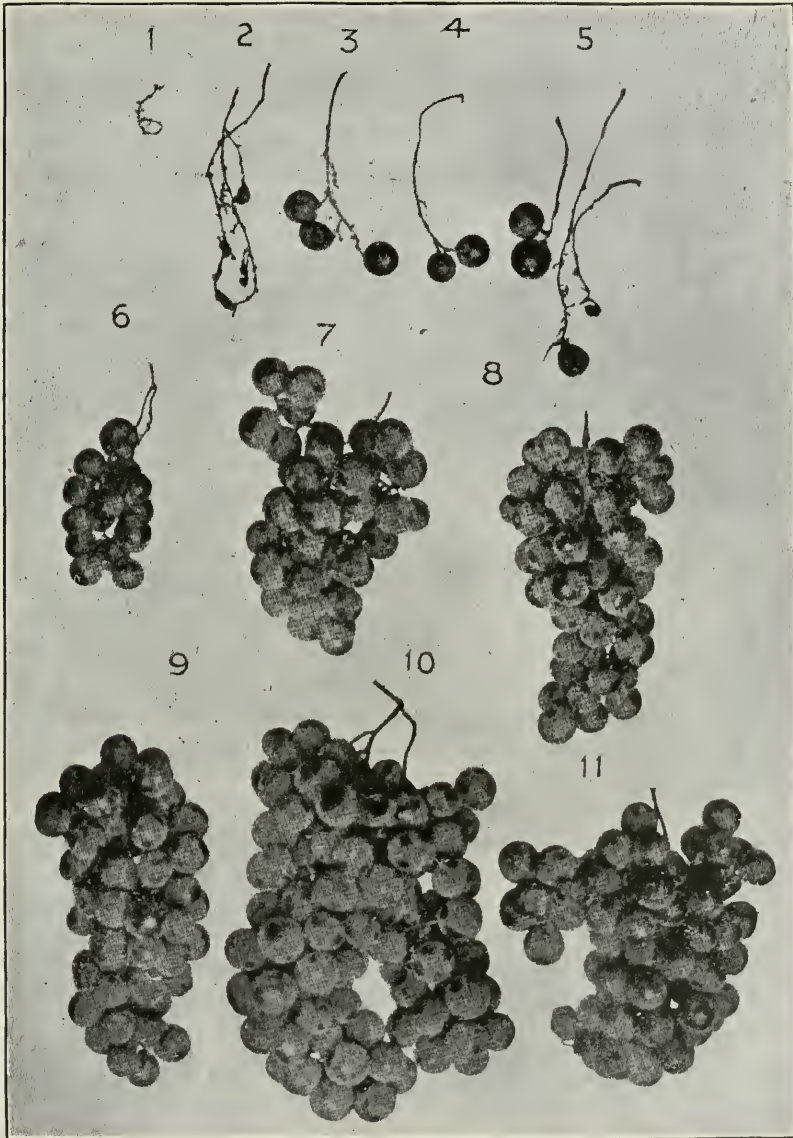


FIG. 1844.—BRIGHTON FERTILIZED BY DIFFERENT VARIETIES.

1. BY SALEM. 2. BY CREVELING. 3. BY LINDLEY. 4. BY BRIGHTON. 5. SELF-POLLINATED. 6. BY NECTAR. 7. BY JEFFERSON. 8. BY NIAGARA. 9. BY WORDEN. 10. BY VERGENNES. 11. BY ROCHESTER.

PROMINENT CANADIAN HORTICULTURISTS.



FIG. 1845. G. C. CASTON. CRAIGHURST.

It has always been the policy of our Association to search out the foremost fruit grower in each agricultural district as director for that district. By this means we have tried to secure as officers the best representatives of our industry.

No mistake was made when Mr. G. C. Caston was elected for Division No. 13. His excellent common sense; his long experience in growing and handling fruits, and his regular attendance upon our meetings have combined to make him one of our most valued members, whose judgment is always sought when important questions arise.

Mr. Caston was born in the village of Craighurst where he now resides. He began his Public School education at six years of age, and at fourteen was as far advanced as the teachers of those days. Having to make his own way in the world and not being able to get the benefit of a course at the High School, he worked at farming for several years. Having a liking for machinery he worked for several years at the milling business, but, finding his

health failing, he turned back to the farm. With an inborn love for horticulture he resolved to turn his village lot of five acres into an orchard, and soon planted it with trees. About this time he became a member of the Ontario Fruit Growers' Association, and he regards this as one of the most important steps in his life. Always a voracious reader and possessed of a retentive memory, he read all the horticultural literature he could get. The annual reports of the association had, for him, an absorbing interest, and he will always remember with warm feelings of gratitude Prof. Saunders, the late P. C. Dempsey, A. M. Smith and others, who were leading members of the Board at that time, and who contributed so much valuable information to the reports.

For several years, while his orchard was young, he grew small fruits between the trees. After a time he purchased the adjoining farm, and has now quite a large area planted to apples, pears, plums, cherries and small fruits, and which he is gradually enlarging every year.

In '94, at the request of the Board, he accepted the management of the Experimental Fruit Station for Simcoe County, his special-being hardy apples and hardy cherries.

On the retirement of Mr. Chas. Hickling from the Board of the Association Mr. Caston was elected Director for Division 13. This position he has held up to last year when he was elected Vice-President of the Association.

Mr. Caston has also been Secretary of the local Farmers' Institute since its organization, and has served as Secretary and Director of local Agricultural Societies, and his services as judge of fruit at the fall fairs is much in demand. He has a strong faith in the future of the fruit growing industry in Ontario as one of the most important industries of the Province.

QUESTION DRAWER.

The Bud Worm.

1163. SIR.—Would you please give me the name of enclosed grub found on the apple leaf, and what is best to destroy it?

Oakville.

C. W. MARTIN.

The larva sent to us by our correspondent is the well known Bud Worm (*Tmetocera ocellana*). Early in spring, when the buds begin to open, it eats out the centres of the buds and later webs together the leaves for self protection. The best remedy is to spray the infested trees with Paris green.

Apple Aphis.

1164. SIR.—What is best to do for a tree having lice on the bark of the limbs?

Oakville.

C. W. MARTIN.

The apple aphis, cherry aphis, rose aphis, etc., can be easily destroyed by spraying with whale oil soap, Gillett's lye, or kerosene emulsion early in the season, before the leaves begin to curl. It is best to make one strong application just before the buds open out.

Hybridizing of Cucurbits.

1165. SIR.—Will you please to answer the following questions in an early issue of your valuable monthly. Will the following hybridize or in any way lose flavor by being planted near each other, and, if so, how far apart should they be planted, viz.: Watermelons and citrons, watermelons and muskmelons, watermelons and cucumbers, muskmelons and cucumbers, muskmelons and pumpkins, muskmelons and squash, squash and pumpkins, different kinds of muskmelons? Also, if they do mix will the change be perceptible the same year or from the seed of that in the next year's fruit? When one has only a square plot and wishes to cultivate a variety it is well to know. Thanking you for past favors, I am yours truly,

Iroquois, Ont.

A. B. CAMERON.

The question of crossing and hybridizing of cucurbits is one about which there is a good deal of misunderstanding. The most systematic experiments along this line have been conducted at the Cornell Experiment

Station by Prof. Bailey, and results attained show that hybridizing is not nearly so frequent as is supposed.

Different varieties of the same species, such as one variety of muskmelon with another, or one variety of cucumber with another cross readily, but hybridizing, or the crossing of distantly related species, such as muskmelons with pumpkins, very rarely, if ever, occurs, although in more closely related species like the watermelon with the citron it is not unfrequent.

The effect of the cross, however, is not apparent the first year and shows itself only in the product of the seeds of the crossed specimens. In practice, therefore, all of these cucurbits may be grown side by side without injury or loss to quality in any of them. The seed from specimens grown in a mixed plantation should not be saved for future planting.

Guelph.

H. L. HUTT, O. A. C.

Wild Ginger.

1166. Will you kindly let me know through your magazine if the enclosed leaf belongs to the much valued ginseng root?

Fergus.

F. TOBIN.

The leaf which you send is that of the wild ginger (*Asarum Canadense*), a plant in no way related to the ginseng, which belongs to the *Aralia* family. Ginseng may be easily known by the following characters: The plant bears only one stem each year, on the summit of which are three leaves on long petioles, each leaf consisting of five petioled leaflets. From the point where the three leaves are borne at the summit of the stem, a small umbel of greenish white flowers is thrown up. Late in the season these flowers are followed by bright scarlet berries.

C. E. F., Ottawa.

J. FLETCHER.

Budding and Raising Cherries.

1167. SIR,—Please give instructions for propagating and growing cherries.

A SUBSCRIBER.

The growing of fruit trees is a comparatively simple matter, and many a farmer who desires to plant a large orchard and can with difficulty afford the expense of buying the trees, might raise a few hundred for himself.

Cherry trees are usually raised from the seed. The pits may be sown soon after being gathered, or if stored until spring they need to be mixed with earth and kept in a cool place. Every precaution must be taken to prevent the pits becoming hard and dry before they are planted, or they will not germinate. The second summer after sowing, the seedlings may be budded in the same manner as peaches, except that it must be done earlier, just when the bark lifts easily.

Usually the pits of the Common Black Mazzard are used as seeds, especially for raising stocks for the sweet varieties. For the Kentish and Morello varieties, and sometimes for the sweet, the Mahaleb is often used, a common variety from Southern Europe which is imported for sale. It is a slower grower than the Mazzard and has a tendency to dwarf the variety budded upon it.

The cherry may be also propagated by grafting, but as a rule this method is not employed by nurserymen for raising young trees.

Sweet cherry trees for orchard cultivation should be planted twenty feet apart each way, on dry sandy soil, well enriched and cultivated. Some people say that they need no cultivation and think the only place for them is in neglected fence corners, but this is an exploded notion. Three years of cultivation of a cherry orchard at Maplehurst has brought the trees into great vigor, size and productiveness, much sooner than trees of the same age in sod. The pruning knife needs to be applied with caution, for

the cherry tree seems to resent much cutting; but heavy pruning may always be avoided by the frequent and regular use of the knife or grape pruning shears. Limbs that cross should be removed, and long limbs should be shortened to encourage branching.

It is not well to plant too heavily of one variety unless plenty of pickers can be relied upon, for such small sized fruit requires many hands to gather it. One might cover the season for over a month with such a list as the following :

Sweet—Early Purple, Knight's Early Black, Governor Wood, Elton, Napoleon, Spanish, Tartarian, Elkhorn and Windsor.

Sour—Early Richmond, Montmorency.

Morello—Wragg and English Morello, Koslov Morello.

Gillett's Lye.

1168. SIR,—Please state in your next issue if the above article is any good, and oblige

AN AMATEUR.

This is simply an excellent brand of condensed lye, and a convenient form in which to purchase and handle the same. It is very strong and effective for destroying aphids and other soft bodied insects by contact with their bodies, which are burned up thereby. Before the foliage appears the trunk and limbs may be washed with a strong solution, and the result will be to cleanse the wood of both insect and fungi, and make it vigorous and healthy, a result similar to that obtained by the application of whale oil soap.

We have been applying Gillett's lye to our rose bushes in May and June for the destruction of aphids and rose hopper. We used a ten cent package to five gallons of water, and the result was quite satisfactory, although some of the leaves were slightly burned. It is very convenient of application with one of Mitchell's hand sprayers.

Kerosene Emulsion.

1169. SIR,—Please give a receipt for making Kerosene Emulsion. I have several, but cannot understand them, neither can I find any one around here who can. How many gallons, not parts of water, should I add to half a pound of soap, two gallons of kerosene and one gallon of water. When would you recommend spraying with this?

J. H. HELM, Port Hope.

In making Kerosene Emulsion we would advise using soft water for dilution. The formula referred to by our correspondent is Cook's, and is as follows:— $\frac{1}{2}$ lb. hard soap, 1 gallon boiling water, makes strong soap subs, and add two gallons kerosene while boiling, stir well and an excellent emulsion will be formed. From this stock solution a little may be taken at a time and diluted with soft water whenever required for use. In diluting it is usual to make the kerosene about 1-15th of the whole; so that if the whole of the stock solution were needed at once, thirty gallons of water should be added.

But different strengths are used according to the tenderness of the foliage, and to every quart of the three gallons of stock solution which you take out for use, you may add from 4 quarts to 25 quarts of water; the latter of course being a very weak solution.

This is very effective for aphids if used pretty strong. It may be applied at any time in the season, but for aphids it should be applied before the leaves are fully expanded and begin curling up, and for oyster shell book louse the best time is the first part of June, when the young lice are most easily destroyed.

Cranberry Culture.

1170. SIR,—I write to you to know if you can give me any information on growing cranberries. I have a swampy place which has deep muck, would that be the right kind of soil to grow them? Will you please let me know through your next journal the kind of soil, how to prepare it, how to get the plants, how long before they would bear fruit and if you would think it a profitable business. You will please let me know everything in connection

with the growing of them, as I know nothing about it myself. The place I have is covered over with grass and shrubs; water lies on it, but the muck always seems to be wet.

Orangeville,

WM. FOLEY.

Cranberry growing is not always a success. A large bog was made artificially at Walkerville, at very great expense, and has so far proved a failure. But where natural conditions are favorable, so as to reduce the great expense of establishing the plantation, they are usually profitable, for after the bog is once completed and the vines in bearing condition, the culture is simple and inexpensive. The *New England Farmer* gives the following instructions for preparing and planting a patch: A piece of low, swampy territory is selected to begin with. From this all the trees, bushes, or whatever growth may exist, are thoroughly cleaned out and the roots eradicated. Then the turf or dirt is taken off and the bog ditched and leveled. The old fashioned way of getting the level by the water and straight edge can not be improved upon for accuracy where the bog is well ditched. The level place is then covered with some four inches of coarse sand—some put on five—and the coarser the sand the better, if it will not interfere too much with the growth of the vines. The bog is then ready for the planting of the vines. The only fertilizer employed is to sometimes put a trifle of guano on the top of the plant, which works down through the sand to the roots of the vine. Three years must usually pass before the vines bear fruit, and they are generally not in bearing condition until the fourth year after planting. Some bogs on the Cape are still in good bearing condition that have yielded fruit for more than thirty years. Sometimes the vines are mowed down closely, but they come up again and bear more vigorously for cutting. The chief attention required is to keep down the weeds and rushes, which are usually not troublesome if not neglected, and to watch the enemies of the vines, the principal of which is what is popularly known as the fire worm. If they get in unobserved, a promising lot will be completely ruined in a few days, and they do their work so rapidly that they are well named the fire worm. Of late years they have been quite destructive. The remedy for them is a tobacco wash and it generally proves very efficacious if applied in time. The cost of producing a barrel of Cranberries all ready for market varies from three to four dollars a barrel of 100 quarts. It is safe to put down the average market value at \$7.00 per barrel.

Open Letters.

Grapes in Nova Scotia.

Grapes do not grow very rapidly. I have two varieties, the Early Amber and the Green Mountain, set two years. They have made a very poor growth. We have a great deal of fog during the summer. The soil is very shallow here, not more than ten or twelve inches, and is very heavy; holds water. The ground at present in our fields is about as soft as when frost first left the ground. Have had a great quantity of rain. Very little seeding done as yet; some have not any seed in ground. Have a lot of gooseberry and raspberry bushes. They seem to do well, with the exception of gooseberries, which break down badly in growing season, owing to rapid growth and being wet.—Yours truly,

ARTHUR C. SABEAN.

Rossway, Digby Co., N. S.

Fall Planting.

(SEE QUESTION 1156.)

SIR,—I have just received the June number of "Horticulturist," and wish to congratulate you on the constant improvement taking place in your valuable journal. This is certainly a very good number.

I, however, notice one great mistake, which I think would not be made if a little thought were given.

A gentleman writes, asking whether it would be best to buy his trees in the Fall, and bury, or wait until Spring. You simply say that it means extra work to get them in the Fall, and he should buy in the Spring. No nurseryman would give such advice, and we believe a nurseryman's advice on this point is better than the average planter's.

If it were possible to get trees just the moment you were ready for them, in the Spring, then it would be all right, but such is not the case with any nursery doing business of any amount. Especially is this the case with such seasons as the last. Frost held in the ground until nearly the middle of April, then it came very hot, buds were forced, and it was almost impossible to get stock out in good condition. Even working a big force from daylight until sundown, it will take at least three weeks to dig, pack and ship orders from any responsible nursery concern doing a good business. Then another week is sometimes added before stock

can reach destination, varying of course according to distance. This brought, this year, the delivery of trees in May instead of April.

Trees obtained in the Fall, as I know, when properly handled, either when buried or planted out permanently, were almost in full leaf before trees ordered for the Spring could possibly be delivered.

Even if a little extra work is necessary, if a man has his trees on hand in the Fall, he can plant just as early as the season will admit in the Spring, and he certainly has an advantage over the man who orders stock in the Spring, as a rule.

Then another point regarding the buying of stock in the Fall. Very few nurseries run out of varieties in the Fall, as the bulk of the business is done in the Spring. Those who buy in the Fall can always be sure of obtaining the varieties they desire, whereas in the Spring we are obliged to stop the sale of many varieties because they are sold out. It is impossible, always, to tell what varieties will be in demand. You cannot plant so as to always have the required number of each variety on stock, consequently if there is any shortage it comes on Spring sales.

I have watched this matter carefully for twenty years, and I find that getting stock in the Fall is more satisfactory to everyone in the long run.

There is less stock lost in the Fall, according to the number planted, than there is with Spring-planted stock.

There has been an unreasonable prejudice by many against getting stock in the Fall, mainly, no doubt, because they have to pay for the stock a few months before it begins to grow, but there are advantages that will certainly over-balance any objections that can be raised against buying stock in the Fall.

I believe, in most sections, stock can be planted out in the Fall, a little extra care being given to plant deeply and bank the trees six inches to a foot in height. This banking can be drawn away in the Spring as soon as the frost is out.

Very few people will take the pains to mulch in the Spring, and unless Spring-planted stock is heavily mulched there is much loss, especially when we get a dry season, as we have had this Spring. Trees will start, but the ground soon gets so dry that the young fibres cannot obtain nourishment and the trees go back.

The grumbler's rule is: "If trees fail in the Fall, blame the Winter; if they fail in the Spring, blame the nurseryman." The very opposite should be the case, if failure is ascribed to these causes.

In the Fall the nurseryman can send out stock in a perfectly dormant condition, and if it is at all properly handled I will guarantee that there is 50% less loss obtaining stock in the Fall than there is buying it in the Spring.

As nurserymen, we try our best to get the stock out at the earliest possible moment in the Spring. We are anxious to do this for several reasons, one of which is, we have our own plant-

ings to attend to, and that cannot be done until we have shipped stock to our customers.

Then again, we are anxious to get the business over and collections made, and there are other reasons which urge nurserymen to use all expedition, but in spite of all our efforts, it is impossible in all cases to get stock out as early as it ought to be, in the Spring, for successful planting.

I believe, too, that stock handled in the Fall will stand fumigation better than in the Spring. I am satisfied, at certain advanced stages, the fumigation is injurious to nursery stock.

Everything being considered, I think your view a mistaken one regarding obtaining trees in the Fall.—Yours truly,

Toronto. W. E. WELLINGTON.

A Line From Mr. Burbank.

SIR,—Your esteemed note of March 8th and Report of Fruit Experiment Stations received. *I very highly appreciate the report.* It is an extremely valuable guide, and especially useful to me in guiding my experiments in the production of *hardier* fruits, which I have been pursuing for the past eight years as a speciality. I have no trace of scale in my grounds anywhere. It has wholly disappeared several years ago, and is now forgotten as a thing of the past. No doubt the *Vedalia Cardinalis* and other insect enemies have exterminated *completely*. I shall be greatly pleased to have my new fruits grown there. Climax is one of the most promising for hardiness. Shiro and Sugar prune next; probably Sultan, also, may prove hardy. These fruits are a very great improvement on the ones first sent out, and will amaze fruit growers if they thrive there. My Paradox Walnut will not be hardy; Royal will be wherever the American Black is. I have no fresh stratified nuts of either now. Again thanking you for the extremely valuable report, I remain, faithfully yours,

Santa Rosa, Cal. LUTHER BURBANK.

Fruit in New York Market.

SIR,—A few days ago I called at a first-class fruit store at the corner of Broadway and 28th street in this city and enquired the retail price of prime fruits. Easter Beurre pears were 18 cents each, or \$2.00 per dozen. They were as hard as stones, but soon ripen in a warm room. Size very large, and perfect in appearance; quality A1. Winter Nelis, prime every way, 15 cents each, or \$1.50 per dozen. Patrick Barry, large and very handsome, rich orange russett, same price. I have one to ripen weighing nearly a pound, without a blemish, price 15 cents. Apricots, 50 cents per dozen. Prime grape fruit, 60 cents each. Black cherries from California, best best 60 cents per pound; second quality, 30 cents. Best navel oranges, 10 cents each, or \$1.00 per dozen. Strawberries of best quality, 35 cents per quart. There were fine hot house grapes at \$2.00 per pound. Colossal asparagus, 50 cents per bunch; last year it was 90 cents. Long English cucumbers, grown under glass, 25 cents

each. There is no surplus of prime stock at these prices.

In some sections of California all boxes of oranges are the same size. The best contain 84 oranges. These retail at 10 cents, or \$8.40 per box. Next quality, 96 in box; 3rd quality, 120; 4th quality, 144. These retail at 2 for 5 cents and bring, as you will see, \$3.60 per box. The tree that bears the best fruit is not over-loaded and is kept healthy.

The lowest grade comes from bad care, poor soil and over-loading. The market is glutted with this quality, but never with the best. Farmers fatten cattle by good care and feeding. Good fruit must have the same treatment. You cannot cheat a milch cow of food and care without loss of milk; nor a hill of corn; neither can you cheat a fruit tree. The largest profit is in the best quality, and the demand is unlimited.

Some prime Northern Spy, such as I have had at Oshawa, would retail at 5 and 10 cents each.

New York. FRANCIS WAYLAND GLEN.

A Correction.

SIR,—In the April issue of the "Horticulturist" appears a letter over my signature in which I make certain charges against David Cantelon, apple dealer, of Clinton. I find that the statements I there made use of prove to be wholly untrue and unfounded. I now beg to withdraw and contradict them and to apologise to Mr. Cantelon for having made use of them. I believe Mr. Cantelon to be an honorable and fair-dealing business man. I had no desire to misrepresent or injure him, and my only excuse for making use of the statements I did is that I am very deaf and misunderstood what was told to me.

I desire to make what reparation I can, and you will oblige me by giving this communication the same publicity as you gave to my said letter published in April.—Yours truly,

Witness, W. Proudfoot. WALTER HICK.

Goderich, May 31, 1900.

Crop Prospects.

SIR,—In looking through the orchards, I find there is a very good show of blossom on the cherry and plum trees. Pears very fair of bloom, some trees not much. Apples generally very good; some trees are very full, others have scarce any blossom. On the whole there is likely to be a very fair yield. The season has been very favorable both winter and spring.

Goderich. WALTER HICK.

Pears for Market.

The varieties I would advise all growers to grow for home or foreign markets are as follows: Bartlett, Beurre Bosc, Beurre Clairgeau, Doyenne de Comice, Sheldon, and Beurre d'Anjou, if first worked upon, the Keiffer, to make them bear more prolific, as they are shy bearers. The Duchess d'Angouleme may also be added to this list as a dwarf tree, and Doyenne Boussock as a standard; also, Lawrence for winter.

R. CAMERON.

IMPORTANT TO WINE MAKERS—HOW TO MAKE CURRANT AND OTHER WINES.

THE currants should be perfectly ripe when gathered; they should be stemmed and washed before pressing, which must be done as thoroughly as possible with a 12-inch cider press. Ascertain the amount of juice thus obtained, and then add that amount of water to the same pumice and incorporate the water and pumice well together; let it stand a few hours and press it again. By this process an additional quantity of juice, though not so strong, is obtained; then mix the first pressing with the second and weigh a gallon of it, and whatever it falls short of 10 pounds to the gallon, add enough of good Havana sugar to make it weigh 10 pounds, and so on with the rest. I would here remark that an additional amount of sugar added to the above will make a sweeter wine, and perhaps more suitable to the taste of many. It would be rather an expensive business to those who have but few berries to make currant wine from the first pressing of the currant alone, as it requires one bushel of currants to produce a little over three gallons of pure juice. The red currant pure juice weighs $3\frac{1}{2}$ pounds to the gallon. The white currant pure juice comes almost within the winemaker's rule, weighing $9\frac{1}{4}$ pounds to the gallon. The way in which I make currant wine is to use the pure juice alone, or without much water, and I find that I can readily command \$3 per gallon for it, whereas the other would be dear at \$1 per gallon, and not much of a wine at that. Elderberry wine is made in the same way as first stated, adding about half water in the way of repressing the pumice, etc., as if it is made without the addition of too much sugar it resembles claret very closely. Black currant wine is made in the same way as the

elderberry, only the berries should be scalded before pressing, and if carefully managed in the fermentation will resemble the Rhine wines. When the juice, sugar and water are well incorporated by stirring together until the sugar is dissolved, it is then placed in an open tub in a temperature of about 60° F., there to stand a few days until the froth and impurities rise to the surface, which must be removed as often as it accumulates, and when the liquid becomes limpid and somewhat transparent, then it is placed in a clean barrel to within 5 or 8 inches of the bung. A rubber tube passed through a cork which fits the bung-hole, and kept air tight with wax, is then inserted into the bung about two inches, the other end passing into a pail of water to the depth of 3 or 4 inches. This is done to prevent the oxygen of the air penetrating the fermenting mass, and also to retain much of the finer aromatic essences which are so essential to fine flavored wines

A great advantage is also gained thereby in rendering it less necessary to keep watch over the fermentation as pursued by some in keeping the barrel bung full by replenishing with some of the same standing near at hand, which becomes pricked before fermentation has ended, rendering it in the end little more than sweetened vinegar. No admixture should be attempted after fermentation has commenced, and if the temperature of fermentation is kept at about 60° or 65° F., for about six weeks or two months, it will be ready to remove the tube and fill the barrel bung full of the same, made in a separate vessel for that purpose. Then put the bung in moderately tight for a few days, and after that drive the bung in tight until about December, when it must be racked off

from the lees, the barrel rinsed with hot and cold water, and when drained quite dry insert into the bung-hole a small cup, suspended by a wire, containing one ounce of spirits of wine or alcohol, ignited, and kept there until the barrel is well fumigated; the bung must not be closed. Then return the wine again and keep it there for three months, when the same process is repeated. If it is done a third time it will be all the better. It is now finished, and can be kept any length of time either in bottles or wood, slowly improving by age.

Grapes may be made into wine in the same way as first mentioned above, with this difference—that when the pumice is to be repressed, that sugar dissolved with grape juice (by heat) must be added to the water that is mixed with the pumice, and to stand a few hours before the second pressing. It must contain the same proportion of sugar and water as is found in the natural juice of the first pressing, all of which is mixed well together and fermented as above. But if

the grapes are left on the vine until they are quite ripe, say until they have received the effects of a white frost, and carefully selected, the good from the bad, and thoroughly pressed and fermented as above, without the addition of either sugar or water, you will have wine that *is* wine. It is true we cannot have so great a quantity of juice, but what there is, is good.

P. S.—The object of the fumigating process is to prevent undue fermentation. The same effect is obtained in putting a 1,000th part of powdered mustard into the wine; but how it acts is unknown.

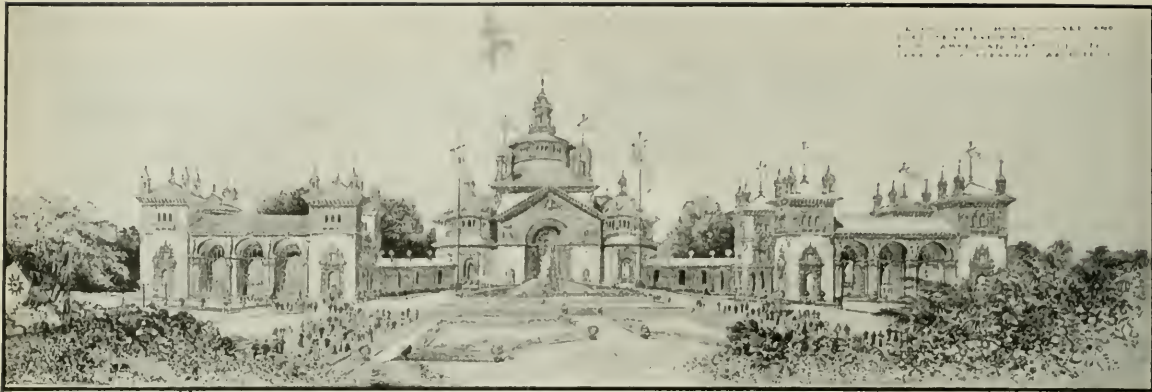
This article would be incomplete if I omitted to give your numerous readers Pasteur's method of preserving wine indefinitely by heating it to so many degrees; it then possesses all the virtues of old wine. But as this article is lengthy, I will defer it for a future number of *The Horticulturist*.

F. W. PORTER.

Mt. Forest, Ont.

A STANDARD APPLE BARREL.—Believing as we do that the barrel as a package for apples, potatoes, etc., will never pass away, it is most important that the Dominion should settle upon a uniform size—a size that would be acceptable for the whole continent. The present legal apple barrel in Canada is of the following dimensions: Staves, from croe to croe, 27 inches, or about 30 inches long; head, 16½ to 17 inches, as nearly cylindrical as may be. A recent proposed statute to come in force July 1st, 1900, calls for a barrel of nearly the same dimensions, viz: Staves, croe to croe, 27; head, 17; bilge, inside measure, 19. Since this statute was framed the American Apple Shippers' Association have agreed to buy and sell apples in barrels of

which the measurements are as follows: Staves, 28½ inches long; head, 17¼ inches; circumference, or bilge, 64 inches. This barrel will hold only 96.51 imperial quarts, dry measure; while the barrel proposed to be adopted July 1st contains 103 imperial quarts. The United States quarts are smaller than ours, so the former barrel would contain an even hundred of them, and is known there as the one-hundred-quart barrel. The same barrel would hold 174 pounds of potatoes, an important product of Nova Scotia, which that Province would desire to export to the United States. For these and other reasons the Nova Scotians are most anxious for the adoption by the Dominion of the 100-quart barrel.



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PAN-AMERICAN EXPOSITION, 1901.

HORTICULTURISTS have abundant reason to feel a lively interest in the great Pan-American Exposition to be held in Buffalo in 1901. In the embellishment of the grounds the architects have planned to use trees and shrubs, foliage and flowering plants in quantity to dazzle the lovers of fine horticultural displays. The extensive area of the Exposition grounds affords abundant room for the elaborate pageantry of color that is here contemplated. There are nearly 350 acres in the Exposition site, of which about one-third are the improved lands of Buffalo's beautiful Delaware Park. Upon the park lands many thousands of dollars have been expended from year to year in the past in maintaining and improving the variety and display of rare shrubs and trees. This portion of the landscape includes a park lake of irregular shape. It is charmingly picturesque when the shores are clad in their summer garb of foliage. This part of the park will receive special attention in preparation for the coming Exposition.

Lying directly north of the park lands and upon a higher elevation is the remainder of the Exposition plot. Included in the plan for the arrangement of the buildings is a magnificent court 3,000 feet long, with a

transverse court 1,700 feet from east to west, besides subordinate courts. All of these open spaces are to be beautified with palms and other tropical plants in tubs and vases, placed near the surrounding buildings and beside the fountains and pools. To these will be added sunken gardens of elaborate arrangement, and formal flower beds wherever their presence will enhance the beauty of the courts. The various buildings of the Exposition are to have red-tiled roofs, and the walls are to be tinted in a variety of colors so that the brilliancy of the architectural works will vie with the blossoming beds to fascinate the lovers of fine color effects. Among the flowers and foliage plants will be many sparkling fountains to enliven the beautiful scene. The water features of the Exposition include a grand canal more than one mile in length, which completely encircles the main group of buildings. Lagoons with sodded banks and shaded with a variety of trees shoot off from the main canal at various points and add their beauty to the landscape effect. The entire outer wall of the Exposition grounds is to be a bank of solid foliage. Many thousands of trees, shrubs and cuttings have already been planted in preparation for the elaborate horticultural features. Large trees, which fortunately

were already upon the Exposition site, have been preserved by transference to places where their stately shafts of green would heighten the color effect in contrast with the brighter hues of the buildings.

The building to be devoted to the Department of Horticulture, of which Mr. F. W. Taylor is chief, is 220 feet square. It has two arcaded wings sweeping from the north and south facades to the eastward and connecting with other buildings to form a semi-circular court. West of these arcades are the conservatories, in which will be displayed the palms and other plants of tropical origin. The arcades leading from the main building will be kept gay the entire season with flowering and ornamental plants. The large building will be used for the display of fruits and various other exhibits pertaining to horticulture. It is expected that the state of New York will spend at least \$10,000 in aiding the horticultural societies of the state to extend and replenish their exhibits during the season of the Exposition. The Horticultural Building will be one of the most picturesque of the entire group of large Exposition buildings. The loggias which form the eastern entrance will be richly adorned with frescoes. Two of these compositions will represent Ceres, the goddess of the harvest, bearing in her arms a sheaf of wheat, her chariot drawn by three lions led by Flora and Primavera.

The exhibits to be made by the leading florists of the United States will be situated south of the Horticultural Building. To these displays some six or seven acres of land will be devoted. William Scott, of Buffalo, a prominent florist and well-known contributor to literature upon flowers, will have charge of the floral exhibits. Several prominent horticulturists have already entered for the competition of 1901. In these displays there will be over 500 beds, in which will be shown every popular flower known, from the low-growing verbena to the stately

dahlia and hollyhock. There will be large exhibits of hardy perennial plants, such as Delphinium and Helianthus, Phlox, Tritoma and other leading hardy flowers. Of the hardy annuals there will be many examples of choice varieties that do so well in our summer months. There will be numerous specimens of the summer climbers, conspicuous among which will be the new varieties of the gorgeous Clematis. The water gardens, of which there will be a number in various parts of the grounds, will be important and attractive features which will include in their displays besides the mammoth Victorian Regia of the Amazon and the Nilumbiums of the Nile, many Nymphaeas never before exhibited. When at their best there will be special exhibitions of roses, dahlias, gladiolus, sweet peas, chrysanthemums and other peculiar flowers. Exhibits from all the large growers of the country are assured.

Horticulture has made wonderful strides within a very few years, and many of the floral specimens which will be seen at the Pan-American Exposition were not in existence at the time of the World's Fair at Chicago. The displays of the now popular canna will surpass anything yet seen either in America or Europe. One may therefore confidently expect this Exposition to be, from the view point of the horticulturist, the most brilliant ever held.

The gates of the Exposition will be opened on May 1, 1901, and closed on November 1 of the same year, giving six full months for the enjoyment of the wonderful displays there to be assembled. The buildings of the Exposition comprise more than 20 large architectural works, and the smaller buildings are numbered by the hundred. The largest of the buildings are those devoted to Machinery and Transportation and Manufactures and Liberal Arts, each covering about four acres. The Agricultural Building will cover nearly two acres, and the Electric-

ity Building the same. The Main Government Building is 600 x 130 feet, with a dome 250 feet above the main floor. The lesser buildings of the group are each 150 feet square, connected with the main structure by curved arcades, the three structures enclosing a semi-circular court which opens to the west. The Ethnology Building and the Temple of Music are each to be about 150 feet square. The Stadium, or sportihg arena, with the ornamental buildings which forms the entrance, will cover about 10 acres. It will have a seating capacity of 25,000 people, and will contain a quarter-mile track and abundant room for all the modern athletic contests. The live stock display will cover about 10 acres, and to the "Mid-way," or pleasure ground, about 20 acres have been allotted.

The Electric Tower, which is to stand in a broad aquatic basin, will be 348 feet high, the main portion of the tower being 80 feet

square. The position of the tower is between the Agricultural and Electrical Buildings, dividing the Court of the Fountains from the Plaza, and it will be the centerpiece of the Exposition. It is intended to have the electric displays the most elaborate ever undertaken. The nearness of Niagara Falls makes this possible, on account of the unlimited power developed from the great cataracts and transmitted to Buffalo by means of large copper cables. It is expected that between five and six million dollars will have been expended on the Exposition buildings and grounds before the installation of exhibits begins. The work of preparing for this great, All-American display is proceeding with commendable speed and system, and the plans are such that it will be completed in ample time for the opening of the gates on the date announced.

MARK BENNITT.

THE Bosc pear is rather gaining in favor, especially as a shipper. A writer in the California Fruit Growers' Journal says of it: The Bosc pear will never be a glut in the market, for the reason that the tree grows so crooked and slowly that nurserymen will not grow it. Those who buy trees, says Edwin Hoyt in Rural New Yorker, do not understand that there is as much difference in the habit of growth in trees as there is in animals, and are not willing to pay any more for one tree than another of the same species. If a nurseryman were to bud 1,000 stocks to Bartlett he would, no doubt, get 900 good trees, while if 1,000 stocks were budded to Bosc, he might not get more than 100 good salable trees, and many of these might have to be staked while growing to get the body up straight so as to make a tree a customer would

receive if sent to him. Many nurserymen grow a few Bosc by top-working them, that is, by budding the Bosc in the top of some strong-growing variety like Clapp, Buffum Anjou. To raise the trees this way, the nurseryman has to charge more for them to pay him for his extra trouble. If one wishes to obtain a Bosc pear orchard, the best way to get it is to set Clapp or some strong-growing variety. Let it grow two years, then top-graft it. This, of course, is some trouble and expense to do, yet the one who does it will get a good paying pear orchard, for this variety will never be overproduced. It is a fine pear, a heavy bearer, and usually grows smooth and fair with good feeding and cultivation, such as any orchard should have for profit." Our plan at Maplehurst is to grow Keiffer as stocks and top-graft them with Bosc.

OUR BOOK TABLE.

MODERN HOUSE PLANS FOR EVERYBODY.—For village and country residences, costing from \$250 to \$8,000, including full descriptions and estimates in detail of materials, labor, cost, and many practical suggestions. By S. B. Reed architect. Illustrated, 12mo, pp 243. The Orange Judd Company. Price, postpaid, \$1.

From its first appearance, *House Plans for Everybody* has occupied the first rank among architectural books. The plans comprise almost every variety of arrangement and style; each one is accompanied by a detailed description of its convenience and construction; and its cost is shown by careful estimates, made to correspond with a uniform standard of prices at present rates. So carefully have the standard features of home buildings been considered in the original edition that there was but little need to change the text, or floor plans. In the matter of outward dress, however, nearly all the elevations have been redrawn, with special regard to modern ideas and tastes and in this respect it is especially invaluable.

ANNUAL REPORT of the Fruit Growers' Association of Nova Scotia, 1900. Annual meeting at Wolfville, Jan. 29th, 30th and 31st. S. C. Parker, Secretary, Berwick, N. S.

THE SAN JOSE SCALE and other scale insects prepared for the use of fruit growers and scale inspectors by Wm. Lochhead, B. A., M. S., O. A. C. Guelph. This is a most valuable bulletin, well illustrated with original drawings. It may be had free on application to the Ontario Department of Agriculture, Toronto.

A TREASURY OF CANADIAN VERSE, selected and edited by T. H. Rand, D. C. L., Toronto. An invaluable collection. Price only \$1.25.

COMMON DISEASES and insects injurious to fruits. Bulletin 170, Geneva, N. Y.

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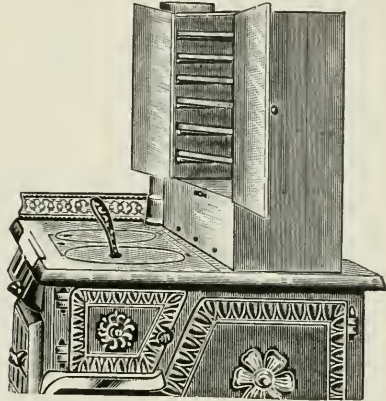
A. G. HULL & SON, St. Catharines.

A New Romance by Julia Magruder.

"The Voice in the Choir" is the latest romance from the pen of Julia Magruder, and its publication will begin immediately in the *June Ladies' Home Journal*. It is a love story that has its inception through an accidental meeting in a church choir, and which by strange accidents is shifted to the hospital tent in the wake of an invading army. Miss Magruder heightens the charm of "The Voice in the Choir" by uniquely veiling the climax.

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How Hetty Green, the famous financier, who enjoys the distinction of being the richest woman in America, has made and kept her millions will be told for the first time in the *June Ladies' Home Journal*. In view of Mrs. Green's vast wealth, so great that she herself cannot exactly compute it, the story of her home life will also be especially interesting, by reason of its extreme simplicity. In the article Mrs. Green tells how she has bought and sold railroads and towns, and how she has compelled political managers to do her bidding—showing the enormous power of money in these golden days. Her daily life, too, is interesting, for early and late she is at her task of watching her wealth and eagerly adding to it, being a stranger to almost any other recreation. Several pictures of the woman with millions, made expressly for the article, will give it additional interest.

ONTARIO FRUIT CROP.

Scale—Very good, good, fair, poor, very poor.

	Apples.	Black-berries	Cherries.	Currants.	Grapes.	Pears.	Peaches.	Plums.	Goose-berries.	Rasp-berries.	Remarks.
Burlington District, A. W. Peart, Freeman	fair	fair	fair	fair	fair	poor-fair	poor	poor-fair	...	fair	
Grenville and Dundas Co. W. A. Whitney, Iroquois	good	...	good	very good	good	good	...	very good	very good	very good	Spraying quite gen-eral.
Lincoln Co. A. M. Smith, St. Catharines	good	...	fair	...	fair	fair	very good	fair	...	fair	
Wentworth Co. M. Pettit, Winona W. M. Orr, Fruitland	very good	...	good	...	fair	fair to good	very good	good	...	...	All fruit free from fungus.
Victoria Co. Thos. Beall, Lindsay	good	...	...	good	fair	very good	...	none	good	very good	
Orillia, C. L. Stephens	fair	...	...	very good	...	...	...	none	very good	good	Apple trees very clean.
Ottawa District, R. B. Whyte, Ottawa	fair	...	fair	fair	very good	...	...	good	good	good	
Georgian Bay District, J. G. Mitchell, Clarksburg	poor	...	very poor	very good	good	poor	...	very poor	very good	very good	
Simcoe Co. G. C. Caston, Craighurst	fair	...	poor	...	..	good	...	very poor	...	good	
Trenton, W. H. Dempsey	fair-poor	..	very poor	good	...	...	...	very poor	...	...	Caterpillar and canker worm destroyed orchards where no spraying was done.
Grey Co., J. I. Graham, Vandeleur	poor	...	poor	...	fair	fair	...	very poor	...	...
Ontario Co. R. L. Huggard, Whitby E. Lick, Oshawa	good very good	very good	fair-poor	good	good	good	...	none	good	good	
Grenville Co. H. Jones, Matiland	fair-good	good	..	...	...	good	...	fair	very good	good	
Essex Co. A. McNeill, Walkerville	good	very good	poor	poor	very poor	fair	good	poor	...	poor	



Photo by Miss Brodie.

FIG. 2112. THE CROSBY PEACH.

THE CANADIAN HORTICULTURIST

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1901

No 8

* * AUGUST * *

THE CROSBY PEACH.

(EXCELSIOR, HALE'S HARDY.)

IN this journal for the month of October, 1892, we gave a colored plate of the Crosby, and a description of the same, as gleaned from the experience of others. In this number we give a photograph of an actual specimen, grown under favorable conditions, at Maplehurst, in 1900, with the accompanying description as made from the fruit itself. It is perhaps needless to say that both these latter, being made by a fruit grower in the interest of his fellows, differ considerably from the former which were got up in the interests of the speculator who was making money out of his new introduction. Then, our colored plate showed a specimen four inches in diameter; now, our photograph shows only $2\frac{3}{4}$, while the average, in ordinary conditions, is only two inches. We spoke of it as attractive and unusually hardy, but now we are disappointed to find it undersize and very little if any more hardy than other varieties. Mr. Woodward said of it at the meeting of the Western New York Horticultural Society in 1900, comparing it with the Elberta, "You can sell Elbertas for four times the price of the Crosby."

On the whole, therefore, we are not in-

clined to boom this variety very much because our markets demand large sized fruits and will not pay high prices for a grade running as small as two inches. The following is a description of this peach :

ORIGIN.—Massachusetts, 1876, by Mr. Crosby, nurseryman; named Excelsior by Massachusetts Agricultural College; Hale's Hardy because Mr. J. H. Hale was the first grower to plant it extensively; and finally Crosby by the United States Division of Pomology.

TREE.—Vigorous, healthy, fairly hardy and very productive.

FRUIT.—Medium size, 2 inches to $2\frac{1}{4}$ in either diameter; form almost round, slightly one sided; color yellow, with bright red cheeks, very pretty; cavity deep, abrupt; apex small in a slight depression; suture traceable.

FLESH.—Color, bright yellow, red at the stone; texture fine, moderately juicy, tender; flavor sweet and very agreeable.

SEASON.—Sept. 20th to Oct. 5th.

QUALITY.—Very good for dessert, and good for cooking.

VALUE.—Good for home market.



FIG. 2113. ONTARIO FRUIT EXHIBIT.

PAN-AMERICAN HORTICULTURE—III.

OUR EXHIBIT OF SMALL FRUITS.—On the 18th of July we found our Ontario Court beginning to fill up with fresh currants and gooseberries, which, combined with the cold storage apples already on the tables, made a most attractive collection. Credit is due to those persons who freely contributed to this exhibit, as for example, Mr. Arthur W. Peart of Burlington, who sent in a sample branch of each variety of currant he had in his collection as experimenter, and Mr. Stanley Spillett, Nantyr, for a collection of nineteen varieties of gooseberries, some of them mag-

nificent in size. Many of these the writer put up in glass bottles for a permanent exhibit throughout the season. Mr. E. B. Stevenson of Jordan Station, also sent in a fine collection of bottled strawberries, put up in kerosene.

The following is a list of some of the other exhibits and exhibitors, viz. :—

GOOSEBERRIES.—T. R. Merritt, Luther Dunn, Thos. Beatty, John Sexton, St. Catharines; and Jas. D. Strange, Moffat.

CUT FLOWERS FOR DISPLAY.—Morris Stone and Wellington, Fonthill; A. G. Hull & Son, St. Catharines.

SMALL FRUITS.—Titterington Bros., St. Catharines, Mr. Hagarman, Oakville, W. M. Orr, Fruitland (fifteen varieties of cherries, the finest shown, the result of thorough spraying), F. G. Stewart, Horner; Van Duzer & Griffith, Grimsby; Orser & Son, Bloomfield, Ont. (some magnificent Olivet cherries, a new Duke of great promise), John Scott, St. Catharines; Parnell Bros., St. Catharines (seedling cherries); W. A. Honsberger, Jordan; Richard Painter, E. Kennedy, W. W. Hill, and A. Railton, St. Catharines; Mr. Railton showed the first Cuthbert raspberries, and, so far his are the finest sent in.

The writer sent in a collection of horticultural literature published by the Ontario Fruit Growers' Association. This exhibit brought us a diploma and a medal at the Columbian Exposition, and also at the Paris Exposition, and no doubt will do the same at the Pan-American; also a collection of fruit.

Comparing our exhibits with others we find Ontario ahead in the size of gooseberries, while New York State, so far, leads in the display of currants.

NOVELTIES.—A novelty is shown in the latter exhibit, by Mr. E. H. Fay, of Portland, N. Y., son of the originator of the Fay Currant, which he calls the New Chautauqua Climbing Currant. The following is Mr. Fay's account of this currant:—

The Chautauqua Climbing Currant was found in an old slashing. It attracted the attention of Mr. Lonnen of Mayville, N. Y., who was passing that way. Seeing a plant or vine covering a log, and loaded with fruit that had the appearance of currants, he secured some slips, and set them out by the side of his house, intending to return later and make a more thorough examination and remove the plant to his grounds, but before doing so fire destroyed it. As good fortune favored, one of the slips grew, and it made such a rapid growth that from time to time

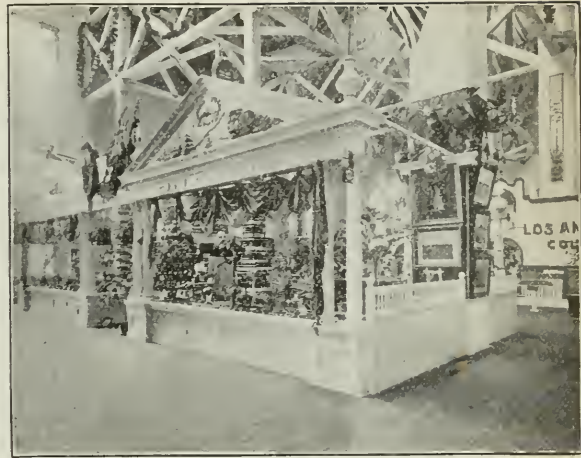


FIG. 2114.

he took small pieces of leather and nailed it to the house to support it, until in a short time it had reached the height of 14 feet and a breadth of 8 feet, and bore immense crops of fine fruit.

Four years ago I secured the entire stock, having but little faith in it except as a novelty. I planted a few small roots to test it for field culture to see if by heading back I could make it grow in bush shape. Last season, being the third season, I had bushes as large as Fay currants set from 5 to 6 years. After picking and marketing my Fay currants I let these remain upon the bushes from 3 to 4 weeks to see how they would keep. When I picked them the party that handled them said they were the finest and largest currants he ever saw, the heavy foliage having protected them from the sun. Having become convinced that they were ahead of the Fay currant (which is hard for me to admit, my father being the originator and I doing all of the cultivating and propagating, my father having died before any of the plants were sold), I have decided to offer some of the plants for sale, believing they are the only currant that can be made to grow upon stakes or trellis the same as grape vines, thereby insuring a fine,

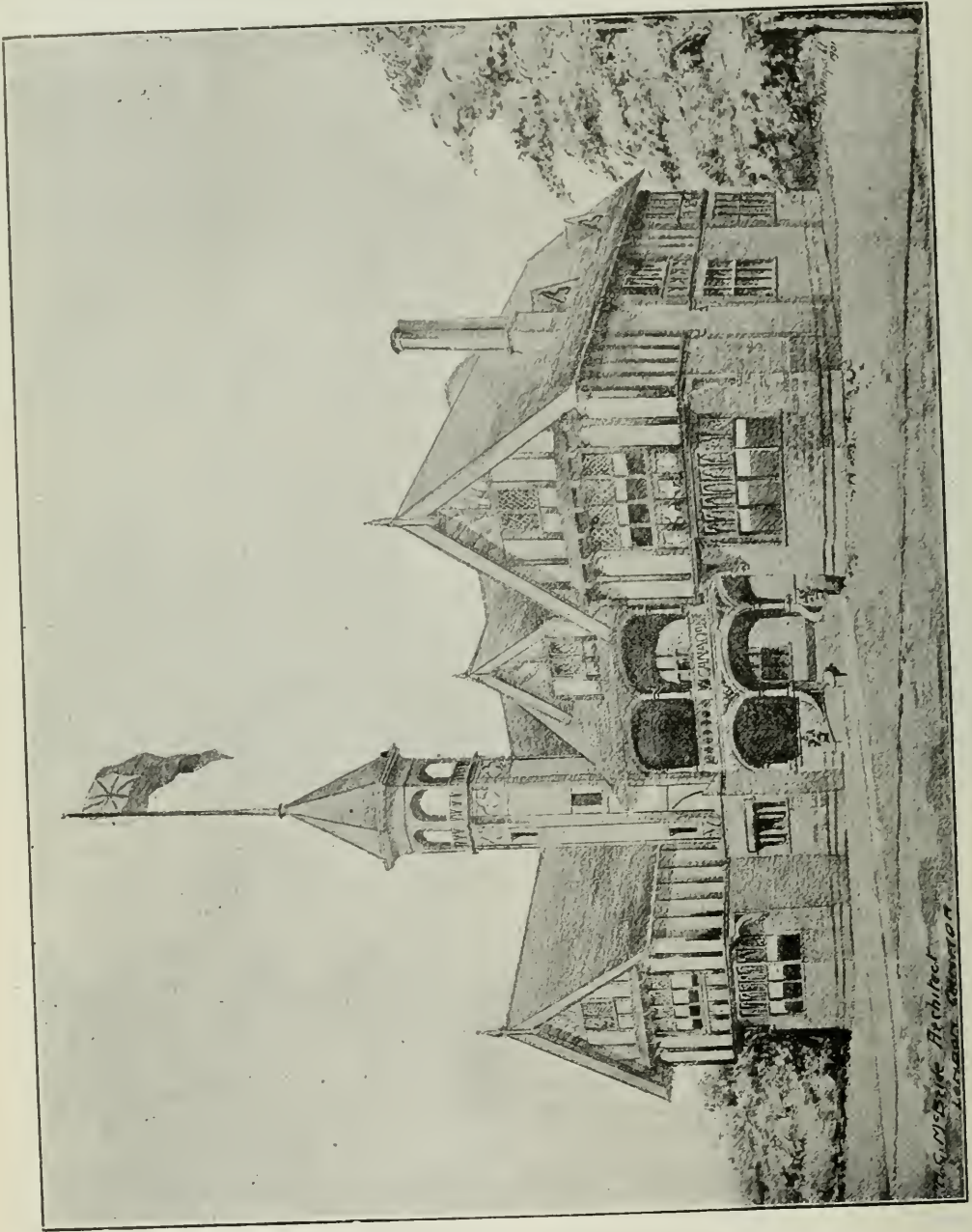


FIG. 2115. THE CANADIAN BUILDING.

heavy crop of fine currants to place upon the market, free from stains caused by heavy rains soiling the fruit with dirt. The fruit can now be produced high enough from the ground to prevent soiling; the plant being such a vigorous and stocky grower that when properly headed back will produce more currants per acre than any other currant grown, it having produced immense crops with me. The fruit is large, holding size well to the end of the stem, stem very long, often 4 to 5 inches, sufficient length of stem between fruit and bush to pick easily without bruising fruit; color very dark red; flavor said by good judges to be the best.

I could, but will not, give testimonials by the yard as is customary with nurserymen, as I only have a limited amount of plants for sale and will make the price so that any one, wishing to, can try one or $\frac{1}{2}$ dozen and be his own judge. If you want to grow it in bush form cut back heavily; if tree or vine let only one cane or sprout grow and train to stake, trellis or arbor and you will be surprised with the results. Think of one root producing 32 quarts of currants and making fine shade for arbor at the same time.

Another novelty in the New York State exhibit is the Pan-American Strawberry, which Mr. Cooper, the introducer, says is continuous bearer from June to November. The fruit shown is of medium size, fairly uniform, and of good color. Should this everbearing feature be constant, the berry may be of great value in the home garden.

A new raspberry is shown by Mr. Aikins of Attica, N. Y., which is a week earlier than the Cuthbert, and apparently quite productive.

That our complimentary remarks about the Ontario fruit exhibit are not flattery, but the simple acknowledgement of merit, is shown by the testimony of writers not personally interested in us. Thus Mr. Van Deman in Green's Fruit Grower says:—

Of the foreign countries Ontario has by far the best display in Horticultural Hall. In fact it is about the same as our own Northern States, climatically and otherwise, and her people are quite alive to the occasion, and have come forward with an apple display that rivals those from our own States very closely. They have good men at the head of it and have put into cold storage an apple supply to keep up the show for some months. They have had a few pears in addition to the large display of apples.

The Rural New Yorker says:—

The strawberry display is just now at its best and New York and Ontario make the best show, as we might reasonably expect, because of their nearness to Buffalo. Clyde is perhaps the most showy and prevalent variety on exhibition. Williams is the leading market strawberry of Ontario, and it certainly does remarkably well there. It is of a beautiful brilliant red color and a fair quality, but the larger berries have the fault of being somewhat furrowed on two sides, which is a slight objection.

THE CANADIAN PAVILION.—The State and National buildings at the Pan are certainly excellent. We show our readers West Virginia and Canada.

The construction of the Canada Building and the arrangement of its exhibits were authorized and arranged for by the Department of Agriculture of the Dominion. The building is located on the north of the Mall to the east of the Agricultural Building and near the great Stadium for athletic sports. The Grand Canal of the Exposition, with its avenue of poplar trees, runs along in front of it. It is convenient of access from the big live stock barns to the south of the Mall. The building resembles somewhat the British Building at the Chicago World's Fair of 1893, although it is by no means a copy of this building. Flowers and fruits are used to brighten the appearance of the building. The interior presents a most effective appearance, arranged as it is with the exhibits of Canada in a most attractive manner.

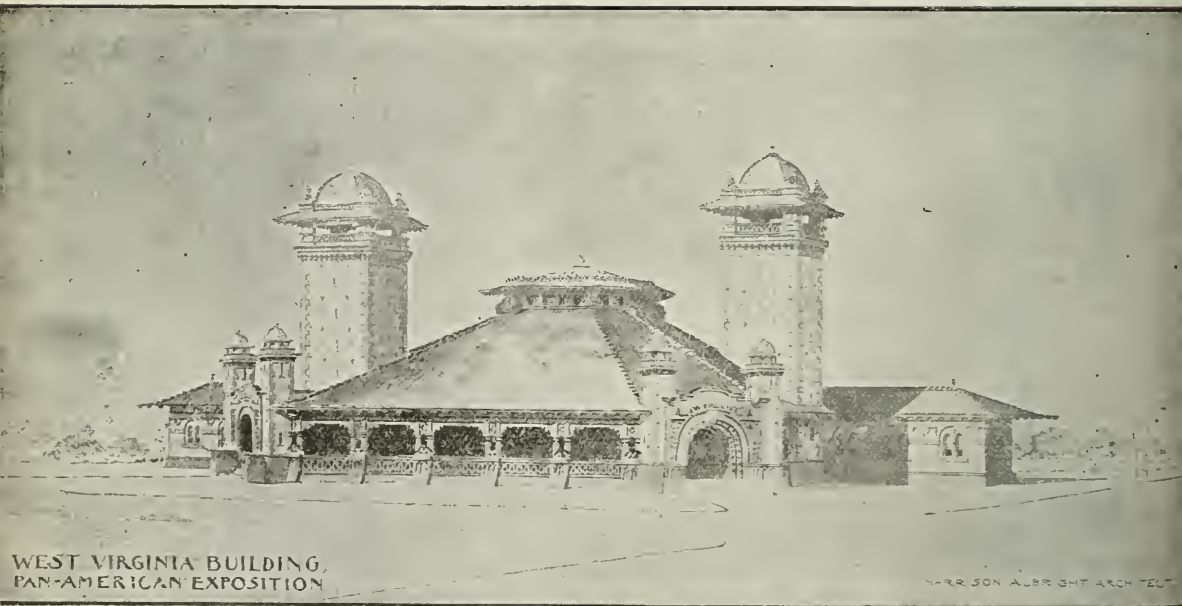
Although Canadian exhibits are seen in the various exhibit buildings in greater extent and variety, the notable productions of the Dominion have been arranged so as to give on the whole a most interesting presentation

of the products of this vast country. The cereal products of the Canadian farms are woven into figures and patterns suitable for the decoration of the walls of the building. Conspicuous in the display are the specimens of game animals and birds. The New Brunswick Legislature has loaned to the Inter-Colonial Railway for exhibition in this building some of the most interesting articles in its collection. One of the features of the decoration of the building upon the interior is a splendid buffalo. This stuffed buffalo is one of the largest specimens to be seen. There are also fine specimens of the musk ox. The bison shown was the giant of a herd in the Canadian Northwest Territory and was killed by Warburton Pike, an American writer, who had it stuffed and mounted and presented to the Dominion

Government. Other stuffed animals shown are moose, elk, caribou, beaver, lynx, wild cat, mink, seal, marten, fox, bear, wolf and different varieties of birds and fish.

There is a splendid moose head with antlers spreading 68 inches, loaned by Col. Charles E. Turner, U. S. Consul-General at Ottawa, who shot it 150 miles north of the Dominion capital. It is said to be the most perfect specimen in existence.

The Canada Building has apartments for visitors and for the officers of the Commission, and these are handsomely furnished throughout. Just off the main court is the office of Commissioner J. Hutchison and his Secretary, Wm. A. Burns, and here there is a register where Canadian visitors are requested to inscribe their names.



WEST VIRGINIA BUILDING,
PAN-AMERICAN EXPOSITION

HARRISON ALBRIGHT ARCHT. EC'T.

FIG. 2116. WEST VIRGINIA BUILDING.

UNCLE SAM TO EXPORT TENDER FRUITS.

FOR some years past certain efforts have been made by the Department of Agriculture at Ottawa, to encourage the export of tender fruits, with a certain degree of success. These efforts seem to be just now relaxed, in the hope that private enterprise will take up the work. While this is so with us, the United States Department of Agriculture is taking up the work where we left it off, and is pushing it to a successful issue. A recent issue of Cold Storage says :—

The plans of the department include the experimental shipments of fruit to various countries in Europe. Apples, pears, peaches, grapes and plums will make up these shipments. Heretofore a great many American apples have been sent to European markets, but as most of them were shipped with only the ordinary facilities the fruit was not in the best condition when it reached its destination, and only fair prices were obtained. It is now proposed to build up a permanent European market for American fruits, so as to furnish an outlet for the tremendous surplus of the American product which will come into bearing with the next few years.

Experiments will be made which will cover every stage of the marketing of the fruit from the time it is taken from the trees until it is sold to the retailers. Specially selected fruits will be chosen. They will be placed in packages prepared for the experiment, and sent to cold storage houses in this country. They will be looked after carefully until they reach the shipping ports of this country, where they will be placed on ships equipped with cold storage facilities, transported across the water in these chambers, and transferred to cold storage plants in Great Britain, France and Germany.

TO DEPEND ON REFRIGERATION.

While it is true American fruits sent to Europe will come in competition with the native product, it is declared that there are not many cold storage plants in Europe where fruits can be stored. Consequently the period within which the native European fruit is in marketable shape is of short duration, and it is almost impossible to secure home grown apples later than January. With refrigeration plants in this country, on the steamships and in Europe, it will be possible, it is believed by these experts, to place American fruits on the European markets after the home product is unsalable.

In other words, it is contended by these experts that, beginning with February, it will be possible to place American apples and other fruits in the European markets, where they will have almost a clear field for several months, or until another European crop is produced.

One of the most important matters in relation to this industry to be decided is to get the fruit to the seaboard in sound condition. Experiments will have to be made to determine the question as to whether special conditions on shipboard are required during all of the year; for instance, whether winter apples must be put in refrigerating chambers, or if they can be transported by maintaining a reasonably uniform temperature without undergoing refrigeration.

On the other hand it is likely the earlier maturing fruits will have to be subjected to the process of refrigeration on this side of the water in transit and in Europe. It is of the utmost importance to dealers that their shipments land in good order, as most of the consignments are sold on samples and if these are not in prime condition many losses result.

RELY ON CO-OPERATION.

Attention will be directed chiefly to the apple trade, as it is one which directly affects every part of the country. In these experiments special refrigerating cars will be required. The department will co-operate with those who have the interests of this industry at heart, as Congress has not provided enough funds with which to erect refrigerating plants and construct the cars that would be required in shipments.

It has been practically demonstrated that the plan which will be tried by the department is entirely feasible. During the Paris Exposition apples from twenty States were on exhibition and were in first-class condition one year after they had been picked, which is six months longer than apples have ever been kept before for commercial purposes. It was proved by these experiments

that it was possible to prolong the marketing season and deliver the fruits in sound condition with present facilities.

With the methods it is proposed to use it is believed a permanent market will be furnished not only for apples, but other American fruit.

Aside from the experiments which will be made with regard to creating a European market for fruits, the department will also make a number of experiments as to what the actual requirements are for keeping fruit in cold storage in this country. Aside from the refrigerating plants maintained by the packing houses there are 700 plants devoted to caring for fruits and vegetables. There is great diversity of opinion among dealers as to what are the requirements for keeping fruits in these places so as to obviate the great losses frequently sustained by these firms.

THE REFRIGERATOR CAR FOR HOME MARKETS.

THE time has arrived for a complete change in the methods of shipping tender fruits to our home markets, if we growers are to reap any profit.

The enormous expenses, for baskets, express charges, commissions and so on, leave the grower altogether too little for his fruit. On one occasion, for example, the writer paid \$80.00 express charges on three hundred baskets of peaches to Montreal, which sold for \$111.00, leaving him only \$31.00 for the fruit! True these charges are now much reduced, but even yet they take a lion's share of the sales, and are altogether too much considering the reckless handling.

Hanrahan's new car, built by the Hon. John Dryden for experimental exports, demonstrates that we can now ship our most tender fruits in car lots at ordinary freight charges, and reach the markets with fruit in far better condition than by express; besides

this we have a cold storage on wheels in which the fruit can be held a few days for an advance in markets, should there be an over supply at the time of arrival. The following clipping from the Ottawa Evening Journal, is a proof of our statements:—

Strawberries, which have hitherto been considered too perishable to ship from Grimsby, Ont., to Ottawa were successfully brought to the Capital yesterday in a refrigerator car remodelled by Mr. J. F. Hanrahan of Ottawa. The berries were shipped on Monday and they arrived in the city yesterday absolutely dry, all the moisture having been carried off by Mr. Hanrahan's automatic system.

The success of this shipment is said to have solved the problem of shipping perishable fruits by a system of refrigeration which may be relied upon. The refrigerator car was remodelled by Mr. J. F. Hanrahan for the Ontario government for the purpose of transporting perishable fruits. It reached Ottawa loaded with berries consigned to the Ottawa Fruit Exchange. Mr. G. W. Hunt who was feeling rather uncomfortable in case any mishap should take place was more than delighted, and when a Journal reporter visited him at the car yesterday it was evident that everything was right; that could be easily told by Mr. Hunt's face.

When the car was opened and examined by Mr. Hanrahan, Ald. Bayly, a Journal reporter and several others, everything was in prime condition. Berries that were reported soft when loaded were absolutely dry, the moisture had been all absorbed by Mr. Hanrahan's automatic system. After the car was partly unloaded Mr. Hanrahan took the party into the car with a lamp. The doors were closed and Mr. Hanrahan demonstrated the different currents of air which he employed to eliminate odors, moisture and gases from the fruits.

Mr. Hunt, who has had a large experience in handling berries in refrigerator cars, said it was the first car of berries that he ever opened without finding a very marked odor of decayed berries. As soon as the car door was opened yesterday, the car, to use Mr. Hunt's own expression, was "as sweet as a nut." He also stated the amount of money saved to the growers by using this car for the transportation of perishable fruit from the

Niagara district would amount to about forty to fifty thousand dollars annually; and to his mind this was the only refrigerator car to-day in existence in which perishable fruits could be held any length of time for market without moulding. This is due to the fact that the moisture is all absorbed from the fruit and carried off out of the car.

The ice chamber is in the centre of the car, and the fruit is so placed on the car that the air freely circulates, and the warm currents enter the top of the ice chamber, while the cool air goes from the bottom of the ice chamber through the car. Not only were the berries dry and in good condition, but every part of the car was perfectly dry.

Before this car was loaded at Grimsby some of the shippers protested against its use, but the reports about the condition of the fruit have convinced the majority of the shippers that the Hanrahan car is a success.

SOME USES OF THE LEMON.

WOMEN, particularly, would find a more general use of lemons as simple remedies where ordinarily doctors' medicines are employed, efficacious and economical.

One of the most pleasing baths is made by slicing three or four lemons into the water, which should be drawn half an hour before using so that the juice of the fruit may have a chance to permeate it. The sense of freshness it gives, and the suppleness and smoothness it imparts to the skin are very luxurious. In the West Indies often the lemon is used instead of soap, and when the natives wash their hands they squeeze the juice over them and rub them briskly in water until they are clean.

The lemon is invaluable in its effect on the

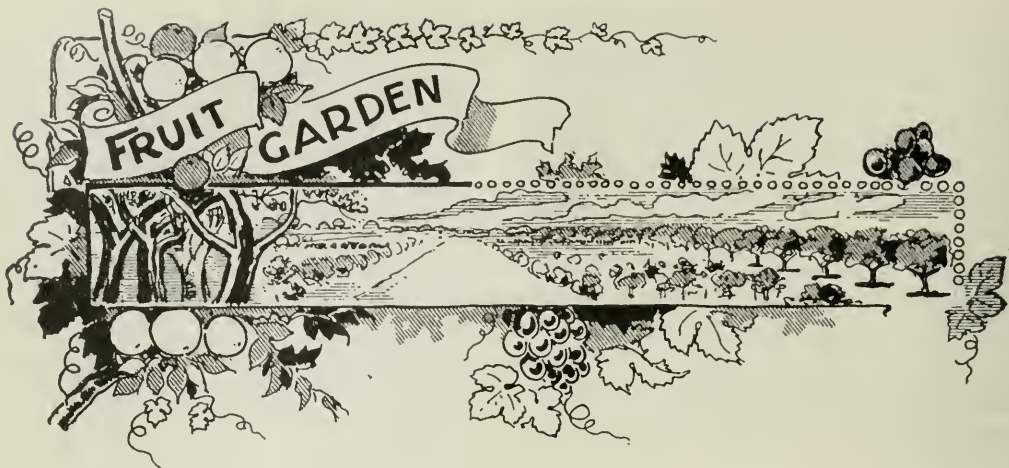
complexion. A few drops in the water in which the face is washed removes all greasiness and leaves the skin fresh and velvety. A little lemon juice rubbed on the cheeks before going to bed and allowed to dry there will remove freckles and whiten the skin, besides giving a delightful smoothness, and if the treatment is persisted in, eventually it will carry off all unsightly blemishes that are not caused by internal trouble.

Lemons are very useful in the care of the teeth. A few drops squeezed into a glass of water for rinsing the mouth make a tonic for the gums and render them firm.

In washing the hair, if a lemon is used, it will cleanse the scalp and give a soft fluffiness to the hair that women like.

FLOWER GARDENS OF THE SEA.—The sea has its flower gardens, but the blooms are not on plants as they are on the land. It is the animals of the sea that make the gardens, the corals of the tropical waters, particularly, making a display of floral beauty that fairly rivals the gorgeous coloring and delicate grace presented by land flowers. So closely

do they resemble plant blooms that it is hard to believe that they are wholly animal in organization. Dr. Blackford says that among the coral gardens there are fishes of curious forms and flashing colors darting about, just as the birds and butterflies dart about plant gardens on land.—*Chicago Chronicle.*



HINTS FOR FRUIT GROWERS—III.

THE FAILURE of cherries and apples this season is most unusual and must mean higher prices for other fruits. In such a case, the revenue for the whole season is often better than in seasons of abundance, when prices are so low that little if any profit remains to the grower.

PRUNING IN SUMMER is little thought of by Canadian fruit-growers, and yet if only more attention were given it, much waste of vigor might be saved to the tree. In the vineyard, more especially, this hint is worthy of attention; for so much growth of vine is allowed to go to waste, in forming useless wood. Iggulden, in *Journal of Horticulture*, says, "Not only ought the thinning out, or the reduction of the shoots to one or, at most, to two at each spur, in the case of the older canes, and to one at each joint of strong, young canes, to be done early, but the topping of laterals should commence directly this can be done with the finger and thumb."

Of course the case of English grapes is very different from that of Canadian, for their value is much greater, and in many cases they are grown for gentlemen who have much money to spend and plenty of workmen.

PYRAMIDAL TRAINING OF THE PEAR TREE.—Mr. W. B. Waite, of the Department of Agriculture, writes on pear culture in the *American Gardening* and points out the three ideal forms of growing the pear tree, viz., the pyramidal, the vase, and the natural. The first we always adopt for dwarfs, but the third we usually adopt for standards. The following is Mr. Waite's description of the pruning in pyramidal form:

The pyramidal form of the tree is a much more simple and more easy form in which to train most varieties of pears, because it conforms essentially to the natural tendency of the trees. It is usually best to head the trees to a straight cane in planting them out, as previously described, though this is not necessary if the head has been formed in the nursery at the point desired by the orchardist. This is very rarely the case, however, as most nursery trees are headed too high. If the tree is headed at the proper height in the nursery, it will simply be necessary to cut the leader back to about 6 inches and to trim three or four of the secondary branches to about 3 inches. The tree may then be allowed to go during the season with very little pruning. It may be necessary to go

over the trees after 6 or 8 inches of growth has been made and pinch off an occasional shoot which has not developed in conformity with the pyramidal form. Sometimes two leaders will form nearly equal in size. One of these should be pinched back and the other allowed to remain.

In the winter pruning the central leader is first selected and cut back to the height at which the next whorl of limbs is desired. In the dwarf pear this should be about 12 inches; in Bartletts and other standards about 14 to 16 inches; in strong growing Orientals, like the Kieffer and Le Conte, 18 to 20 or even 24 inches may be proper. The lower whorl of main limbs is then examined and about three or four branches are selected. These are cut back to a length of about 12 to 18 inches, or about two-thirds the length of the leader. All other branches or twigs interfering with this main framework are then removed. In the next year's pruning, at the conclusion of two years' growth, the central leader is again selected and cut off at the same length as in the previous year, the 1-year-old whorl of branches at its base is examined and pruned in about the same manner as the previous year, leaving three or four twigs to form main limbs, and the lower whorl, which now has two years' growth on each branch, is treated in much the same way that the pyramidal top has been treated, namely, the leader for each branch is selected and headed back, leaving it about two-thirds as long as the leader at the top of the tree. At the base of the leader on the 2-year wood about two or three secondary branches are selected and headed back, so as to subordinate them to the leader, and the other twigs on these branches are cut off. All of these main

branches are selected with reference to their forming the framework of the tree exactly as described in pruning for the vase form of tree. Temporary fruiting branches may be left in same manner also as described in that form. Water sprouts and limbs in undesirable places are of course removed.

The third-year pruning of the pyramidal form proceeds on the same line, the upper part of the tree being pruned exactly as in the previous years, the only addition being that one more joint is added to each main branch and one more of lateral branches has to receive attention each year. The pyramidal form of tree does not change, and the general plan of pruning continues the same through its entire life. The only thing to avoid in this type of tree is the tendency to become too thick and bushy in the repeated heading back. To avoid this the pruner should be prepared to thin out unnecessary branches as well as to cut back. Fruit spurs will begin to form on the branches after the third year. These may be left temporarily and afterwards cut away. It is undesirable even in the temporary form to allow young branches to become thickly grown with lateral fruit spurs, for the reason that such spurs are not nearly so well nourished as those on smaller branches carrying vegetative shoots, and furthermore such branches are a great deal more liable to destruction by pear blight. These numerous lateral fruit spurs, when in bloom, afford many opportunities for blossom-blight infection, and when such a branch is attacked by blossom blight the disease has only a very short distance to run from the fruit spur into the main limb, which it can girdle with a minimum amount of diffusion.

HOUSE CULTURE OF THE FOREIGN GRAPE.—
The time will probably come, in America, when the European grape will again be a valuable commercial fruit, as it was at one

time, the fruit selling readily at \$1.50 a pound. The cultivation went down for several reasons, among them the fear of competition with the out-door grown Euro-

pean grapes from California, the injury to the roots by the phylloxera, and the difficulty of getting the intelligent labor to manage the vines properly. It is clear, however, that no more fear of competition with the California product need be feared than with the Spanish grapes that come in barrels of cork dust from the Old World. These are very good in their way, and will usually bring remunerative returns, though the figures be small. There is no comparison between these in quality as compared with those grown under glass, by one who knows his business. This has been abundantly proved in England. The Spanish

grapes come to England and are sold by auction by the 10,000 barrels at a time, and bring no more than sixpence or ninepence a pound in the famous Covent Garden Market. While the home-grown Muscats and Black Hamburgs bring comparatively enormous prices.

In our country, it was once thought to be absurd to try to raise tomatoes at a profit under glass in winter, on account of the shipments from Florida and the West India Islands. But it has been found a profitable business of late years, by reason of the superior quality of the home-grown article.—*Meehans' Monthly.*

THE CROTHERS PEACH.

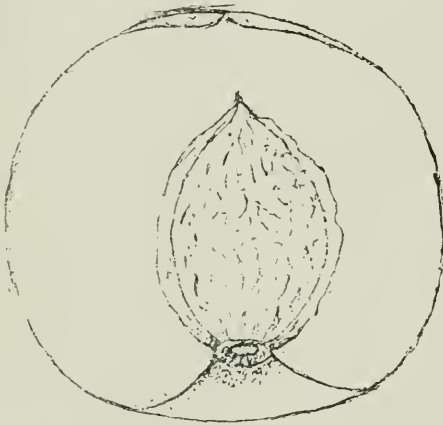


FIG. 2117.

THE old saying that "there is always room up higher" is as true in pomology as in the professions, and there is a peach called Crothers, now almost unknown, that is worthy of a chance to show its merit to a place among the best peaches of the country. When I lived in Kansas I had in my orchards about 150 of the best named varieties of the peach then known, but I saw a new one at a local fair that, for its season, surpassed any that I knew. I found it to be a seedling growing on the farm of a Mr. Crothers, near Neosho Falls, Kan., and his reports of the good habits of

the tree, together with my opinion of the specimens, induced me to get buds and put it in my trial orchard. I also sent a few to Prof. T. V. Munson, of Denison, Texas. He has been so much pleased with the variety, that he mentions it in his catalogue of rarely good peaches, as without an equal of its color and season combined. It has also been fruiting at the Experiment Station at South Haven, Mich., for several years, where it is much liked. The tree is a very abundant and regular bearer of strong growth and somewhat drooping form. The fruit is of medium size, nearly round in shape, not pointed, and has a slight suture on one side; color, creamy white, with a bright red cheek, making a handsome appearance; flesh, creamy white, red at pit, very juicy, melting; flavor, rich yet mild, vinous and very pleasant; seed, rather large, roundish oval, free from flesh; season, the last of September and early October in southern Michigan. It meets the want of a late, red and white freestone of high quality; entirely superseding Ward's Late, which has long been about the only peach of that character. All lovers of a good peach should get buds or trees and test the Crothers.

H. E. VAN DEMAN IN *R. N. Y.*

ORCHARDING—II.

HANDLING THE FRUIT.

THE fruit tree is an investment; the fruit should prove an annual dividend.—It is within reasonable limits to say that by the time a well cared for Baldwin apple tree reaches bearing age it may represent an investment of labor and capital amounting to ten or fifteen dollars. In most parts of New York State this investment is fairly sure and will yield large dividends under good management. The dividend may yet be lost if the owner neglects

go on more rapidly if the fruit remains on the tree than if it has been picked and stored in a cool place. If exposed to the sun or stored in a warm room it continues to ripen more or less rapidly, depending on the warmth of the room. Apples that are exposed to the sun for some time after picking or are allowed to hang on the trees late in the season may be somewhat improved in flavor and appearance, but their season of keeping is undoubtedly shortened.



FIG. 2118. A BUSY DAY AMONG THE BALDWINS.

to exercise intelligence and judgment in picking and handling the fruit. The method of handling the fruit crop is of vital importance. It is the climax of years of labor; yet just here many fruit growers fail.

The keeping qualities of the fruit are influenced by the time of picking.—An apple may be mature when the seeds are colored but yet not ripe from the eater's standpoint. After it is mature the ripening process will

The ripening and decay of fruits follow each other without any clearly defined dividing line.—Fruits develop, mature, ripen and decay in shorter or longer period according to their characteristics and the manner in which they have been handled and stored. The whole process of ripening under normal conditions is regularly continuous and is not divided by clearly marked intervals. An apple loses crispness, becomes mellow, the

cells break down and the apple is rotten. While these changes are due to different agents as chemical action and growth of microbes, the process is quite gradual. A peach is picked when still hard, but in a temperature of 50 degrees F. or above, soon becomes soft and in a few days is reduced to a mushy mass of pulp. If picked when ripe and beginning to soften, the life of the fruit is therefore relatively shorter than if picked when just mature. In winter fruits the ripening (mellowing) process goes on slower than in the summer varieties.

point, germs of fermentation or decay will not develop and the fruit will remain in an inactive condition; in other words, the ripening process which precedes the decaying process does not go on. On this principle is founded the practice of placing fruits in cold storage.

All farmers and fruit growers cannot afford to erect elaborate storing houses, but it will pay most fruit growers to put up storage houses in which their perishable fruits may be safely stored at times when the market presents unfavorable selling



FIG. 2119. SORTING AND PACKING IN THE ORCHARD.

The decay of fruits is due to certain ferments, chemical agents and micro-organisms which develop under favorable conditions of temperature.—The ordinary keeping season of fruit may be much prolonged by storing it in a compartment in which a low temperature may be preserved. The germs which may bring about the decay of fruits like those which change grape juice from the sweet stage to the alcoholic, can only develop when the temperature is considerably above freezing. It follows, therefore, that if fruit is stored in a chamber where the temperature can be kept near the freezing

opportunities. When fruit growers are entirely without store houses they are practically at the mercy of the buyer and the fluctuating market prices. It was due to this fact that much of the 1900 apple crop of Western New York was sold at low if not unremunerative rates.

Bruises shorten the keeping season of fruit.—Fruit pickers seldom realize how much the normal keeping season of a fruit is shortened by bruises due to careless, indifferent handling. When the flesh of an apple is bruised, the cells are crushed, the juices are liberated and ferments giving rise to

decay develop. The life of an apple, peach or pear depends very much on the care used in picking it. When fruit is shaken from the tree or thrown carelessly into a hard-bottomed or rough-sided basket, dumped into a wagon box, or transported in sacks like potatoes, as they were in former days, the keeping season is shortened and the percentage of loss on stored fruit is very great. Mature fruit should be handled as carefully as thin-shelled eggs. The picker can soon

may be placed across the mouth making a triangular opening. A broad leather or canvas web strap is then connected to one of the lower corners of the sack. An iron ring is attached to the mouth to which is snapped the strap. The sack is suspended from the picker's shoulder by means of the strap. This sort of device allows the picker to use both hands. Having the sack easily detachable the picker can gently empty the contents into the barrel without injury to



FIG. 2120. GRADING AT STOREHOUSE. NOTE PADDED BASKETS.

train himself to handle fruit gently if he takes the slightest interest in his work.

Suitable receptacles for picking the fruit are important.—There are two kinds of picking receptacles in common use among fruit growers. One is a swing-handled basket which allows of the contents being gently emptied into the barrel. This is a strong splint basket and should be padded or lined with burlap on the inside to prevent bruising the fruit. The second type of picking receptacle is a grain sack into the mouth of which is fixed a hoop ; or a stout bent stick

the fruit. Early apples and all soft fruits, such as pears, plums and peaches, should be picked in baskets and taken directly to the packing room for sorting.

Grading is absolutely essential.—The grain merchant cannot afford to place ungraded wheat on the market, neither can the fruit grower afford to mix No. 2 with No. 1 apples in the same package. It does not pay the fruit grower to place on the market mixed grades of apples. Whether he is shipping apples or strawberries, the same principle applies. The price is fixed by the smallest

fruit in the package rather than by the largest. An even grade, whether of small, medium or large size, is more attractive to the purchaser than one containing many sizes. The grading of the fruit is an important piece of work. Very few persons can do it satisfactorily. It is not mechanical work but work that requires quick judgment, a keen eye and a conscience. Fruit can best be graded in the packing house. This is particularly true of the tender types of fruits. In apple orchards where the yield

The best goods are done up in small packages.—The purchaser is usually willing to pay for an attractive package and the selling qualities of the fruit are greatly increased thereby. As a general principle, the finer the quality of fruit the smaller should be the package. Staple articles and standard varieties are shipped in bulk, but “fine goods are done up in small packages.” The barrel is the standard package for the commercial varieties of apples thus far. The finer, earlier and more tender variety of apples



FIG. 2121. GRADING TABLE WITH STOREHOUSE IN BACKGROUND.

is heavy the work may be done on movable grading tables in the orchard. Some packers pour the picked apples on the ground and sort from thence directly into the barrels. The best work can be done where the best facilities are offered. Make-shift methods usually result in unsatisfactory and uncertain grades. A tempting display of produce attracts buyers and develops a market. The market is best maintained by practising strictly honest methods. Fruit in the center of the package should be as good as that on the surface.

are often shipped with greater profit in baskets and attractive small boxes than in barrels; but only the finest fruit and that which is most carefully graded should be handled in this way.

Changes of temperature cause moisture and hasten decay.—If the fruit after packing is brought from a warm temperature to a cold one or from a cold temperature to a warm one, moisture is condensed on the surface. This is what is called “sweating” and may readily be observed when apples are exposed to sudden and marked changes of tempera-



FIG. 2122. THE BOX AND BARREL PACKAGE.

ture. Apples piled on the ground will develop heat to some degree which naturally encourages condensation of moisture. It is desirable, therefore, that if fruit is to go into cold storage it should be cooled gradually. In taking it from the low temperature of the storage chamber to a warm room the change should also be a gradual one. If this precaution is not taken the fruit becomes wet on the surface and presents favorable opportunities for the development of germs causing decay.

The fruit grower frequently finds it desirable to store his fruit after picking until more favorable market conditions occur; but only sound clean fruit should be packed. He often fails to appreciate the fact that various kinds of vegetable parasites (fungi) are as likely to continue growth on the fruit in ordinary storage as on the fruit before picking. The greatest care should be exercised in barrelling this fruit, to see that it is free from scab, bitter rot, fly-speck fungus or any other vegetable parasite. Packers are often surprised on opening the barrels in midwinter to find that there is considerable waste in fruit which appeared moderately fair and clean when

packed in the fall. This impresses the lesson that at the first packing every blemished specimen should be rejected. It is economy to do this in the long run. Not only is it wise to reject specimens affected by scabs and spots but also those infested by insects, because the larvæ of codling moths for instance, may continue the destruction of barrelled fruit where temperature is not very low.

Early fruits should be picked successively.—Pears and apples should not be pulled from the tree. This way of pulling often separates the stem from the fruit and injures the appearance and keeping qualities. Apples and pears, when ready for picking, may be separated from the spurs, to which they are attached, by turning the fruit upwards. This knack is quickly mastered by deft-handed pickers. As a rule pears ripen more satisfactorily in the store house than on the tree. Bartletts may be picked before reaching maturity, and if stored in a cool darkened room will become more rich and buttery than if left on the tree. Loss of pears from rotting at the core may be obviated in large measure by early picking. Sometimes it pays to remove the fruit of certain varieties in two or three successive pickings. This is particularly true of early varieties of apples, pears and peaches. A prominent apple grower in this State makes a specialty of Oldenberg (Duchess) apples. In order

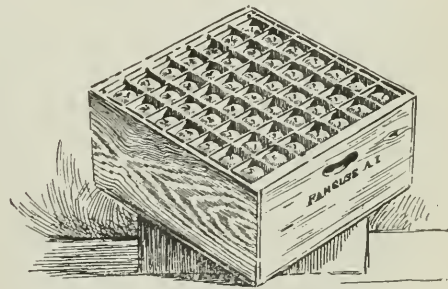


FIG. 2123. COMPARTMENT BOX.

to get the most out of the crop the trees are thinned of their largest fruits as soon as salable size is reached. The operation is repeated when another picking is ready. In this way finer fruit is secured and larger returns obtained for the entire crop than would be possible if the fruit was all removed at one picking.

Handle soft fruits very carefully.—Plums and cherries are picked with stems on. The picker should grasp the stem and take care not to separate it from the fruit as this encourages rot. In picking peaches the

ural bloom of the fruit which adds so much to its beauty.

A fruit house should be so constructed as to preserve an even temperature.—Storage houses are of two types: First, those which modify but do not regulate extremes of temperature, and second, those which furnish definite low temperatures. Houses of the first class are generally within the means of the commercial fruit grower. Those of the second belong to the equipment of the fruit dealer. The ordinary storage house is probably a frame building pro-



FIG. 2124. THE DEPOT PACKING HOUSE.

fruit should be seized firmly with ball of thumb and inside (not ends) of fingers and detached by turning it to one side. Strawberries should be without white tips and fully colored when picked. The stem is pinched off by the finger and thumb. Raspberries, blackberries and dewberries are of course picked without hulls, although when a fancy trade is catered to, red raspberries are sometimes picked with hulls on. In picking currants the entire cluster should be removed. In every case the picker should use his best endeavor to preserve the nat-

vided with a well drained cellar and having perfectly insulated walls and double doors. Insulation is secured by providing two or more air spaces in the walls. These air spaces should be separated by paper-covered partitions. Comparatively low temperatures in these buildings may be secured in the fall by keeping them tightly closed during the warm part of the day and ventilating only on cool nights. Fruit houses of this character will also keep out frost so that the grower may hold his fruit till a favorable opportunity for selling occurs. Dry air

prevents the growth of fungi but causes the fruit to shrivel; a moist atmosphere on the other hand preserves the plumpness of the fruit but encourages the development of parasitic plants. Extremes should be avoided.

The principal thoughts for the fruit grower

to keep in mind in handling his fruit are that it is a perishable article, that its keeping season may be lengthened by careful handling and by low even temperature, and that profits may be increased by placing it on the market in an attractive form.—*John Craig in Cornell Reading-Course.*

SUBJUGATING THE APPLE MAGGOT.

THE parent of this little maggot somewhat resembles the common housefly in form, but the abdomen is more pointed, and it is only one-fifth of an inch in length, with a wing expansion of $\frac{3}{8}$ inch. The wings are glossy white and prettily marked with four blackish bands, which have a fancied resemblance to the letters IF, and the first four segments of the abdomen are broadly banded with white.

These flies appear about July 1 in Maine, and correspondingly earlier further south,



FIG. 2125. APPLE MAGGOT.

and continue to emerge all summer, being found flying until late in September or until the early frosts check them. The females at once commence depositing eggs; which are placed vertically in the pulp, mostly upon the cheeks of the apple, especially on the shaded side. It takes the fly about half a minute to deposit an egg, and each one is capable of laying from 300 to 400, 12 or 15 often being placed in a single apple. In four or five days the minute larvae emerge from the eggs

and at once commence to tunnel in the pulp. By means of a vertical motion of the head they rasp the pulp with the small black hooks or mouth parts, and in less than a minute can tunnel their own length. The maggots become full grown in five or six



FIG. 2126. APPLE MAGGOT.

weeks and then usually go into the soil to the depth of an inch or so, where they pupate. The pupae remain dormant over winter and the flies emerge from them the following summer.

The apple maggot seems to have a decided preference for early apples and those which are sweet or sub-acid. Orchards on sandy soil and in sheltered places with a southern exposure seem to be worst affected, this doubtless being due to the favorable conditions furnished for the development of the pupae.

Owing to the nature of the injury, spraying with poisons is absolutely valueless for this pest. However, much may be done to prevent future injury, as the adult flies are sluggish and usually remain in the orchard where they developed, so that if an orchard is cleaned of them a fruit grower need have no apprehension of a serious invasion from neighboring orchards for some time. Cultivation furnishes favorable conditions for the pupae, but as they never go to over an inch

in depth, good deep spading or deep plowing in early spring will destroy most of them. Though the conditions for the development of such maggots as occur in apples gathered for market are not favorable and would rarely enable them to again get back to an orchard, still it would be well to see that all refuse from infested fruit, apple pomace, waste, etc, is destroyed, and that bins, barrels or boxes which have contained infested fruit and in which the maggots may have pupated, be thoroughly cleaned.

The best means of checking the pest, however, is by carefully destroying all wind-falls. To leave them on the ground gives

the best possible condition for the pest, and every maggot which matures means 100 next year. This should be especially attended to for the early varieties, and, though considerable work, it will be found to be labor well spent to send boys through the orchard every couple of days from August 1 to October 15 to gather the wind-falls, which should be destroyed or consumed in such a way as to kill the maggots. Or, where desirable, sheep or hogs could be allowed the range of the orchard and will usually keep it well cleaned.—*American Agriculturist.*

STRAWBERRY NOTES.

Michigan Bulletin 189 gives a good report of old and new varieties. Among others we clip the following :

CLYDE—Perfect flower. Plants are vigorous and hardy, a little light in color. A very profitable sort on soils not easily affected by drought. Berries are light red, color extending through the berry. Are but moderately firm. Excellent to fertilize pistillate varieties.

(ED.—This berry loaded enormously with us at Maplehurst this season, but suddenly failed in the dry weather.)

MARSHALL.—This variety is a strong grower and quite prolific. Berries, large, dark red and uniform. Quality and texture are very good. Except on strong soil the foliage is slightly subject to blight. This is one of the best large berries upon moist, rich soils.

(ED.—The finest strawberry shown at the Pan in the New York State Exhibit was this Marshall.)

MORGAN FAVORITE.—Perfect flower. Plants are strong and have very good foliage. Fruit ranks high in size, form and color. The flesh is bright, juicy and of high quality and firmness. The productiveness

and uniformity of this variety make it valuable either for home or market use.

NICK OHMER.—Perfect flower. This variety was in a poor location and for this reason lacked somewhat in vigor and productiveness. Berries are large, of good form and of fine appearance, which, with their high quality and firm texture, should make it a valuable variety.

SAMPLE.—Imperfect flower. Plants are strong, vigorous growers and productive; have stout fruit stalks and large, healthy leaves. Berries are of large size, very regular in form, bright dark crimson in color and of high quality and texture. This variety has proved itself valuable during the two seasons grown here. Well worthy of trial.

WILLIAM BELT.—Plants are good growers and productive. Berries are large and of good form; quality and texture are high; color is bright red. This variety was in a poor location which must be considered in connection with the table. A valuable variety.

Of the newer sorts that fruited in 1900, H. and H., Echo., Emma, Ganage, Gladstone, Stouffer, and Johnson Early are most promising.

APPLE CANKER.

AMERICAN APPLE CANKER (*Sphaeropsis malorum*).—The popular edition of Bulletin 185, Geneva, New York, is devoted to this subject.

The disease has become very prevalent in Nova Scotia and not infrequent in Ontario, where it has been attributed to sun-scald, frost, etc., when in fact it is a fungous growth. It is therefore in place to give the following extract :

“To cause the destruction of cankers which girdle the limbs, the germs of the disease must get through the tough outer layer of the bark into the growing layer beneath, the cambium. An injury to the bark of some sort is necessary to this entrance; for the fungous threads can not penetrate the unbroken bark. Sun-scald, as well as mechanical abrasions, may cause such injuries. The bark is killed by the sun and frost, and cracks or peels, when the germ finds ready entrance and rapidly extends the injured area in canker form.

Sunscald or sunburn is a common trouble in this state, probably more common than generally supposed, especially on tender varieties. The long areas of reddish bark on the south and southwest sides of limbs and young trunks are inconspicuous when they first are scalded and so escape notice ; but they are all too common, and may be-

come the seat of serious harm to the trees. Trees of tender varieties should be protected from the direct rays of the sun by training them to low, thick heads which shade both trunks and branches. Additional protection may be given by a coat of whitewash upon the trunks ; which helps to prevent absorption of the sun's rays and also exerts a favorable influence upon the bark itself. A good mixture is :

Lime (unslaked).....	30 lbs.
Tallow	4 “
Salt.....	5 “

Dilute with water enough to make it spray easily.

Treatment of canker.—In addition to the protection from sunscald, thorough spraying



FIG. 2127.
AMERICAN APPLE
CANKER.

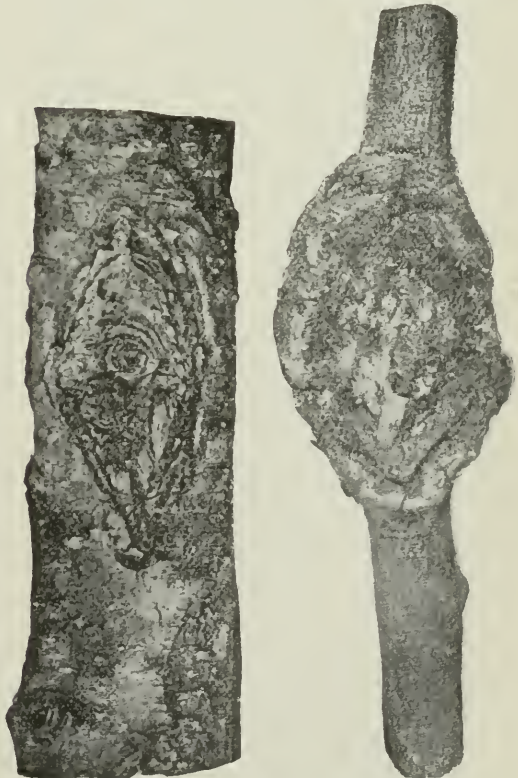


FIG. 2128. EUROPEAN APPLE CANKER.

with bordeaux mixture and care to prevent accidental injuries make up the preventative treatment. The larger diseased limbs may be saved from complete loss by cutting them off back of the cankered area and inserting cions of the same variety.

EUROPEAN CANKER (*not common*).—Only a few specimens showing effects of this trouble have been found in America, some coming from Nova Scotia and a few from New

York State. The cankers are unlike those of the *Sphaeropsis* and are caused by a different fungus, *Nectria ditissima*. They are well represented by the figures on preceding page, one showing a recent infection and the other an old canker.

Though rare in America, the trouble should be watched for by apple growers, as it is a serious pest in English orchards.

FRUIT NOTES.

HERE will not be a good half crop of apples in this district this season, although our own orchard will be more than that. There are very few Baldwins or Snows; Greenings are $\frac{1}{2}$ a crop, Spys $\frac{3}{4}$ or better, Canadian Red, Golden Point, Haas, Boston Star, Duchess, Minkles, Grime's Golden, and some of the pippins are fairly well loaded. Of the stock planted in 1897, Shackelford, Gideon, Ben Davis, No. 261 Russian, Yellow Transparent, Wealthy, Red Bietigheimer, and some others have all the fruit on they should have; Ontario is loaded, and I have thinned some of the trees by cutting off the fruit where too much is set. In pears, Kieffer takes the lead as usual; they will require thinning to get good samples; there is a fair crop of the following; Clapp's Favorite, Clairgeau, Louise, while Bartlett, Lawrence, the President Druard are very lightly loaded. In the planting of 1897 and 1898, several varieties, such as Winter Nelis, Doyenne, d'Ete, Druard, Kieffer, Duchess Precoce, Howell, Wilder, Rutter, Koonce, Krull, and many others have a few samples of clean nice fruit. So far this season we have had no blight although many were slow coming out in leaf. In plums it is needless to enumerate, as almost every plum of bearing age is loaded, having had no crop of plums for the last two years. The curculio got pretty well

starved out and very few put in an appearance during the early part of the season. Soon after the plums began to grow, we had several days of rainy and dark weather, consequently the plums began to rot on the trees, but as soon as I observed it I sprayed them with whale oil soap, 2 lbs. to a gallon of warm water, and the rot seemed to be cured at once, so that I believe there will be the largest plum crops this section ever had. Cherries promised well at first but the hot weather of the past weeks is ripening them prematurely. They will not be as large samples as usual. We generally have very fine cherries in this district, of superior quality, especially the Morello and Duke class. Strawberries were good while they lasted but their season was short; raspberries promise well, both black and red, and the growth of such kinds as Cumberland, Shaffer and Columbia are immense. Grapes promise well but set rather late. Blackberries and gooseberries are good but red and white currants only medium. We have been trying for some years to grow apricots and peaches, and at last we are to be rewarded, as most apricots are loaded and a few peaches are showing up; the trees are healthy, no curl leaf to speak of where whale oil soap was used. I think all our trees, both fruit and ornamental, have made more growth in

height and thickness of wood than any season before in twenty years. A great many caterpillar's nests showed up early in the season, but vigorous measures were adopted by nearly all fruit men, so that not many escaped to carry on their work of devastation. The plum tree aphid is in myriads in some localities, and the green apple aphid is very numerous in some places, but where spraying had been attended to with bordeaux mixture (and I added whale oil soap with it) the trees are clean and thrifty.

I am keeping notes from time to time and will have a full report after the crop is harvested. Nearly all our young trees are making vigorous growth. I am giving 9 acres of our growing orchard clean cultivation, the balance is in hoe crop, all roots, to see which succeeds the best. I have also tried three kinds of fertilizers, besides wood ashes and barn yard manure, but so far the manure has produced the greatest growth.

R. L. HUGGARD.

Whitby.

THINNING THE PEAR.

MR. Waite, in writing up Pear Culture, emphasizes the importance of thinning the fruit. We, at Maplehurst, have never yet satisfied ourselves that this work pays us nearly as well with pears and apples as with peaches, though there is no doubt of very considerable advantage, for otherwise the tree would waste a great deal of strength in maturing useless specimens. Mr. Waite writes :

No discussion of pear culture would be complete without including this important operation, and as it belongs on theoretical grounds with pruning, we may consider it here. It is a great mistake to allow pear trees to overbear. When the fruit is about an inch in diameter the trees should be gone over carefully and all the surplus pears, over and above what the tree can mature properly, picked off. Each branch should be examined, and, with the size of the mature fruit in mind, the number reduced to the proper

amount for that size of branch. All imperfect, wormy or distorted specimens should of course be picked off first, and only those which are expected to make fancy fruit left behind. Unfortunately, no general rule can be given to guide in thinning pears. The rule of one fruit to 6 inches, which commonly guides the peach grower in thinning peaches, cannot be definitely applied to pears. Experience is the only guide, and the grower may expect to allow a few trees to overbear before he learns the lesson of just how much to thin. Thinning not only improves the quality of the fruit of the current season, but it places the tree in better shape to bear the next year. As a rule, greater profits are secured by regular annual crops than by heavy crops during occasional years, for it commonly happens that such seasons are the very ones when fruit is plentiful and cheap and the profit in handling it very small.

THE FRUIT INSPECTION ACT will not, it seems, remain a dead letter, for Mr. W. A. McKinnon, formerly of Grimsby Ont., now of the Department of Agriculture, Ottawa, has been entrusted with its enforcement. He is now proposing plans to be

submitted to the Minister of Agriculture for approval. It is probable that inspectors will be appointed at all the important fruit centres, as well as travelling inspectors. It is hoped that this will put an end to the fraudulent packing of apples, peaches and pears.



TIMELY TOPICS FOR THE AMATEUR—XVIII.

ROUTINE work such as watering, staking and tying, will be the principal features demanding attention on the lawn or in the garden during August. The first mentioned duty is one that presents itself in a very serious aspect sometimes to those who have even a small collection of pot plants, especially where there is not an abundance of water near at hand.

It may also happen perhaps that those, who wish to have a few days' vacation away from home, are in a quandary what to do with their collection of pot plants whilst they are away. A word or two on the latter subject may perhaps be in season, and useful to readers of the Journal.

There is no better plan for economising both the supply of water and the care required by pot plants in summer than by plunging the pots wholly or partially in soil, coal ashes or sand.

The word "plunging" being a professional term it may perhaps not be understood by some of our readers. It consists merely in burying the pot wholly or partially in one or other of the materials before mentioned. Many pot plants that make their growth

in summer ready for winter flowering purposes, succeed best plunged out of doors in summer. Geraniums, stevias, genistas, violets, azaleas, etc., are usually treated in this way early in July, as the cold damp earth, or similar material around the outside of the pot, excludes the hot dry air and prevents rapid evaporation of the moisture around the roots of the plants, thus stimulating the plants with growth almost as well as if they were planted in the open ground. This class of plants however are only plunged deep enough so that the rim of the pot is just visible above the material they are plunged in. This allows of water being applied to their roots without waste in using it, as well as allowing a mulch of any kind to be placed around the plants for fertilization or other purposes. It is an easy matter to lift these plants in the fall into the house or greenhouse without in any way disturbing their roots or checking the growth of the plant. It may be necessary perhaps once or twice during the season to lift the pots up an inch or two from their positions, and give them a twist, so as to prevent the roots from penetrating too deeply through the drainage into the soil beneath. All strong grow-

ing plants such as stevias, geraniums, etc., require to be lifted occasionally in this way, when the pots are plunged.

This method of plunging is usually adopted by florists and nurserymen who grow large quantities of different kinds of plants in pots during the summer, it saves a great deal of labor and expense in watering, and is better for the plants mentioned than standing them about even in partially shaded positions during the summer.

The best method however for those who wish to preserve their plants for perhaps a week or ten days with no attention whatever, would be to bury the pots completely about an inch under the soil, in some place suitable for the growth of the plants, whether in a shaded position or out in the open ground.

The plants before mentioned except perhaps the azaleas would be best plunged in a fairly open situation, but palms, cordylines, ficus elastica, aspidistra and similar window and house plants would be best plunged in a partially shaded place.

If the pots are buried completely under the soil as mentioned, and both the pots and the soil around them given a good watering once, they can be left safely for a week or ten days or perhaps longer and will take no harm. They should be lifted however before heavy rains set in, or the drainage may become choked from worms entering the pots. Plunging the pots in coal ashes obviates to a great extent the last named difficulty, as worms will not stay in coal ashes.

Plants that are in a resting state during the summer, such as pelargoniums (show), amaryllis, bulbous tropeolums, cacti, clivias, etc., should be only plunged to the rim of the pot, in the event of having to leave them uncared for a week or so. This partial plunging will retain moisture sufficient to carry the plants through for two weeks, if they are given a good watering

when leaving, and the plants are plunged in a partially shaded position, as they should be.

Pot plants often suffer severely at this season of the year if left standing about only for a few days, even if regularly attended to. The process of plunging, etc., as recommended will be found very beneficial and save many valuable plants that would otherwise perish from drought when left unattended and the pots fully exposed to the air on top of the ground.

THE GREENHOUSE.—Watering and syringing the few plants that are indoors at this season will be the principal work demanding attention in greenhouse or conservatory, as most of the work done now in preparing plants for winter decorative purposes, will of necessity have to be attended to out-of-doors.

If herbaceous calceolarias are grown either for the window or greenhouse the seed should be sown this month, and treated in the same way as recommended in last month's issue of journal for cinerarias. Calceolarias like a cool moist atmosphere, and will not be hurried or forced unduly, being slow growing plants. Three parts of rich loam, one part each of sand and leaf soil with plenty of broken pot for drainage suits calceolarias when potting them from the seed pan. Use small pots and plunge the pots to the rim in sand in a cold frame when first potted. Sprinkle plenty of tobacco stems or dust outside the pots. Calceolarias are very liable to be destroyed by attacks of aphid or green fly and this is one reason why so few of them are grown.

The main batch of freesia bulbs should be potted during August; a few may be kept over for potting in September. Put six bulbs in a 4-inch pot, stand or plunge the pots outside in the open until early frosts threaten. Water them sparingly until growth commences to show.

The accompanying photo taken in February shows, on the right of the picture, a



FIG. 2129. FREESIAS IN FEBRUARY.

shelf of these free-flowering, sweet-scented little flowers that are so useful either for window or conservatory, and that are so easy not only to grow and blossom, but will also increase in numbers considerably if grown as recommended in previous issues of the journal.

Fancy or show pelargoniums should be cut back to within an inch or two of the last season's wood. Shake them out and repot into a size smaller pot, as soon as growth has re-commenced. Water sparingly and shade slightly. A cold frame and sash with slight ventilation will suit them best for a few days after potting when they can be left more exposed for a time.



FIG. 2130. CALLA.

Calla lilies should be repotted if they require it. A top dressing of rich soil will often suffice for these plants, but the drainage must be perfect if the latter plan is practised.

Azaleas should be watered and syringed daily.

FLOWER GARDEN.—Pinch the tips off from the growth of coleus plants to keep them in good shape.

Pansy seed should be sown about the third week in August, to secure plants for planting in cold frames in September. Pansies grown in this way come into flower early in May or perhaps by the end of April.

Label all seeds correctly at the time of picking them. If not done then, it is often not done at all, and when sowing time comes there is a difficulty in knowing just what varieties they are, resulting sometimes in good home-grown seed being thrown away, and perhaps expensive and inferior seed purchased in its place.

If you have a few nice plants of balsams in the border about the end of August, water them well and pot up a few into 6-inch pots; they will flower in the window long after those in the border are over. Pick the seed pods off and pot the plants carefully to ensure success.

Plants of good double or single petunias that are growing out in the border, may be cut back to within a few inches of the roots. In a week or two they may be potted into rather small sized pots. If grown on they will oftentimes flower freely during the winter, besides giving a supply of cuttings in spring for next season's use.

Lilium candidum bulbs can be removed and transplanted about the end of August. *L. tigrinum* should not be transplanted until early in September or later, but do not move lilies unless absolutely necessary as they object to being disturbed. Fork a good rich compost in near their roots instead, as this is often better than removing and transplanting them when they are not thriving.

VEGETABLE GARDEN.—Celery for winter use can still be planted. Mould or board up early celery so as to blanch it ready for use.

A sowing of viroflay or round leaf spinach will, if sown about the second or third week in August, give good returns in October and

November when there is little else but cabbage and cauliflower to supply the table.

White turnip and radishes sown early in August will often make paying returns early in the fall.

Spinach for standing over winter for spring use should be sown not later than the second week in September. The prickly seeded variety is the hardest.

Onions should be harvested when the bulbs will remove fairly easy from the soil. It is a mistake to leave them too long before pulling. Thoroughly dry the bulbs and place them on a shelf in a dry airy shed until early winter.

Gather seed beans when ripe, before the pods burst or the beans are half-rotten. Keep in a dry place after picking.

Secure the stable manure now that is required for the garden in autumn. Throw the manure into a pile and turn it over once in every two or three weeks. A few pails of water thrown on it will help rot it, if very dry weather prevails. Manure treated in this way comes in very useful for mulching asparagus, or for digging into ground where early spring crops are to be sown or planted and gives better results than raw manure dug into the ground.

Hamilton.

W. HUNT.

PREPARING PLANTS FOR THE WINTER WINDOW GARDEN.

IT is too often the case that the window garden is without flowers in abundance during the latter part of fall when all plants are gone outside, and in many cases this lack enters into the winter months. While it is not so easy to have an abundance of the general collection of house plants in bloom during this period, as nature seems inclined rather to retard growth even of the healthiest and strongest specimens until the genial sunshine of later months is more plentiful, there are a number of plants and common ones, too, which may be had in fair amount of bloom, if attention to preparing them for this purpose be given during the summer and early fall months.

The principle that no plant can be expected to flower profusely during summer and then do double duty by blooming well in the winter is a safe one on which to rely. Successful amateurs are learning that it is not only the florists who may have flowers in winter, but that if plants be given similar treatment as winter flowering ones receive at his hands, a fair degree of satisfaction may be had for early blooming, and a greater degree for still later in the season

when there is more sunlight, even in an ordinary window.

A good lesson may be learned by a walk through a florist's grounds at this time. There are quantities of bouvardias, carnations, heliotropes, geraniums, begonias, and the like without a single flower on them but in fine stocky condition. The flower buds are being all kept down by pinching, which results in the bushy plants that produce a heavy crop of bloom during the winter months because they are in the right condition for the work.

Many grow geraniums, etc., in pots during summer, which is a good plan, but if this has not been done those which have been planted in beds may be lifted, for though they may have become well established and are pushing root and top vigorously, the roots will not by this time have pushed out so far that much injury will result from lifting. Later lifting gives us much more top growth, but the roots have spread over so much ground it is impossible to retain them all.

There are a number of summer blooming bulbs which make fairly good early winter

bloomers. For example, if we take those late gloxinias which have not flowered at the time of drying off the rest, move them to a warm place and water freely, growth will continue so that flowers will come as an acceptable time. I have had gloxinias as late as Thanksgiving and even later. There were among my achimenes a small scarlet variety, unnamed, which was quite willing to flower in winter and often the early started summer plants would continue in bloom late into the fall. This is true of some varieties of tuberous begonias when grown in pots.

August is too late to sow seeds of primroses, cinerarias, etc. for early winter blooms, but just the time for making attractive specimens for spring. The plants of these for early blooming should now be making vigorous growth and be repotted quite often. They require a shaded place.

It will require some careful attention during the summer to keep insects from cinerarias, for the aphid is particularly fond

of it, and when once established it takes considerable to dislodge him without injury to the plants.

In the recent improvements made in that grand flower, the chrysanthemum, we have a nice number and variety of late blooming sorts which add greatly to the attractiveness of the window garden in late fall and early winter. If more plants of these late kinds than are needed to simply fill up the window be grown, and retarded by keeping them in a cold room after the buds have just begun to open, the season is easily prolonged through the holidays, but the blooms never seem to be as lasting when once allowed to open as those which had no interference with their natural course.

Watering of plants for winter blooming especially should be given careful attention, as a stint in this direction during hot weather cannot result in anything short of positive injury, and therefore decreasing the supply of bloom.—*Popular Gardening.*

SPIREA PRUNIFOLIA FLORE-PLENO.



FIG. 2131. DOUBLE FLOWERING SPIREA PRUNIFOLIA.

HIS pretty dwarf growing double Spirea is by no means a new introduction to the list of flowering shrubs, as it was introduced from China and Japan

over half a century ago. It is one of the best of our early flowering hardy shrubs and gives splendid flowering results, requiring scarcely any care and attention except perhaps to cut out a few of its strongest growing spikes of bloom, so as to keep the bush looking uniform and symmetrical. This shrub comes into flower early in May and continues in flower usually until well into June, retaining its pretty little daisy-like blossoms that it produces so freely in fascicles that almost cover its long slender branches. In a collection of only five or six flowering shrubs this pretty, easily grown, dwarf spirea cannot well be dispensed with. The specimen shown in the photo has been planted about fifteen years and has given annually its full quota of snow-white blossoms.

W. HUNT.

THE TULIP.



OF ALL the so called hardy Holland bulbs there is, in all probability, no other one so important for early spring display in the garden as the tulip. For beautiful forms and dazzling brilliancy of color the tulip is far in advance of all other spring flowers and nothing can equal its gorgeous appearance in beds, groups, lines or ribbons in the spring garden or in any other position in which it may be placed.

About the middle of the 15th century the tulip craze began in Holland and since that time there has been no decline of popularity of this most brilliant of spring flowers. In those days there were but very few colors and varieties and most people of the present day are surprised to learn that none but the most wealthy were able to obtain a single bulb, much less have them planted by the thousand in their gardens or lawn beds. Instances of the exorbitant prices demanded for bulbs in those days may prove of interest to readers. One single bulb of the variety "Semper Augustus" was sold for thirteen thousand florins,—about \$5,200. For a bulb of another variety a man paid his friend four thousand florins, a new carriage and a pair of handsome, harnessed horses. In another instance four brothers went into partnership to buy a single tulip bulb, no one of the four having sufficient means to buy it himself. These instances may be received with feelings of doubt but documents are on record to prove the truthfulness of the same and many interesting stories could be told of the great excitement that prevailed at that time and of how fortunes were made and lost in bulb speculation when the tulip mania was at its height in Holland.

Since that time there has come about a great change and now, instead of but few colors, we have them in selfs in all imagin-

able shades of purple, crimson, scarlet, pink, yellow and of the purest white. Of the striped flowers, there are violet, purple, crimson, rose, cerise and yellow stripes on snow-white grounds, and crimson, scarlet, maroon, and red flakes and feathers on rich gold grounds. Instead of paying a fortune for a single bulb we can now get them at such a mere trifle that it is possible for most every home to be supplied with hundreds of them. All this is the result of the work of the hybridist and the practical gardener. The former has spent his time and exercised his skill in improvement of form and color and the latter has studied out the cheapest mode of production and cultivation.

Of the many distinct classes we will in this article give a very short description of but a few, each having distinct characteristics and merits. (1) By blœmens (By blooms).—Of this class there are many beautiful, variegated flowers of many different colors but all of which are striped, flaked, feathered or spotted with white. They are extremely beautiful. (2) Bizarres (Bizarads).—This beautiful class is identical in every respect with the Byblœmens except its rich colors are dark and velvety and its variegations yellow where the Byblœmens are white. A magnificent class. (3) Sweet Scented.—The flowers of this class are more or less fragrant as well as beautiful. (4) Parrot.—These have exquisitely fimbriated petals, made up of crimson, green and yellow colors, some combinations of which remind one of the beautiful plumage of some species of parrot—hence the name. These are extremely large and distinct. (5) Darwin.—This is the most recent class among tulips. The flowers are large, borne on long, slender stems, and are richly colored, the shades ranging from black to crimson (mostly dark),



FIG. 2132. PARROT TULIP.

and are grand. (6) *Gesneriana*.—This is a most brilliant scarlet with blue centre, very large and in many respects the most gorgeous of all tulips. (7) *Single Early*.—Of this class there are hundreds of varieties and to it belong most of the single varieties now seen in cultivation. (8) *Double Early*.—This class furnishes most of the double tulips in cultivation. Some of them are almost as large and as fine as *Peonies*. (9) *Variiegated Foliage*.—This class has many varieties, both double and single. All have beautifully variegated leaves and the flowers are exquisite. This is a most charming as well as a rare class. (10) *Duc Van Thol*.—Of this class there are about a dozen beautiful varieties. They are dwarf of habit but are very early bloomers, in this respect leading all other classes. They are used mostly for forcing for winter blooming.

Tulips are of the easiest culture and when once secured they will last a life time, not only giving regular, yearly bloom but also rapidly increasing annually. They will thrive in any kind of soil, even hard clay. Although this is a fact they will give much more satisfactory results if care is exercised in the selection of their location. They thrive best in a rich, deep, sandy soil. This

should be well spaded up and made fine before the bulbs are set. They should be planted four inches deep and from four inches to six inches apart according to size of bulbs. The bed should be slightly raised above the surrounding soil so as to keep water from settling about the bulbs and roots.

In selecting a place for tulips a location should be chosen where they may remain for some years. Many people lift their bulbs every year after they have ripened up in the summer and replant them again in the fall. This is a mistake, for besides the annual labor in connection with lifting and replanting they will not give as fine flowers or multiply as rapidly. They should be left in the bed three or four years; then lift them, divide the clumps and replant.

When a new bed of tulips is being planted the work should be done early in the fall if the best results are desired. Although they may be planted on into November, if the soil is not frozen and still produce flowers, the results will not be satisfactory. The bulb has to make the most of its roots in the fall before the ground freezes up, for as soon as the frost is out of the earth in the spring the flower buds begin to appear. There is then no time for the bulb to make roots but instead the root must be feeding the flower and producing a new bulb. The sooner they are in the better as more time is given for root growth and the more root the larger and finer the bloom the following spring. Early in September is the time when tulips should be planted to give most satisfactory results.

Although tulips are perfectly hardy they do much better if they have some protection through the winter. A covering of coarse stable manure over the bed after it is prepared in the fall, to the depth of four or five inches is the proper thing. This will keep the bulbs from being repeatedly thawed out and frozen up should the winter be an open one, an action that is very trying on the

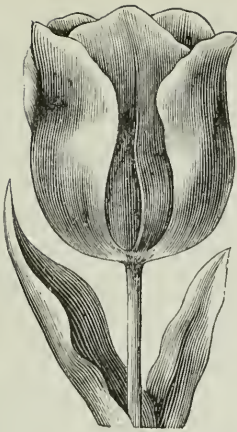


FIG. 2133. SINGLE TULIP.

vitality of the bulbs. Besides, the strength is washed out of the manure down into the earth by the autumn rains and thus the soil is enriched. By this annual covering the flowers are made much larger and far more brilliant in color. If manure cannot be secured use old straw or hay or any kind of litter. Of course this must be removed early in the spring.

In buying bulbs for planting do not get the cheapest mixtures that may be secured. Although they give much pleasure, with a little more outlay and the selection of some named varieties the result will be much more pleasing. As they are a thing that will last for years good varieties should be secured in the outset. Among the finest named "Early Single" tulips are :—Canary Bird, yellow ; Cerise Grisdeline, beautiful rose ; Cottage Maid, delicate rose, with white stripes ; Keizer's Kroom, bright crimson, broadly edged with yellow ; L'Immac-

ulee, pure white ; Pottebaker, bright canary yellow ; Van der Neer, the finest of all violets, extra large flower ; Proserpine, rose shaded with salmon, extra. Among late singles are Bybløemens, Bizarres and Parrots. In "Early Double" are :—Gloria Solis, scarlet deeply edged with bright yellow ; Le Blason, white tinged with rose ; Purple Crown, dark purplish red ; Rex Rubrorum, bright scarlet ; Titian, bronze red with pale yellow margin. "Late Doubles" are :—Blue Flag, purplish violet ; La Belle Alliance, violet and white ; Marriage de ma Pille, pure white ; Yellow Rose, golden yellow.

Most pleasing effects can be produced by filling a whole bed either with one variety or with two or three varieties coming into bloom at the same time. In planting more than one variety care should be taken to select colors that will "blend" and also varieties whose flower stems are of the same length. Nothing gives more displeasure to the true gardener than to have a bed of tulips made up of a hundred varieties, some in bloom today and others not until two weeks hence ; some dwarf, some tall ; some single and some double. Solid masses of color is what pleases the flower lover's eye.

The tulip,—the flower that many years ago caused men to go crazy, and the financial ruin of men of wealth ; the flower that was then and is now admired by all, and the growing of which furnishes employment for thousands in Holland, should be extensively planted by every flower lover in the land.

JOHN B. PETTIT.

Fruitland, Ontario.

PRUNING LILACS.—Whatever pruning is necessary should be done during the winter months when the plants are dormant, and this should always be performed with great care. The reason for this is obvious. The flowering buds of lilacs, like a great many

other woody plants, are formed during the summer of the year previous to which they flower ; an expert can readily tell in looking over lilacs in winter to what extent they will bloom in the following spring by recognizing whether the buds are leaf buds or

flowering buds. It is very easy then for an experienced pruner to go through some 'trimming operations' and ignorantly remove all, or nearly all, the flowering branches, and when spring comes there will be a round-headed example of the work of the pruning shears, minus flowers. All we do in winter is to remove and thin out the weak straggling branches from the interiors of the bushes, as these never carry flower buds, and thereby throw the energies of the plants into the flowering branches. During the growing season a constant watch should be maintained to remove sprouts and suckers from the base of the plants, as nearly all varieties of Lilacs that are purchased from nurseries are either budded or grafted, so that sprouts from the base are almost sure

to be from the stock and should be promptly removed as soon as noticed.

Lilacs are frequently attacked and killed by a species of borer. This borer may be slightly reduced in numbers, but there is no real, effectual remedy for this serious and destructive pest, and the cultivator is practically helpless in its presence. They are sometimes attacked by scale or bark lice, for which the best remedy is whale oil soap dissolved in the proportion of two pounds to one gallon of water. This should be rubbed on the branches in winter when the plants are dormant. If, however, the plants are seriously affected, the best plan is to destroy them, thus preventing its spread to other bushes.—*Vicks Monthly*.

SPIREA BUMALDA.



FIG. 2134. SPIREA BUMALDA.

This spirea is of Japanese origin, its dwarf habit and comparatively late flowering character making it a desirable shrub for use on lawns. The flowers are produced very freely in large corymbs at the terminal points of the young growth. When first

open the flowers are of a delicate pink color, changing in a day or two to a lighter shade of mauve pink. The plant shown in the photo has flowered freely every year during July for the past twelve years, frequently producing a few sprays of flowers at intervals until quite late in the autumn. The new spirea, "Anthony Waterer" sent out by the association as a premium this spring, belongs to the same class of spireas and is supposed to be an improvement on the variety figured in the photo, both in color of flower and habit of growth. The plant figured in the photograph is growing in an open situation fully exposed to the north-west winds, as well as the sun during summer and winter. It has had no protection beyond that given it by the snow which speaks well for its hardiness in this section of Ontario at least.

Hamilton.

W. HUNT.



FIG. 2135. LAWN VIEW.

RENOVATING AND MULCHING LAWNS.

ALTHOUGH this is not the proper season for applying a mulch to lawns, a compost suitable for this purpose should be in course of preparation, so as to be in readiness to be applied to the lawn in early autumn.

The too common practice of applying late in the autumn—or perhaps in early winter—a heavy coating of raw stable manure is productive of very little good to lawns, to say nothing of its unsightly appearance during a great part of the winter, when there is no snow to cover it from sight. Another objection to this kind of mulch is that it is often the means of introducing a crop of weeds on the lawn, from weed seeds and roots that have not been destroyed by a proper preparation of the material previous to its being used. Even as a fertilizer this mulch is of very little benefit, as owing to its unsightliness, objectionable odor, etc., its application of necessity has to be deferred until snow and hard frost appear. This, and the necessity of removing it early in the

spring, gives it very little opportunity to convey any of its fertilizing properties to the lawn.

Oftentimes the mulch mentioned is applied with the idea of protecting, and preventing the finer grasses and clover from being winter killed. A very slight mulch of this kind will doubtless in many cases assist in this way—especially where the sod has been recently put down—but if the mulch is applied too heavily as is often done, its application is productive of more harm than good, as it forms the basis for a thick coating of ice and frozen snow, that is not beneficial to the existence of many of the finer grasses and clover.

Imperfect subsoil or under-drainage is also in many cases the cause of clover and the finer lawn grasses being killed out on lawns in winter. If the under-drainage of the lawn is imperfect, no amount of mulching or top-dressings will be of any benefit, or produce a good close sod, until the lawn has been thoroughly under-drained.

A thin coating of well rotted stable manure distributed evenly over the lawn in late autumn will be found beneficial as a fertilizer. If given a good raking down in early spring the greater part of this mulching will be retained, and so benefit the growth of the sod during the summer season.

The most effective and lasting mulch, however, for a lawn that is not in good condition, is a good rich earth-mulch.

Equal quantities of any light friable soil, free from roots or weed-seeds, thoroughly mixed with some well rotted stable manure, makes an ideal mulch for a lawn. This compost should be obtained now—if a mulch is required for the lawn—and thrown into a heap and turned over once in every two or three weeks until October, when it can be spread on the lawn at any time after grass cutting has ceased. This turning over or mixing process should be done so as to place the compost that is in the centre of the heap as much as possible on the outside each time the compost is turned over. This will expose all of the compost to the light and air, and allow any weed-seeds to germinate, and thus destroy them by successive turnings. All sticks, gravel or roots should be picked out when turning over the compost.

If this mulch is applied early in the autumn, and evenly distributed over the lawn by a thorough raking with an ordinary garden rake, it will not only act as a fertilizer but will also level up any uneven places caused by over-wear, or by the extraction of coarse weeds, etc. An earth mulch also furnishes a good surface soil for starting into growth any lawn-grass or clover seeds that may be sown in early spring to thicken up and improve the sod.

A sufficient thickness of this mulch can be spread on the lawn early in autumn to almost cover the grass from view. The greater part of the mulch will have become absorbed and lost sight of by spring. Sufficient however will usually be left on the surface to encourage the growth of lawn-grass and

dwarf clover seeds, and for fertilization purposes, without in any way interfering with grass cutting early in the season.

The quantity of mulch required to be spread on, must be determined by the size of the lawn and the condition the sod is in. If the sod is very broken or uneven it will require a much heavier mulching than if the grass is in fairly good condition.

Any places on the lawn that are almost bare of grass should be first loosened up an inch or two deep before the mulch is applied; or the mulch may be forked into the soil to that depth and good results attained by sowing lawn-grass seed on it in early spring.

A thin dressing of bone dust, wood ashes, or some of the commercial fertilizers sold for this purpose, are good stimulants for a lawn that is in a fairly good condition. These should be applied early in the spring. But where the grass on a lawn is thin and the surface uneven and broken, there is nothing better to renovate and improve it permanently than a good earth-mulch.

A well-kept lawn, even if it be only a few square yards in extent, adds very much to the beauty of its surroundings, but to attain the best possible results in this direction it requires, once in every two or three years, some encouragement in the shape of fertilizers or mulchings, beyond the ordinary routine care of watering and mowing given it during the summer. Lawns, like pasture fields, soon fail to give satisfactory results unless renewed or stimulated occasionally, a fact that is often lost sight of, and one that will often account for so many lawns becoming infested with coarse, unsightly weeds. On lawns where a close growth of grass and clover can be secured, the less room for, and the fewer weeds will be found. A good rich mulching once in every two or three years is one of the main features necessary in the care of a lawn so as to have it in the best possible condition.

W. HUNT.

Hamilton.

PEONIES AND THEIR CULTIVATION.*

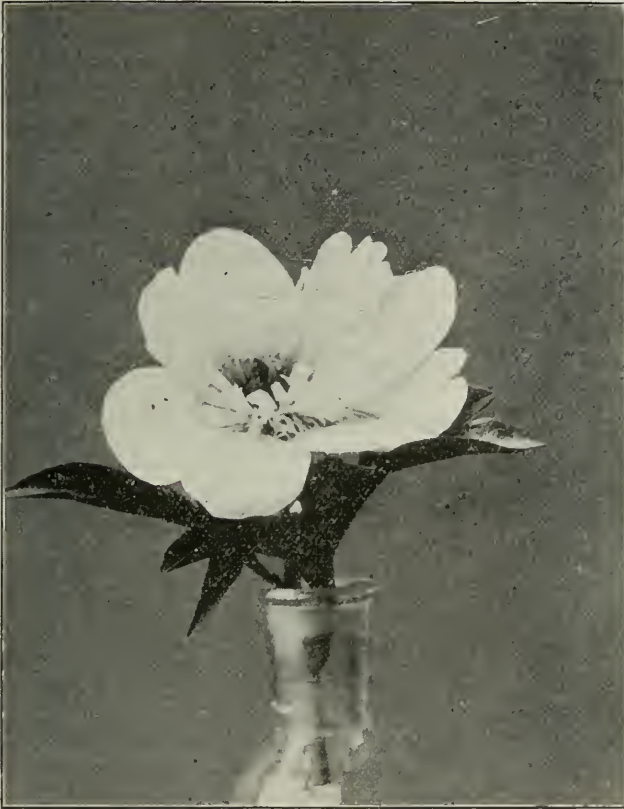


FIG. 2136. SATSU-GASHIRA, PEONY.

THE Chinese herbaceous peony originated in Siberia. Its tuberous roots were used by the Tartars as an article of food.

Since Messer Schmidt in 1725 gave the original single white form a botanical status, it has been called by various authorities the white flowering, the edible, the fragrant, and now commonly the Chinese peony.

PROPAGATION.—There are three methods by which Peonies are propagated; by division of roots (the most prevalent); by grafting to rapidly increase rare sorts, and by seeds to obtain new varieties.

DIVISION OF ROOTS.—This is the easiest

and most satisfactory method. The roots may be lifted and divided any time from the middle of August until the stalks appear again in the spring.

The best time, however, is in the early fall when the cut surfaces soon callous over and new rootlets form before the frost sets in.

Take a large stool, cut off the leaves and separate into as many divisions as can be made with an eye to each tuber.

In digging, care should be taken that all of the tubers are dug up, for if not, they may remain dormant a season, and then produce a shoot, giving rise to many stray plants frequently found in old beds.

Tubers divided without an eye should also be planted, as they often act in a similar manner, and make a showing above ground in two years' time.

GRAFTING—This method is resorted to in herbaceous Peonies when new and rare varieties are to be rapidly increased.

An eye of the desired sort is inserted into the tuber of some strong growing variety, from which all the previous eyes have been removed.

This operation is generally performed in August. They should be placed in frames for the winter and transplanted the next year into nursery rows.

SEEDS.—Propagating by seed is somewhat tedious, and is only resorted to for increasing distinct species and for obtaining new varieties by hybridization.

*This paper on the peony, by W. A. Peterson, is reprinted from Bailey's Encyclopedia of Horticulture, an invaluable work to all students of Horticulture.



FIG. 2137. SOLFATERRE, PEONY.

A clay sub-soil, if well drained, is very beneficial when blooms are desired, but the tubers ramify more in lighter soil if grown for propagating purposes.

In preparing the bed it should be thoroughly trenched two or more feet deep, working in a great quantity of good rich cow manure, as they are gross feeders.

The ground should be kept well cultivated and an annual top dressing put above the plants in November, which should be forked into the soil the next spring.

Peonies should have a liberal supply of water at all times, and especially while in bloom.

Liquid manure when applied during the growing season and at a time when the ground is dry, gives good return, both in the growth of the plant and size of the bloom.

PLANTING.—The crowns should be set two inches below the surface.

In transplanting it is a good plan to remove all the old earth so as to start with fresh unimpoverished soil next to the roots.

The flowers produced on small divided plants are apt to be imperfect, but when thoroughly established a plant will continue to bloom, if undisturbed, for upwards of twenty years.

During the period of blooming an inconspicuous wire support is desirable, as a heavy rain often beats down the flowers.

FORCING.—Lift the plants in October and place in a cold frame where they can be easily gotten at when the time for forcing arrives.

When brought under glass, a uniform temperature of 55 to 60 degrees should be maintained.

By feeding well with liquid manure, strong blooms can be produced in eight weeks.

The seeds should be gathered as soon as ripe and kept damp until sown in November.

A mulch during the first season will keep the ground moist and prevent weeds from growing.

Generally two years are required for the seed to germinate, and three more before a well developed bloom can be expected.

Nearly all of the one thousand or more named double varieties grown at present have been obtained by crossing the various forms of *albiflora* and *officinalis*.

In 1855 only twenty-four double varieties were known.

SOIL.—Peonies grow in all kinds of soil, but do best in a deep, rich, rather moist loam.

A two years' rest is necessary for the plants before being forced again. To secure extra fine blooms on double flowering varieties, remove the lateral buds as soon as formed. When the first lateral bud is retained instead of the terminal one, a later period of blooming is obtained.

The old flowers should be cut off so that no unnecessary seed follicles will be formed, and thereby exhaust the plant.

It is also important to remove the faded foliage on all peonies in November, so that it may not interfere with the next season's shoots.

GROUPING.—The old-fashioned early red "piny" of the time of Pliny is still a favorite in our gardens, and with the host of modern varieties available, ranging from purest white to deepest crimson, in such a diversity of form and size, afford great opportunity for the carrying out of extensive color schemes.

Peonies do well in partial shade which prolongs and intensifies the color of the bloom, and therefore can be used to advantage to brighten up sombre nooks.

The period of blooming for herbaceous peonies ranges from the middle of May through the month of June. They grow from one to three feet high, and are therefore suitable for planting in front of shrubbery, along drive ways, and are especially pleasing when entering into a distant vista.

When planted in a border with fall-blooming perennials such as phlox, funkia, etc., its rich glossy foliage is very effective. In delicacy of foliage the peony more nearly approaches the rose than any other flower.

The single-flowering sorts are not so popular as the double ones, for they do not keep as long when cut, and fade more rapidly when on the plant.

Peonies, like most tuberous plants, when dormant, stand considerable exposure and can be shipped long distances with safety.

This family of perennials is never attacked by any insect, animal or fungous disease; neither do they require any covering during the severest weather; in fact they are among the most hardy, showy and easily grown of all the garden flowers.

THE CALIFORNIAN POPPY.—The miles,—the acres,—of wild flowers in bloom in February and March, in Southern California, almost surpass belief. The Golden Eschscholtzias, or Californian Poppies, make not one but many a field of cloth of gold. We have the large one, with its four petals of one unvaried gold; another, the centre of which is of the same sunlit hue, while the borders of the petals are lemon color; yet another with petals almost white, the color of a child's flaxen hair. They last some time, wrapping their drapery about them in the late afternoon, sleeping sweetly till they may greet the morning sun; and if a cloud

obscures his face, they keep on until he comes in brilliant array. But the loveliest thing about these devoted admirers of the sun is, when their bloom is over we see them no more.

We never have the pain of seeing so much beauty fade, wither and go to decay. The wind takes their ripe petals away, while in the glory of apparent youth and vigor,—they are simply seen no more; but a pretty seed-vessel appears in their place, the pod elongates, seeds ripen and scatter to develop another harvest of sunbeams.—*Meehan's Monthly.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.
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 it 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.

NOTES AND COMMENTS.

THE 25TH ANNUAL SESSION of the Georgia State Horticultural Society will be held at Millidgeville, Ga., on Wednesday and Thursday, August 7th and 8th, 1901.

COLD STORAGE on a large scale is proposed in the County of Argenteuil, Quebec, by capitalists of that Province, the object being to preserve good products of farmers with a view of their ultimate export. A subsidy of \$5,000 is asked of the Government.

THE REPORT.—We regret to announce that the Department of Agriculture has not been able to bind the Report in cloth as usual, for our members, having used the money in printing several thousand additional copies for the members of the Farmers' Institute. Our members will therefore receive paper covered copies this year.

THE APPLE CROP.—Recent reports indicate a far worse apple prospect than at first reported. The fruit has dropped continuously until in orchards reported fair, the prospects now are poor. Taking the word "average" to mean from 40 to 60 per cent.; "under" to mean below 40 and "over" to mean over 60 per cent.—the reports from Ontario and from the middle and eastern States all show a crop under the average if indeed it should not be called poor to very poor. The western apple belt, though a little better, is still uniformly under the average.

J. W. BIGELOW, Esq., president of the Nova Scotia Fruit Growers' Association, has issued the following bulletin respecting the prospective apple crop:

From the most reliable information obtainable, the apple crop generally is a compar-

ative failure in Ontario. The same is true of the apple crop of New York and most of the Eastern States, and a general average of all the apple producing territory east of the Mississippi river gives less than fifty per cent. of an average crop.

Our Nova Scotia crop may be safely estimated at seventy per cent. of good apples, and if packed strictly in accordance with the Fruit Marks Act now in force, we may reasonably expect the highest price paid for apples during the past ten years.

TORONTO FRESH AIR FUND.—The Toronto Fresh Air Fund has entered upon its eighth year's work, and has for its object the sending away to the country for two weeks, mothers and children who are badly in need of a change. Good homes have been provided, many of them on farms, where they get substantial food and are well cared for. These children and parents are selected by the best known Mission Workers in Toronto, who are well acquainted with every case that is dealt with. For the mothers and babes who are unable to leave home, day excursions are arranged, and about one hundred at a time are taken to one of the Parks on the Lake Shore, and before leaving for home refreshments are served to them. The pleasure and the profit that is the outcome of this work is inestimable. Thinking that some of our readers might like to help their poorer brethren, we will receive subscriptions and acknowledge receipt, and forward it to the Treasurer in Toronto, or they may be sent direct to the Rev. H. C. Dixon, Room 6, 15 Toronto St., Toronto.

A NEW APPLE BARREL.—A new apple barrel—an inspection barrel it is called—is being introduced on the Chicago market. It is described as follows: Six inches from the end of a stave is sawed crosswise $1\frac{1}{2}$ inches on a bevel, and then sawed length-

wise $1\frac{1}{8}$ inches, giving an integral tongue, still attached to the stave and easily sprung outward. These staves are from $3\frac{1}{2}$ to 4 inches wide and $28\frac{1}{2}$ inches long. Four of these staves are put into a barrel (on opposite sides of the barrel), so that two of the tongues open from end of the barrel and two from the other; and, by raising the middle hoops and springing out the tongues, a view of the fruit is to be had every quarter of the distance around the barrel nearly its entire length, a fact which the patentees claim would completely discourage the deceptive packer in trying to mix poor fruit with the good, as there is no room for the poor fruit, which fact is sufficient guarantee that fruit packed in these barrels will be true to mark and of the grade represented.—*Fruit Trade Journal*.

CRUDE PETROLEUM vs. arsenic as an insecticide has been under test by Mr. G. E. Fisher, Provincial Inspector for San Jose Scale. Hitherto this spray has been considered quite unsafe as an application to the foliage, and only recommended for use before it appears. On the 21st of June Mr. Fisher applied a spray of Paris green to some trees affected with canker worm, and of crude petroleum to others. Four days after he examined the trees and found those sprayed with crude petroleum more completely cleared of worms than those treated with arsenic, and the foliage, so far, not injured in the least by the petroleum. No doubt Mr. Fisher has the secret of safety in the manner of application. The danger is in giving an overdose, and most spray nozzles are altogether too coarse and cannot be regulated so as to produce a vapor. The smallest Vermorel nozzle made has an aperture of $\frac{5}{100}$ of an inch, or 20 diameters to the inch, but Mr. Fisher has employed a watchmaker to make much finer ones, some of them even as small as $\frac{2}{100}$, or fifty to the inch. With those an exceedingly fine

spray was made, and every part of the foliage covered, but with so small a quantity of petroleum that no harm was likely to result. This is a much more sensible plan than that of attempting to mix kerosene and water, for they will only mix mechanically, not really, and will separate almost immediately. It is simple of application and in every way an admirable insecticide. It can be applied without injury to the foliage.

We have ourselves tried pure kerosene oil as an insecticide, applying it with an atomizer in very fine spray to rose bushes for the aphids, and had excellent results. We found the foliage, however, destroyed wherever the spray was applied a little too freely. The crude petroleum is less injurious, however.

THE FRUIT PROSPECTS for 1901 seem to grow worse every day. The cherries at first promised a fair crop, and of some varieties the green fruit hung upon the trees in great abundance, but the nearer it came to maturity the less there remained, until harvest time when we began to gather, and lo ! between rot, and blight, and worm, there was then none fit to market. Our cherry plot, from which we expected such a rich report, is so barren of fruit that we cannot find even a single specimen for purposes of study.

The few apples which had set are rapidly falling to the ground, until in an orchard at Maplehurst, where we should count the crop by thousands of barrels, there will probably not be fifty barrels of winter apples !

Peaches are holding their own very well, and now that we are so well on in the season, we doubt not they will hold to the end, and that there will be a pretty good crop of this luscious fruit.

Pears and grapes promise better than any other fruits, and should high prices prevail for those fruits owing to the scarcity in other parts; then we may hope for a fairly remunerative season after all.

No doubt the cause of the cherry and

apple failure is the continuous rains in the month of May, while the bloom was on. The effort of nature is to produce seed and the fruit is only the envelope to protect or nourish the seed ; this washing out of the pollen prevents fertilization of the seed and it therefore becomes aborted. The fruit envelope therefore in Nature's view is useless and the whole thing is cast of as worthless.

AMERICAN POMOLOGICAL SOCIETY.—The details of the meeting of the American Pomological Society, which will be held in Buffalo, September 12 and 13, 1901, are rapidly being perfected and will soon be announced. The program contains the names of a number of the most prominent horticulturists of the United States and Canada, and is particularly rich in topics of practical importance to fruit growers. Among the subjects already arranged for are the following :

“A Comparison of Eastern and Pacific Coast Fruit Culture,” by Prof. L. H. Bailey, Ithaca, N. Y.

“Orchard Renovation,” by J. H. Hale, South Glastonbury, Conn.; to be discussed by R. S. Eaton, Wolfville, Nova Scotia; W. T. Macoun, Ottawa, Canada, and others.

“Quality and the Market,” by C. W. Garfield, Grand Rapids, Mich.; to be discussed by S. D. Willard, Geneva, N. Y.; L. A. Goodman, Kansas City, Mo., and others.

“Development and Needs of the Export Trade in North American Fruits,” by L. Woolverton, Grimsby, Ontario; to be discussed by Geo. T. Powell, Briarcliff Manor, N. Y.; H. M. Dunlap, Savoy, Ill.; Henry E. Dosch, Hillsdale, Ore., and others.

“Fermentation of Fruit Juices by Control Methods,” by Prof. Wm. B. Alwood, Blacksburg, Va.

“Some Experiments in Orchard Treatment and the Results,” by Prof. F. M. Webster, Wooster, Ohio.

“The Utilization of Culls in Commercial

Orchards," by Judge F. Wellhouse, Fairmount, Kans.

"The Mango ; Its Propagation and Culture," by Prof. E. Gale, Mangonia, Fla.

"Loquat Culture," by C. P. Taft, Orange, Cal.

One evening will be devoted to a joint session with the National Bee Keepers' Association, during which the following topics will be discussed :

"Spraying Fruit Trees in Bloom," by Prof. S. A. Beach, Geneva, N. Y.

"Bees as Fertilizers of Flowers," by Prof. James Fletcher, Ottawa, Canada.

The discussion of these topics will be led by Mr. R. M. Kellogg, Three Rivers, Mich.

Other topics will be announced later and a detailed program mailed to all members of the society and delegates to the meeting, as well as to such persons interested as request it of the Secretary.

Delegates have already been appointed by more than twenty State and Provincial horticultural societies, and the indications are very favorable for a large attendance.

The fruit exhibit of the society will be held in the Exposition Horticultural Building, space having been generously granted by the Exposition authorities. Exhibits entered for the Wilder Medals of the Society will also be eligible to Exposition awards. Those contemplating the exhibition of fruits should make early application for space to the Secretary. All persons interested in fruits and fruit culture are welcomed to membership.

Announcement of hotel rates, meeting place and other details will be made at an early day.

The officers of the Society are : President, Chas. L. Watrous, Des Moines, Ia.; First Vice-President, Thos. Meehan, Germantown, Philadelphia, Pa.; Secretary, Wm. A. Taylor, 55 Q. street northeast, Washington, D. C.; Treasurer, L. R. Taft, Agricultural College, Michigan ; Chairman Executive Committee, Chas. W. Garfield, Grand Rapids, Mich.

QUESTION DRAWER.

Crown Grafting.

1234. SIR,—I saw article re crown grafting recently in Horticulturist. Do you consider it perfectly safe to cut off a tree from 5 to 8 inches in diameter, at 3 to 5 feet from the ground and insert the crown graft? Is such work ever done? Or is it preferable to cut off one or two leading branches one year and the others the next year?

Yours truly,

Iroquois Ont.

A. B. CARMAN.

Crown grafting is not as good as cleft grafting, except in the case of largelimb, too old to split. These can be most successfully done in this way, the growth of the young scions soon covering the sawn surface, which they could not do if the wood were cleaved. Another reason for describing crown grafting is its simplicity. Anybody

can do it, and he needs no special tools, and no wax. All he needs is a scion, some string and paper, some mud, and a sharp saw. The method is quite successful, as a large number of old trees, crown grafted, testify at Maplehurst.

Grass Dying.

1235. SIR,—Can you tell me the cause, and if so, a remedy for dead spots of from eight to ten inches in diameter appearing in my lawn? The house was built last summer and earth from the cellar with the addition of fresh earth to fill up, was graded and put in good shape last fall. This spring I sowed bone dust, and a day or two later grass and clover seed mixed. It took well and grew splendidly, making a fine lawn which I have mowed several times already. Lately, however, the dead spots spoken of have

appeared, the clover not being affected so much as the grass which turns brown, and is withered as if about dead. There are fifteen or twenty such spots. I thought lime from the brick walls might be the cause, but in only one or two of the spots could I find any, and then but very small pieces. An answer will greatly oblige,

SUBSCRIBER.

Evidently something is wrong with the soil in those spots. Possibly too much lime or other element. Possibly the best remedy will be the removal of the earth five or six inches deep, and the replacing with earth that is rich and clear of such impurities.

Moth Catchers.

1236. SIR,—As I am interested in fruit growing, I sent for a moth-trap from S. A. Haseltines, Springfield, Mo., U. S., which did not give very good satisfaction, so I got a contrivance made to fit on an ordinary farm lantern which proved more satisfactory. If I were to send a number, free of all cost, would you mind trying one yourself or

give them to a good practical fruit grower who will give them a fair test?

I would also like to know if there are any moths beneficial to farmers, if so, where will I find their description and the benefits the farmers derive from them.

Branchton.

A. LAKE.

We cannot say much in favor of this haphazard, wholesale method of killing insects, not one in twenty of which would be injurious to fruits, while friends as well as foes would be included in the wholesale destruction. Those who have examined batches, so collected, say that very few of the codling moths are attracted by the light, and this is one of the most serious of our insect enemies in Ontario.

For information about injurious insects we would refer our subscriber to "Saunders' Insects Injurious to Fruits," or to "Weed's Insects and Insecticides."

Open Letters.

The Fruit Marks Act.

SIR,—While admitting your right to criticise the action of the Senate regarding the Fruit Marks Act, 1901, will you permit me to say that the comments in July number of the Horticulturist furnish an amusing commentary on the claim for superior knowledge. You set up for certain "wise heads," who have taken some interest in this legislation.

In the first place the Bill you publish, "as finally amended and assented to by the Senate and the House of Commons," is not the act as so passed. You are evidently unaware of the fact that in addition to striking out clauses 6 and 7 as the Bill passed the Commons, the Senate made three other important amendments thereto.

As one who took part in expunging clauses 6 and 7, I might reply to your complimentary remarks by saying that the persons who drafted these clauses and asked parliament to ratify them, were evidently ignorant of their real bearing, but I forbear, as that might seem discourteous. Here are the clauses in question.

6. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked "A No. 1 Canadian" unless such fruit consists of nearly uniform size, of good color for the variety, of normal shape and not less than ninety per cent. free from scab, worm holes, bruises and other defects, and properly packed.

7. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked the grade "No. 1 Canadian" unless such fruit consists of specimens of one variety, sound, of fairly uniform size and not less than eighty per cent. free from scab, worm holes, bruises and other defects, and properly packed.

These clauses if enacted would declare to the world that a barrel of No. 1 Canadian apples might contain 20 quarts of wormy or scabby apples, and that a barrel of A No. 1 Canadian apples might contain 10 quarts of similarly defective fruit. It would in my opinion be impossible to give a more damaging advertisement than this, to Canadian fruits, and our American competitors would be very dull if they did not point triumphantly to the low standard thus created by the Parliament of Canada. Clauses 6 and 7 were vicious because they

aimed to reduce the standard of Canadian apples so as to conform with practices which unfortunately some of our shippers have resorted to. The aim of the Act as it now stands is to compel packers to raise their standard.

There is nothing in the Fruit Marks Act, 1901, which provides for any inspection in Canada except an examination for detective purposes, therefore, I cannot understand your meaning when you say: "Now by these sections a grower might contract with a buyer in England for a certain number of barrels of apples of grade No. 1 Canadian, a grade well defined, making the packages subject to inspection, and the buyer could with confidence make such purchase without seeing the goods."

Surely it is not claimed that sections 6 and 7, if enacted, would make apples hold up against bad conditions on shipboard so as to stand inspection in Great Britain.

That all the amendments made by the Senate to the Bill in question were promptly accepted by the House of Commons with the concurrence of the Government is pretty good evidence of the correctness of the lines on which the Senate acted.

Tulloch Avenue, I am yours,
Charlottetown, P. E. I. D. FERGUSON.
July 22nd, 1901.

NOTE BY EDITOR.

Since "half a loaf is better than no bread," and the bill is settled for the present, we wait to see its workings before criticising farther the omission of those important clauses, No. 6 and 7. We have no doubt that the Honorable D. Ferguson is as anxious for the advancement of the interest of the fruit growers of the Dominion as we are, and we only hope the bill as amended through his instrumentality will tend to raise

the standard of Canadian apples in foreign markets.

On first thought it does seem too much freedom to make allowance for even a small percentage of defective fruit in a barrel, but if our honorable friend were an apple packer he would know how difficult *absolute perfection* is, and how easy, when pushing the packing with hired help, it is for one apple in ten to pass unobserved into the barrel, though aiming at perfect samples only. This 80 or 90 per cent. perfect would be a very high standard compared with Canadian apples as usually packed by speculators, in which 80 or 90 per cent. are blemished and the 10 or 20 per cent. of perfect apples used to face up the ends of the barrels.

Our honorable friend claims that these clauses would not give any confidence to a buyer in England when bargaining with a grower or packer in Canada for a shipment of apples, which were to be A No. 1 Canadian, of a certain specified minimum diameter, because they would not necessarily be inspected, but only subject to inspection. On this we beg to differ from him; we believe the fact of a few travelling inspectors being appointed, with power to impose heavy penalties upon any shipper found selling apples marked with the Dominion grade marks, would prevent any one using those marks unless his goods warranted their use, and this fact would give confidence to the buyer.

However we are thankful for small favors, and hope some future day we may yet have the satisfaction of having certain defined grades which will form a basis of sale to foreign buyers.

Our Affiliated Societies.

COBOURG.—The Society here issued a circular about April the 20th, giving with other information, the following full list of premiums for each member: *Paeonia nivensis*, *Iris Germanica*, *Iris Kœmpferi*, *Kelway's English Gaillardias*, *Phlox*,

Doronicum excelsum, *Spiraea*, *Japonica Bumalda*, *Baker's Extra Early Potato*, *New Triumph Celery*, *Kendall's Early Giant Sweet Corn*, *New Dwarf Telephone Pea*, *White Pearl Radish*.

FRUIT CROP REPORT.

	Apples.	Pears.	Peaches.	Plums.	Grapes.	REMARKS.
ESSEX Co.— W. W. Hilborn, Leamington.	under	average	under	over		Apples will be a very small crop.
ORILLIA.— C. L. Stephens.	average	under		over		
WENTWORTH Co.— M. Pett, Winona.	under	over	average	average	over	The few apples that did set are dropping.
W. M. Orr, Fruitland.	under	over	average	over	over	No fungus.
OXFORD Co.— J. S. Scarff, Woodstock.	under	average	average	under		
LINCOLN Co.— A. M. Smith, St. Catharines.	under	over	under	average	over	
VICTORIA Co.— Thos. Beall, Lindsay.	under	average		under		
OTTAWA.— R. B. Whyte.	under			under		
ONTARIO Co.— Elmer Lick, Oshawa.	under	average		average	over	
R. L. Huggard, Whitby.	under			average		
GRENVILLE Co.— H. Jones, Maitland.	under	under		none		
PERTH Co.— T. H. Race, Mitchell.	under	average		none	none	The only apple near an average is the Spy.
SIMCOE Co.— Stanley Spillett, Nantyr.	under	average		over		
HALTON Co.— A. W. Peart, Freeman.	under	average		over	average	
GREY Co.— J. I. Graham, Vaudeleur.	under	over		average		
SIMCOE Co.— G. C. Caston, Craighurst.	under	average		over		
PRINCE EDWARD Co.— W. Boulter, Picton.	under	average		under		
ALGOMA.— Chas. Young, Richard's Landing.	average	average		under		

Under average—Under 40% of a crop.
Average—40% to 60% of a crop.
Over average—Over 60% of a crop.



FIG. 1892. THE CUMBERLAND RASPBERRY.

Photo by Miss Brodie

THE CANADIAN HORTICULTURIST



** SEPTEMBER **

OUR PLANT DISTRIBUTIONS FOR 1900.

THE CUMBERLAND BLACK RASPBERRY.

IN the 11th of July, we received a basket of fine branches of the Cumberland Raspberry from Mr. W. E. Wellington, grown at Fonthill. Nearly all the berries on each branch were fully ripe, and as Gregg was not yet in the market we were impressed with the earliness of the variety, as well as its evident productiveness. We accordingly took a photograph of it which forms the frontispiece of this number, and have decided to place it on our spring plant distribution list for 1901. The berries are of fine size and good flavor, and these characteristics combined with their earliness and productiveness make the Cumberland a most promising commercial variety. This year it began to ripen at Fonthill about the 5th of July. The plant is thought to be a seedling of Gregg, with a dash of blackberry blood in it. It originated nine years ago with David Miller, of Maryland, and is thought to be the most profitable and deservable market variety yet known. If we are to believe all the introducers say of it, it is the "Business Berry," having immense size, firmness and great

productiveness and wonderful hardiness, enduring without injury, we are told, 16° below zero, (Fahr). In size it is said to be "simply enormous," the berries often reaching $\frac{7}{8}$ of an inch in diameter; those photographs were $\frac{3}{4}$ of an inch in diameter, but the dry season would account for their being a little below size. Now, if the berry equals half what its introducers say of it, surely it is well worth introducing to Canadian Fruit Growers.

SPIRÆA, ANTHONY WATERER,

(*S. Japonica Bumalda.*)

At the same time that the Cumberland Raspberry came to hand, July 11th, we also received from Mr. Wellington a basket of the new Spiræa, which is one of the most desirable of the newly introduced shrubs for the lawn. He writes, "They are quite a sight in the Nursery rows, and they continue blooming till frost comes." The R. N. Y. says of it, "The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth, the umbels a bright pink color. A profuse bloomer."

Prof. McCoum, of the Central Experimental Farm, Ottawa, writes the following description of it: "Origin, Europe; height, 1 foot; begins to bloom first week in July, and continues in flower a long time. Flowers, a bright, purplish red, borne in compact heads. One of the prettiest dwarf shrubs yet tested at Ottawa."

The members of the Ontario Fruit Growers' Association will be pleased to learn that these two plants, the Cumberland Raspberry and the Spiræa, Anthony Waterer, have been selected for the plant distribution in the spring of 1901, and our subscribers will have an opportunity of testing them.

TO REMOVE FRUIT STAINS from enamel saucepans use chloride of lime. Fill the saucepan with cold water, add one teaspoonful of chloride of lime to each half gallon, and boil until the stain is removed.—*Rural New Yorker.*



FIG. 1893. SPIRÆA, ANTHONY WATERER.

CURRANTS IN 1900.



FIG 1894. VERSAILLAISE (REDUCED).

FOR a few years past Currant growing has gone somewhat out of favor owing to the low prices prevailing. Fortunately for the grower a much more encouraging state of things prevails, and instead of 3 or 4 cents a quart, they are now worth in our best markets 5 and 6 cents, which leaves a good margin to the grower, even after expenses of sale are deducted. The acid of the currant is counted very wholesome, and in summer season the free use of currants, either fresh, spiced, or in jelly, is worth far more to the human system than most people imagine.

In our grandfathers' gardens currants were usually grown against the fences and often left unpruned or uncultivated, and the old Red Dutch was almost the only variety



FIG. 1895. FAY (REDUCED) SHOWING PRODUCTIVENESS.

known. The quality was excellent, for it had a brisk, sprightly, mild acid flavor, which gives it first rank; but its small size made it a poor market berry, and slow of harvesting.

Now a great change has come over currant cultivation. With the advent of the Cherry currant, so large in berry that it captivated the buyer, and so easy to gather as to reduce the cost of harvesting, there came a great impetus to planting, some asserting that \$200.00 an acre was a common return for the crop. Then came Fay's Prolific with a wonderful flourish, and everybody planted it; and now several others contest the first place for the commercial garden.

To determine the best variety of each color for our Ontario fruit growers to plant was the purpose of the Provincial Department of Agriculture in starting a Small Fruit experiment station at Burlington, in charge of A. W. Peart, who has now sixteen varieties of Red and White Currants in bear-

ing. On the 23rd of July the writer visited this station and found Mr. Peart quite ready to leave the interests of his four hundred acre grain farm to take us through his experimental plots on plums, pears, peaches, grapes and small fruits. In looking over his currants we found his Fays very fine, with bunches about four inches in length. The bush is not equal to that of the Cherry in vigor or endurance. The illustration, Fig. 1895, shows excellent fruiting habit, in which point there is little to choose between the two varieties, the latter of which is of European and the former of American origin. Very similar to these two popular varieties is the Versailles, from France, differing from the two former in having berries of less uniformity in size, and on the whole averaging smaller. Some of the bushes at Mr. Peart's were a marvel of productiveness, and we thought it worth while to take a snap to show their manner of fruiting. (Fig. 1894.) Belle de St. Giles, Fig. 1896, is a magnificent looking currant, so large and fine, but it does not appear to be as productive as the varieties mentioned above. The



FIG. 1896. BELLE DE ST. GILES (REDUCED.)

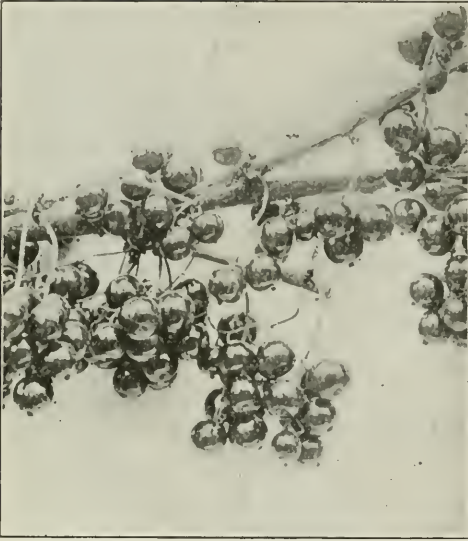


FIG. 1897. RED CROSS (REDUCED).

Wilder, in Mr. Peart's opinion, is the finest market currant in his collection. The bunches and berries are of the largest size, larger than either Fay or Cherry, and quite equal to those of the St. Giles, and in his opinion it is more productive than any of them and better in quality. Fig. 1899.

Fig. 1897 shows a fruiting branch of the Red Cross Currant, one of the newest varieties which was originated by Jacob Moore. It has little to distinguish it from Fay or Cherry in its size and appearance. Mr. Green, the introducer, says, "It makes twice the growth that these varieties make; the fruit is often so dense on the stalks as to hide the leaves entirely from view. Color bright red; berries set in a compact cluster with long stems; convenient for picking." Mr. Peart in his report for 1899 says the bush is medium in vigor and moderately productive. Another season's trial may settle the character of this variety with greater certainty.

Of the white varieties, the long bunch Holland has impressed us most favorably at

Maplehurst, the bush is so healthy and the bunch and berry so large. Bnt Mr. Peart places the White Imperial, Fig. 1898, at the head of his list of white currants. It is not quite as large a berry as the Holland and shorter in bunch, but perhaps it is more productive, and it has a mild pleasant flavor. There is no use planting white currants for profit, as there is little demand for them in the market, so that we can only recommend them for home uses.

The pruning of the red currant is so important that we add a few remarks thereon. The old method of training in tree form has been long given up by us, because the borer often destroys the old stem, and new shoots are needed to take its place. We always allow a half dozen shoots to grow from the root, cutting out the older stems from time to time. Those that remain we spur prune, cutting back all laterals to two or three buds, a treatment that will result in the formation of fruit spurs along the whole length of the main branch.



FIG. 1898. WHITE IMPERIAL (REDUCED).



FIG. 1899. WILDER (NATURAL SIZE).

THE REPORT ON GRADING APPLES.—D. S. Beckwith, of Albion, N. Y., Chairman of the Committee on Grades, presented a report to the National Apple Shippers of the U. S., which was adopted in the following form :

“Resolved that the standard for size for No. 1 apples shall not be less than $2\frac{1}{2}$ inches in diameter, and shall include such varieties as the Ben Davis, Willow Twig, Baldwin, Greening and other varieties kindred in size. That the standard for such varieties as Romanite, Russett, Wine Sap, Jonathan, Missouri Pippin and other varieties kindred in size shall not be less than $2\frac{1}{4}$ inches, and furthermore that No. 1 apples shall at time of packing be practically free from the

action of worms, or defacement of surface or breaking of skin ; shall be hand picked from the tree and be of a bright and normal color and a shapely form.

“No. 2 apples shall be hand picked from the tree ; shall not be smaller than $2\frac{1}{4}$ inches in diameter. The skin must not be broken or the apple bruised. This grade must be faced and packed with as much care as No. 1 fruit.”

Every member of the National Apple Shippers' Association is requested to incorporate the above resolution in their apple contracts for this year and, as far as possible, use such grading when picking.—*Fruitman's Guide*.

POLLINATION IN ORCHARDS.

Varieties which are often self-sterile.

SELF-STERILITY is not a constant character with any variety. It is influenced by the conditions under which the tree is grown, as are the size, shape and color of the fruit. The adaptation of a variety to soil and climate has much to do with its self-sterility, and if a tree is poorly nourished it is more likely to be infertile with its own pollen. No one can separate varieties of fruit into two definite classes, the self-sterile and the self-fertile. Thus Bartlett and Kieffer are often self-sterile, but there are orchards of both which are self-sterile. The same may be said of many other varieties. The best that can be done, therefore, is to give a list of those varieties which *tend* to be more or less self-sterile and which it would be unsafe to plant alone.

Following is a conservative list of these risky varieties, drawn both from experimental work and from the reports of over five hundred fruit growers, who have favored me with their experience. *Pears*: Angouleme (Duchess), Bartlett, Clapp, Idaho, Kieffer, Nelis. *Apples*: Bellflower, Primate, Spitzenburg, Willow Twig, Winesap. *Plums*: Coes' Golden Drop, French Prune, Italian Prune, Kelsey, Marianna, Miner, Ogon, Peach, Satsuma, Wild Goose, and according to Waugh and Kerr, all other varieties of native plums except Robinson. *Peach*: Susquehanna. *Apricot*: White Nicholas. *Cherries*: Napoleon, Belle de Choisy, Reine Hortense. Most of these varieties are self-fertile in some places, but the weight of evidence shows them to be uncertain.

It must not be inferred that all other varieties are always able to set fruit when planted alone. There are some, however, which have exceptionally good records for faithfulness when planted in solid blocks, other

conditions being favorable. Among these are: *Apples*: Baldwin, Ben Davis, Fallawater, Janet, Oldenburg, Rhode Island Greening, Red Astrachan, Smith Cider. *Plums*: Burbank, Bradshaw, DeSoto, Green Gage, Lombard, Robinson and some of the common blue Damsons.

All this goes to show that the problem of self-sterility is as much a study of conditions as of varieties. We can set no limit; we can only indicate tendencies.

Many large blocks of Kieffer are being planted with no other varieties intermingled, and it is an important point to know whether this practice will give the best results. Eight blocks of Kieffer in New Jersey and Delaware have been reported as completely or partially unfruitful because of self-sterility, and there are also many solid blocks of Kieffers in the same States which bear well. Kieffer is unreliable, especially on the Delaware peninsula. A large block of Kieffer may be productive, but it does not pay to take the risk, particularly since the pollen of other varieties is likely to give better fruit, as will be seen later on.

SELECTING THE POLLINIZER.

Let us suppose that we intend to plant a large block of an uncertain variety, as Kieffer, because it has distinct merits as a market sort. We wish to plant with it some other variety to make it fruitful. There are two points to be considered when selecting a pollinizer for Kieffer or for any other self-sterile variety; the choice should not be indiscriminate. These are simultaneous blooming, and mutual affinity.

The first and most important point is that the two shall blossom together, since the only way in which a pollinizer can make a self-sterile variety fruitful is by supplying it

with pollen. This means that the pistils of the self-sterile variety must be receptive when the stamens of the pollinizer are ripe, which is possible only with simultaneous blooming.

The comparative blooming of varieties is more or less a local problem. Differences of latitude, altitude, soil, nearness to large bodies of water, and weather conditions during the blooming season not only hasten or retard the time of blooming but also disturb the order in which the different varieties open. Varieties blossoming together at one place may not another. The best that can be done in the way of generalizing on the question of simultaneous blooming for cross-pollination is to make a chart for each well marked geographical district. To this end several hundred fruit growers have kindly taken notes the past two seasons, and when sufficient data is collected these charts may be published. They will indicate in a general way which of our standard commercial varieties may be expected to bloom together; yet each fruit grower should be prepared to make minor corrections for his own farm. Until more definite knowledge is available, each orchardist should learn how varieties bloom in his own neighborhood before planting them for cross-pollination. It is better, but not always necessary, that the two should bloom exactly together; if they overlap two or three days that is often enough.

It is sometimes desirable to plant varieties of different botanical species together for cross-pollination, but this will often be impracticable because of the difference in their blooming seasons. Thus the Oriental pears, as Kieffer, and the European pears, as Bartlett, usually do not blossom together. Kieffer generally blooms several days before Bartlett, hence it necessary to pollinate it with a variety of its own class, as Le Conte or Garber. In some places, however, the two groups blossom approximately together, and then varieties like Bartlett and Seckel should

be used in preference to Le Conte or Garber, since their fruit has a greater market value and the trees are less likely to blight. Whenever the European pears are used as pollinizers for Kieffer it would be well, if otherwise practicable, to work them on quince roots. Standard Kieffers will often bloom two or three years before standard Bartletts planted at the same time, and unless early blooming dwarfs are intermingled they may be unproductive these first few years.

The three classes of commercial plums—Japanese, domestic and native—will usually bloom at different periods in the order named; but when a "spell" of warm weather succeeds a cold and backward spring, varieties of all these groups will come on nearly together and cross-pollination will result. In some places the blooming seasons of these groups overlap so that some varieties of each might be used regularly for cross-pollination.

THE MUTUAL AFFINITY OF VARIETIES.

Another point to be looked after when selecting a pollinizer for Kieffer, or for any other self-sterile variety, is the mutual affinity of the two. That is, will the pollen of the pollinizer fertilize the pistils of the self-sterile variety readily and also develop them into high grade fruit? At present but little is known about the matter. Taking first the possibility of cross-pollination between varieties of different species, there seems to be no doubt but that many varieties of native Japanese and domestic plums will fertilize each other. Orchard experience in many places indicate this; as when Satsuma is used to pollinate Coe's Golden Drop in California prune orchards. Several successful crosses between the three were also made at Ithaca the past season. Amongst these are Abundance \times Grand Duke (Fig. 1903), Georgeson \times Wayland, Berekman \times Coe Golden Drop, Coe Golden Drop \times Satsuma. That

is, if we wish to use Satsuma as a pollinizer for Coe Golden Drop, or Lombard for Wild Goose, the probability is that the combination would work, if the two varieties bloom together ; but since the three groups usually bloom at somewhat different periods there be no general cross-pollination outside the limits of the species.

Numerous crosses and common orchard practice have also shown that the European pears, as Bartlett, and the Sand Pear hybrids,

Fig 1900, compare the size of the Seckels which received Kieffer pollen with those which had Lawrence pollen. The specimens shown are typical of thirty fruits secured from these two crosses in 1899.

It is necessary to study not only the mutual affinity of varieties belonging to different species, but also of varieties of the same species. Some varieties will not fertilize each other, though blossoming at the same time. Kerr has found that Whittaker plum



FIG. 1900.—SECKEL. FROM KIEFFER POLLEN ABOVE, FROM LAWRENCE POLLEN BELOW.

as Kieffer, will fertilize each other regularly when they bloom together. Several Kieffer fruits from Bartlett pollen and Bartlett fruits from Kieffer pollen were secured in the crossing work of 1899. In fact, my experience has been that if Kieffer pollen is put on the pistils of our common pears, of the European class, it will usually produce larger fruit than pollen from most varieties of that type. Kieffer is a good pollinizer for Bartlett, Angouleme, Clapp, Nelis and the like varieties, when they bloom together. In

will not fertilize Wild Goose nor will Early Red help Caddo Chief. Again, the pollen of some varieties will give better fruit than that of others when used on the pistils of self-sterile or even on self-fertile varieties. There is very little definite knowledge as to what varieties are best adapted for pollinating self-sterile sorts. Waugh and Kerr have studied this point with native plums for several years and their judgment is united in a table of recommended pollinizers for plums (12th Report Vt. Ag. Ex. Sta.) A few results

from crosses made at Ithaca in 1899 will illustrate this point. Fig. 1900 shows the comparative size of Seckel when pollinated with Kieffer and with Lawrence pollen. Clapp pollinated with Kieffer was also larger than Clapp pollinated with Lawrence or Louise Bonne. Howell blossoms which received the pollen of Clapp gave fruits of nearly twice the size of those which received Bartlett pollen. Bartletts crossed with Angouleme were larger than Bartletts crossed with Sheldon. In some cases no difference could be noticed, yet most of our standard commercial varieties will be likely to yield

Prune, Green Gage, Italian Prune (Fellenburg); Satsuma with Abundance, Burbank, Red June; Miner with De Soto, Forest Rose, Wild Goose; Wild Goose with De Soto, Newman, Miner.

DOES CROSSING CHANGE THE APPEARANCE OF THE FRUIT?

In connection with mutual affinity of varieties which are selected for cross-pollination, there comes the question of the "immediate influence" of pollen. For instance, if Seckel pollen is put on Kieffer pistils, will it impart the Seckel flavor, color and characteris-

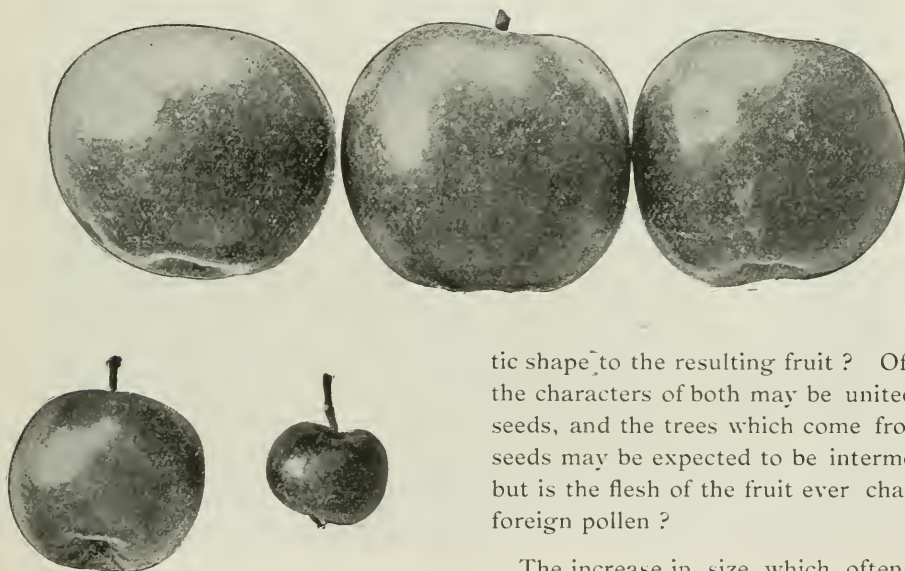


FIG. 1901.—Stark. From Wagener pollen above, from Stark pollen below. Marked benefit from cross-pollination.

enough better fruit when planted with some varieties than with others, to make a study of this point worth the while.

Some of the combinations which have been very successful in the commercial orchards of the country are: Bartlett with Nelis, Flemish Beauty, Easter, White Doyenne; Idaho with Bartlett; Kieffer with LeConte, Garber; Coe Golden Drop with French

tic shape to the resulting fruit? Of course the characters of both may be united in the seeds, and the trees which come from these seeds may be expected to be intermediates; but is the flesh of the fruit ever changed by foreign pollen?

The increase in size which often follows crossing cannot be called a true immediate influence, for the foreign pollen generally stimulates the fruit to be a better growth because it is more acceptable to the pistils, not because it carries over the size-character of the variety from which it came. In 1899, Hyslop Crab pistils which were fertilized with pollen from the great Tompkins County King, grew into fruits of the usual crab size. An immediate influence in size may be possible, for the size of the fruit is nearly as constant a varietal character as is the shape;

but most of the increased size in crosses of orchard fruits probably arises from the fact that the pollen is more acceptable.

Setting aside the usual gain in size resulting from crossing, we wish to know whether there will be any change in the shape, color, quality and season of ripening of the fruit. A few undoubted instances of this influence have been noticed with some plants in which

ence of pollen from observation, rather than from experimental proof. It does not necessarily follow that "sweet and sour" apples are due to cross-pollination, nor that the russet on Greening apples borne on the side of the tree next a Roxbury was produced by the influence of the Roxbury pollen.

Most of the changes in fruit which are attributed to the influence of cross-pollina-



FIG. 1902.—LONGFIELD. FROM GREENING POLLEN BELOW, FROM LONGFIELD POLLEN ABOVE. MARKED BENEFIT FROM CROSS-POLLINATION.

the seed is the principal part of the fruit, as the mixing of sweet corn and field corn; also perhaps in various peas and beans. When the seed is surrounded by a fleshy pulp, however, as in our common orchard fruits, it is still in dispute whether this pulp is influenced, however much the seeds themselves may be. Most men have formed their convictions about the immediate influ-

tion are due to variation. Every bud on a tree is different in some way from every other bud on that tree and may develop unusual characters, independent of all the other buds, according to the conditions under which it grows.

The best way to determine whether there is an immediate influence of pollen is by hand crossing. Among the forty-five different

crosses which were made in 1899 with this particular point in view, not one showed any change which could be positively attributed to the influence of pollen. Even the concentrated sweetness of Seckel made no impression on the poor quality of Kieffer; nor were there any constant differences in color, shape or season of ripening in any of the other crosses. Nearly everybody who has crossed varieties of orchard fruits has had a similar experience.

Most of the evidence supporting the theory that there is an immediate influence of pollen

sometimes exerted. But it is certainly much less frequent than is commonly supposed.

THE DISTRIBUTION OF THE POLLINIZERS.

Having selected a pollinizer with reference to simultaneous blooming and mutual affinity, the fruit-grower now wishes to know how many trees will be necessary to pollinate the self-sterile variety. There are three things to be considered here: The ability of the pollinizer to produce pollen, its market value and the class of fruit to which the self-sterile variety belongs.



FIG. 1903.—ABUNDANCE. FROM ABUNDANCE POLLEN ABOVE, FROM GRAND DUKE POLLEN BELOW. SOME BENEFIT FROM CROSS-POLLINATION.

in the crosses of fruits comes from observation; most of the evidence against it comes from experiment. The observer, however careful, is likely to jump at conclusions; the experimenter tries to give due weight to every influence which might bear on the problem. Since many observers and a few experimenters have found what seems to be an immediate influence of pollen on the fruit, we cannot doubt but that this influence is

Varieties differ in the amount of pollen which they produce, and the pollen production of the same variety is also greatly modified by differences in locality and season. Other things being equal, the variety which produces pollen freely could be used more sparingly in a block of self-sterile trees than one of scanty pollen production. Little comparative observation has been made on this point as yet; but as a matter

of fact, most of our common varieties produce an abundance of pollen.

The number of trees of the pollinizer would also depend largely on whether it has value itself. If we are planting LeConte to pollinate Kieffer, we would naturally try to get along with the least possible number which will do the work ; but if Bartletts are to be used for the same purpose, we can afford to increase the proportion. Some

during the bright weather between showers. If using Garber or LeConte to pollinate Kieffer, every third row may be the pollinizer ; if using Bartlett, every other row. For apples, cherries and domestic or Japanese plums, the same proportion may be used. In a commercial orchard, the pollinizer should be planted in a solid row. Theoretically, it is much better to have the pollinizer more evenly distributed among the



FIG. 1904.—TALMAN SWEET. FROM TALMAN SWEET POLLEN ABOVE, FROM WAGENER POLLEN BELOW. NO BENEFIT FROM CROSS-POLLINATION.

growers plant every tenth row to the pollinizer, but the proportion should usually be greater. This might be enough if the weather during the blossoming season is very favorable for cross-pollination by wind and insects ; but if it is showery, the pollinizers should be more abundant, in order that cross-pollination may be more general

self-sterile trees ; practically, it will not pay to so mix them except in small orchards.

THE ADVANTAGES OF GENERAL MIXED PLANTING.

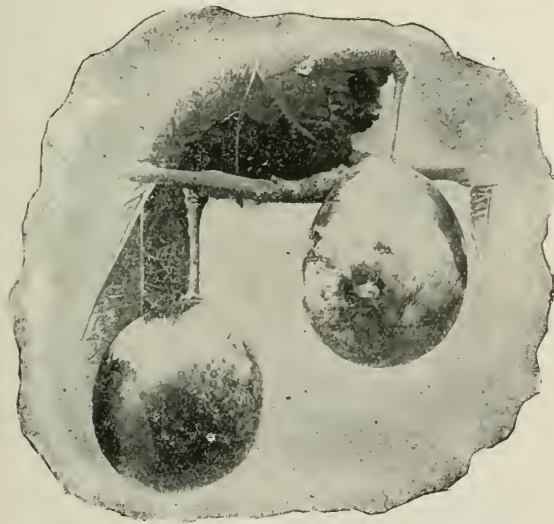
It would appear that the only thing to do now is to find out what varieties are inclined to be self-sterile and the varieties

which are best adapted for fertilizing them. But as a matter of fact, cross-pollination gives better results with nearly all varieties, be they self-sterile or self fertile. A variety may be able to bear good fruit when it is planted alone, but it will often bear better fruit if suitable varieties are near it. Mixed orchards are more productive than solid blocks, taking the country over. It is a common observation in Western New York that Baldwins in mixed orchards are more uniformly productive than Baldwins in large blocks. Furthermore, although a variety may be able to set an abundance of fruit with its own pollen, this fruit will often be smaller than if other pollen were supplied.

from cross-pollination, as Talman Sweet and Bradshaw, (Fig. 1904-5). The difference between the cross and self-pollinated Starks and Longfields is so striking that one would almost be tempted to think the self-pollinated fruits were wormy, but they are not. The self-pollinated Talmans and Bradshaws were apparently as fine in every way as the cross-pollinated fruits. Manning Elizabeth pear also was not benefited by pollen from other varieties.

The three self-pollinated Longfields here shown (Fig. 1902) have but five sound seeds; while the two crossed specimens had seventeen sound seeds. In general, cross-pollinated fruits have more good seeds than self-pollinated fruits, but there is no constant relation between the size of a fruit and the number of seeds it contains. Some of the biggest apples or pears may have only two or three good seeds. In case the ovules in one cell of an apple or pear core are not fertilized, that part of the fruit adjoining is often stunted and the fruit becomes lop-sided in consequence; but this likewise, does not always follow.

All of the above varieties are self-fertile, at least in Ithaca. They will produce fruit with their own pollen. But we have seen that some of them will produce better fruit if other pollen is supplied. Is it not worth while, then, to plant pollinizers even with self-fertile varieties—that is, to practice mixed planting with all varieties? There are three good reasons for doing this: First, some believe that self-sterility is likely to increase in the future, under the stimulus of right cultivation. Second, we can never be perfectly sure that any variety will be self-fertile on our soil and under our culture; even those varieties which are self-fertile elsewhere may be partially self-sterile with us. Third, most self-fertile as well as self-sterile varieties are benefited by cross-pollination. It is taking risks to plant a very large block of one variety. The trees



1905--BRADSHAW PLUM. FROM GERMAN PRUNE
POLLEN ABOVE, FROM BRADSHAW POLLEN BELOW.
NO BENEFIT FROM CROSS-POLLINATION.

From a number of experiments made in 1899, a few representative results are here given to illustrate this point.

Compare the size of self-pollinated and cross-pollinated fruits in our illustrations. In some varieties the differences were very marked, as with Stark and Longfield apples (Fig. 1901-2); in others the difference was not so marked, as Abundance (Fig. 1903); while a few showed no appreciable increase in size

may bear just as much and just as fine fruit as though other varieties were with them, but the chances are against it.

THE POLLEN-CARRIERS.

The pollen of one variety is carried to the pistils of another in two ways : by the wind and by insects. There are many kinds of insects which aid more or less in the cross-pollination of orchards fruits, principally bees, wasps and flies. Of these, the wild

bees of several species are probably the most important. In a wild thicket of plums or other fruits, they are usually numerous enough to insure a good setting of fruit. But few if any wild bees can live in a large orchard, especially if it is well tilled. As the extent and thoroughness of cultivation increases, the number of these natural insect aids to cross-pollination decreases ; hence it may become necessary to keep domestic honey bees for this purpose.

This article, with cuts, is kindly furnished by the Cornell University Experiment Station.

LAYING OUT HOME GROUNDS.

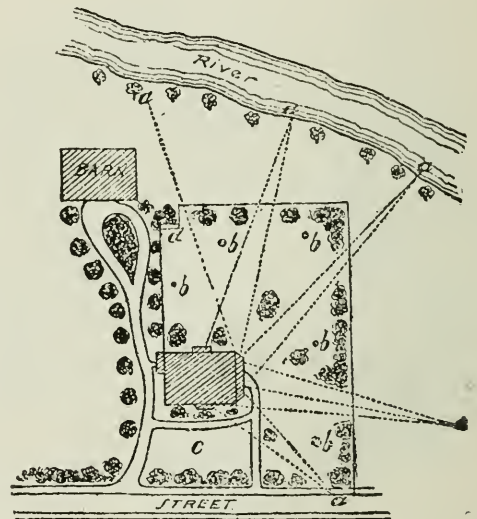
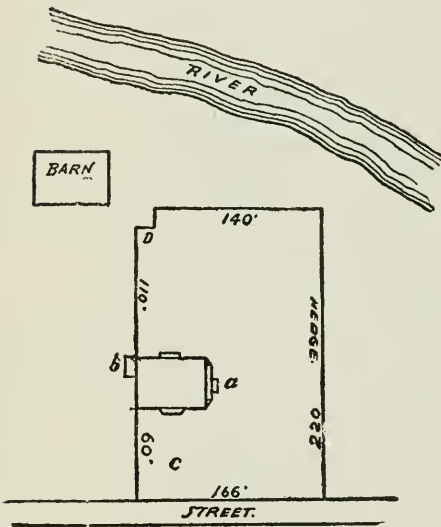


FIG. 1906. GROUNDS BEFORE PLANTING.
a, Front door ; *b*, back door ; *c*, croquet grounds ;
d, seat.

FIG. 1907. GROUNDS AFTER PLANTING.
a, Open vistas to pleasing views ; *b*, covers for
objectionable objects ; *c*, croquet grounds ;
d, seat.

Prof. Maynard in *American Agriculturist* gives a reply to a correspondent, describing the best method of improving his grounds by planting and arrangement of walks ; and as we so often have similar enquiries we give our readers his reply in full.

Fig. 1906 represents the grounds before laying out or planting. In Fig. 1907, the same grounds after planting are

shown. The entrance or gateway that leads to the front door is placed on the street line about midway of the street front, the walk running in nearly a straight line to the center of the front of the house, the dismounting block or step being at the street edge.

A drive might be run from this point to the front of the house, where a turn-round

could be made, or it could continue by a graceful sweep to the stable and end in a turn-round as in Fig. 1907. The distance, however, from the street to the front steps is not too much for anyone but an invalid to walk easily, and as a drive must be maintained in the rear, it would serve both purposes and save the front lawn from disfigurement, and also save a great deal of expense in construction and repairs. Walks or drives possess no real beauty. They are expensive to build and to keep in repair and no more should be maintained than are absolutely necessary.

In grouping trees and shrubs, the principles to be followed are to so arrange them that as many as possible of the beautiful features of both near and distant views will be preserved and improved by the grouping, and all unpleasant features covered up. The dotted lines from the principal points of view at the dwelling and focusing at the points *a a*, etc., show how the beautiful outlook or important points may be kept in

view, while the groups at or near *b* show how such objects as are undesirable may be hidden from view. These lines show also from what points outside of the grounds pleasing views may be had of the dwelling and its surroundings, a feature not to be overlooked.

The barn, which is in most cases not an object to be made conspicuous, but rather to be somewhat secluded, is covered by the trees and shrubs grouped along the drive. The seat, *d*, is represented in full view, with trees over and in the rear of it, but if desired it could be easily secluded by arranging some of the groups in front of it. The croquet grounds, *e*, are hidden from the street by a border of large shrubs, but are in full view from the dwelling.

In planting groups of trees and shrubs, the largest and tallest should be set in the center, with the smaller ones on the borders and as much variety and beauty as is possible secured in their arrangement.

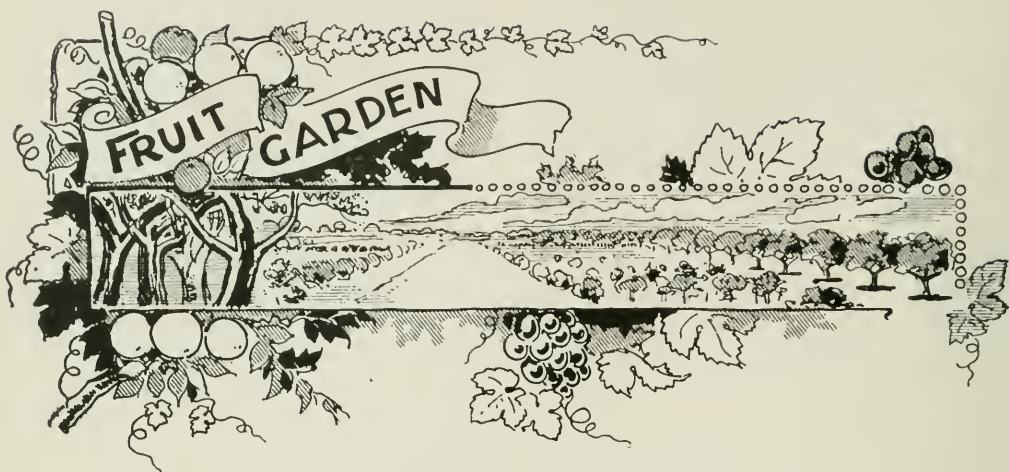
HOW TO MARKET GOOSEBERRIES—Gooseberries may be marketed either green or ripe. Some growers pick the smaller fruits green and allow the finest fruits to ripen. This is less exhausting for the bushes than it is to allow the whole crop to ripen. Others market the entire crop green, a method least exhausting to the bushes, and it also has this in its favor that the sooner the crop is in the market the less risk there is of its injury by sun-scald, mildew or other fungous or insect trouble. Each grower must determine for himself according to his local market conditions what method of handling the fruit is best for him. Green gooseberries are stripped from the branches quite rapidly. They may then be run through the fanning mill if necessary to free

them from leaves, sticks, etc., and then packed for market.

The style of package will be usually determined by the market demand. Some of the European sorts are best to grow for green gooseberries, because they attain considerable size very early in the season. Among the best sorts for this purpose are Industry (Whinham's Industry), Crown Bob and Lancashire Lad. These are red varieties and are favorite market sorts in England, either green or ripe. The White-smith is a white variety, excellent quality and productive. Wellington's Glory is also very productive, fruit large, yellowish, nearly white, and handsome in appearance.

New York.

S. A. BEACH.



FRUIT CULTURE—VII.

THE GRAPE.

NOTWITHSTANDING the fact that there are some four millions of grape vines in Ontario, many farmers even yet do not grow a single pound of this fine fruit, especially in the northern and eastern parts of the Province, where the difficulties of grape culture are supposed to be greater than they really are. The professional vineyardist of Southern Ontario who counts his vines by the thousand has possibly not a great deal to learn. The difficulty now is not so much the production of the fruit as the finding of a good market. But scattered through all parts of the country are people who own small vineyards which are by no means producing a high quality of fruit, and still others who, buying few or no grapes, yet have no vineyard of their own. It is to these classes more than to the commercial grower that the following remarks on grape culture are directed.

SOIL AND EXPOSURE.—The best site for a vineyard is a gentle slope facing to the south or southeast. In the low levels there is more danger from frosts, and on a northern exposure there will be some difficulty in ripen-

ing the later varieties. The grape loves a rich, warm and dry soil. The preparation of the land should include underdraining if the subsoil is at all wet or non-porous. It will thrive on sandy or gravelly soils, but on the very light soils there is a greater tendency to disease, especially to mildew. A rich, well-drained clay loam is the most satisfactory. The general opinion is that the quality of the fruit is higher on the heavier ground, though Fuller asserts the contrary.

PLANTING AND CULTIVATION.—Vines of the strong-growing varieties, like Niagara and Rogers, may be planted as one-year-olds. As a general rule strong two-year-old vines are the best to plant. Varieties like Delaware, Catawba and Moore's Early may be planted eight feet apart, but as most vineyards contain many of the strong-growing kinds which require more room, a good distance would be ten or eleven feet each way. This would allow convenient cross-cultivation before the trellis is put up, and give ample room for harrow, wagons, etc., between the rows later on. The vine should be planted fairly deep and the earth well packed

round the roots. If the roots are coarse and long cut back to about eighteen inches. Prune the top down to to two three buds. Fig. 67, from Bailey's "Pruning Book," illustrates the pruning of one type of two-year-old vine. The top should be cut at A and B, the upper roots trimmed off at C and D, and the main roots cut in from E to F. Hoed crops can be grown the first three years between the young vines and thorough cultivation given. By the late fall the young vine should have made a growth of three or

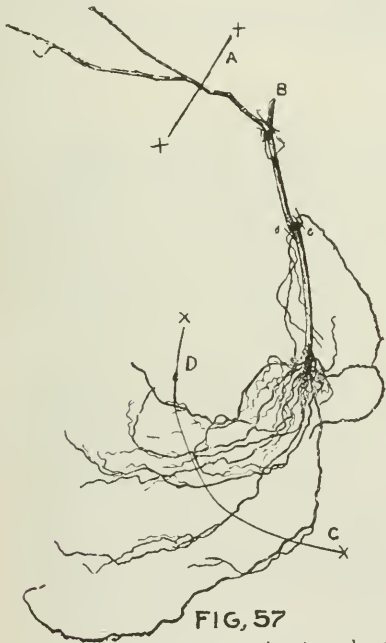
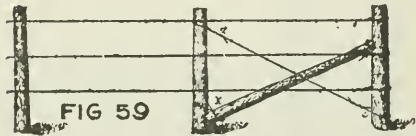
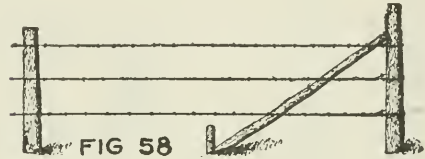


FIG. 57
Grape plant, showing where it should be pruned.

four feet, and should then or in the spring be pruned to a single cane and that cane should be cut back to two or three buds. The trellis may be put up the second spring or left till the third. The young vine having got thoroughly established during the first summer will, under good conditions, make a vigorous growth the second year, not more than two canes being allowed to grow. We now come to the end of the second season,

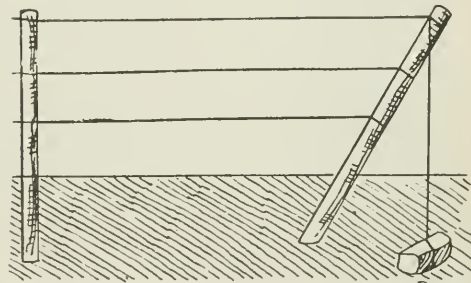
the treatment up to this time being practically the same whatever style of trimming may be adopted.

THE TRELLIS.—Various kinds of trellises have been in vogue at different times, but we need only here consider the post and wire method. Cedar or chestnut posts should be used. These can be eight feet long, sharpened at one end and driven down



Bracing the end post. BAILEY

with heavy maul eighteen inches or two feet. This is the practice in the famous Chatauqua grape district. Or the posts may be nine feet long and a post augur used for the holes. which should be three feet deep. Two, three or four wires are used, according to the system of training. No. 12 wire is a suitable size, except in the two-wire trellis,



STONE AND WIRE BRACE AFTER BAILEY

when No. 10 wire should be used for the upper wire and No. 12 for the lower. Figs. 58, 59 and 60 show different ways of bracing the end post, upon which the heavy strain comes. Of these Fig. 59 is decidedly the

best. Either of the others will, however, be satisfactory where the rows are not too long. The posts should be set about twenty-five or thirty feet apart, two or three vines between the posts.

TRAINING.—Four systems of training are practised among vineyardists, each of which has its warm advocates :

1. The horizontal arm and spur system.
2. The Kniffen system.
3. The high renewal.
4. The fan.



FIG. 62.

No hard and fast rules, however, can be laid down in this matter and various modifications of the many systems may be seen in all vineyards. "All intelligent pruning of the grape," says Bailey, "rests upon the fact that the fruit is borne in a few clusters near the base of the growing shoots of the season, and which spring from wood of last year's growth. A growing leafy branch of the grape vine is called a *shoot*; a ripened shoot is called a *cane*; a branch or trunk two or more years old is called an *arm*."

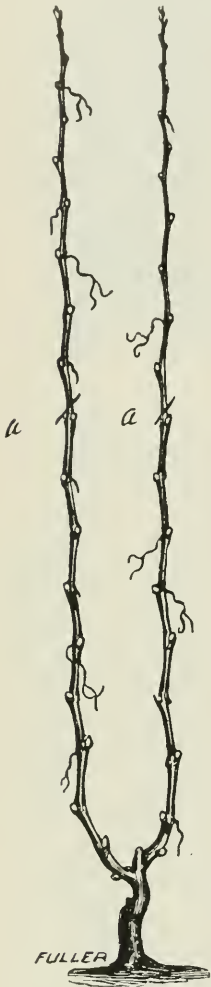


FIG 61



FIG 63 (FULLER)

The horizontal arm and spur method—called the *Fuller* system—is well suited for cold sections, where vines have to be laid down for the winter, and may be first dealt with. Fig. 61 represents the young vine at the end of the second season. The two canes are cut back at *a, a*, and bent down and covered for the winter, Fig. 62. In the spring the two arms are tied along the lower wire. A shoot will spring from each bud on

the canes, and at the end of the third season the vine will be as at Fig. 63. The vine is now pruned, the canes being cut back to a spur of two buds. As two bearing shoots will spring from each spur in the fourth season the arms may be slightly shortened so as to leave not more than five spurs on each arm. In the early summer any superfluous shoots that may have forced out from the trunk or arms, and all laterals or side shoots,



FIG. 64

which usually spring from the base of the regular shoot, should be removed and the ends of the main shoots should be pinched when the top wire is reached. At the end of the fourth summer there will be twenty canes, two from each spur. Every alternate cane will be cut off as close to the arm as possible, and the other cut back to a

THE HIGH RENEWAL SYSTEM.—In this system three wires are used, the lowest about eighteen inches or two feet from the ground and about the same distance between the wires. In the second season a single shoot or two shoots forming a Y trunk are tied to the wire, and in the third spring are tied along the wire, somewhat as

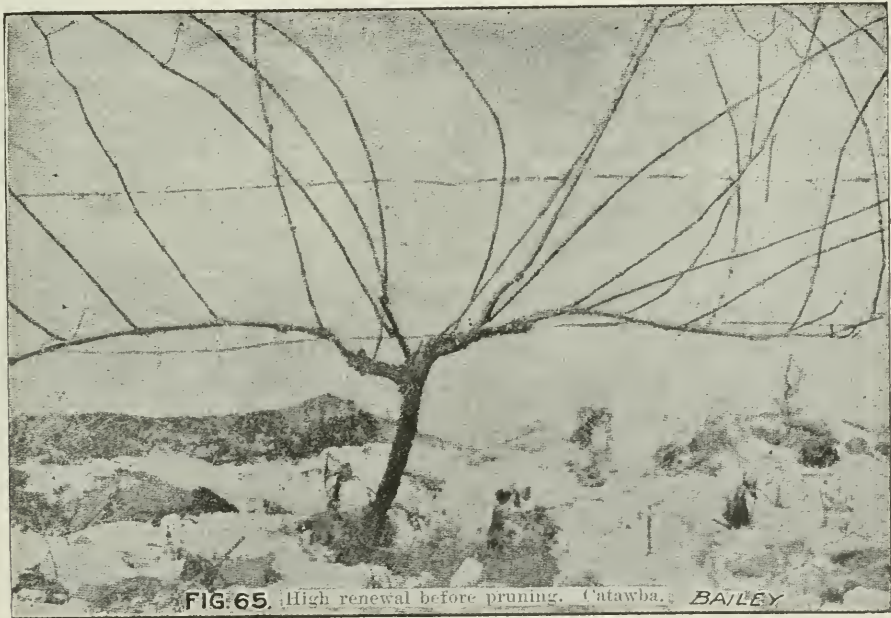


FIG. 65. High renewal before pruning. Catawba. BAILEY

spur of two buds—see Fig. 64. So that, as before, twenty bearing shoots will be provided for.

This, briefly, is a sketch of the horizontal arm and spur system. It necessitates more tying than other methods of training, but has many excellent features.

in the Fuller system. At the end of the third season the vine presents the appearance of Fig. 65. Instead of leaving two permanent arms and cutting back to spurs, as in the Fuller method, the old arms are cut away and two vigorous canes bent down. Two stubs, or long spurs, are also left, from which canes will be selected to form arms



FIG. 66 High renewal, pruned and tied. BAILEY

for another year—see Fig. 66. There is thus, in this system, a constant renewal of all wood except the main stem or trunk. The number of buds (from which the fruit-bearing shoots come) left on a vine after pruning would be from 25 to 30.

THE KNIFFIN SYSTEM.—This is perhaps the most popular method of training the vine amongst commercial growers, and is a system which, with various modifications, will probably be generally adopted in all large vineyards. The advantages that it possesses are three—it permits a cheaper trellis, there being only two wires employed; it necessitates no summer tying, the shoots being allowed to hang free; and it affords greater facilities for cultivating the

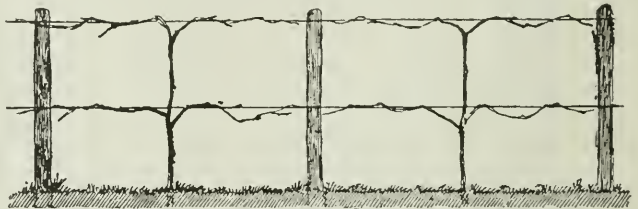


FIG 69

ground beneath the vine. All these things make for cheap production and, with present prices for grapes, cheapness of production has to be very earnestly considered. In the true Kniffin system two wires are used, the lower about three and a half feet from the ground, and the upper about five and a half feet. In the third spring a single strong cane is tied to the top wire and also to the lower. This cane will form the permanent trunk. At the end of the third season there will be eight or nine good canes on the main stem. Two of the upper ones are selected and cut

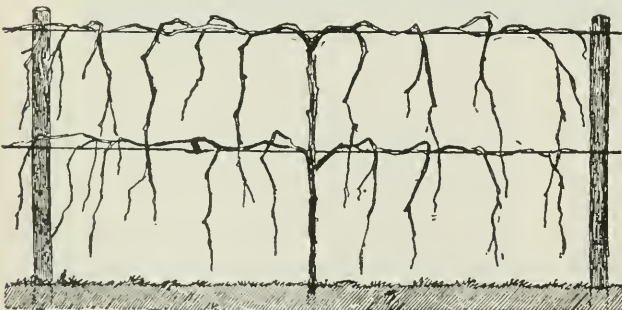
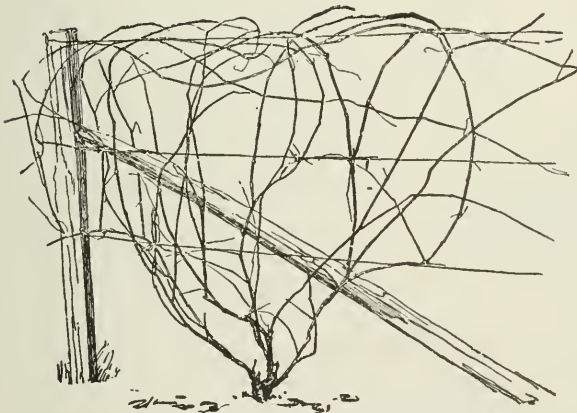


FIG 70

back to about eight buds each and tied to the wire. Two others, with five or six buds each, are tied along the lower wire, as in Fig. 69. At the end of the fourth season the vine will present the appearance in Fig. 70. The same process will then be repeated. Four strong canes will be selected and tied for the fifth season, as in Fig. 69. After a time the cutting back operation will leave a stubby, awkward lot of old wood where the horizontal canes start. It will then be wise to take, at the first opportunity, a shoot direct from the main stem and train it as an arm, cutting away all old wood that has gradually collected between the trunk and the horizontal canes. It will be noticed also that the Kniffin system simplifies pruning very much. There is no desire to urge here that the Kniffin system will give better re-

allow an unnecessary accumulation of old wood; and let pruning be directed so that enough healthy last year's wood shall be left to produce the right number of bearing shoots this year. For one man who prunes too closely there are ten who leave too much wood. From twenty-five to forty healthy buds are ample.

Summer pruning need not be done except in the Fuller system, where some pinching in of the shoots is practised. With most systems, however, the vigorous growers, like *Brighton* and *Rogers*, will produce such immense shoots that cultivation is impeded. When they begin to get straggly and a nuisance, the ends can be trimmed off very quickly with a sharp sickle or corn knife. Importance should be attached to the early removal of superfluous shoots, and laterals or axillary branches. This operation does not take so very long, and is a true "thinning" process. These secondary shoots often bear one or two bunches, and second-class bunches at that. The vine will have enough fruit without them. The remaining fruit will be finer, and there will be a better lot of ripened canes to select from next year. As to the time of pruning: Any time through the winter where the vines can remain uncovered will be suitable. It is better to finish all pruning before the sap starts, though it is questionable if the bleeding of the vine does much harm, and it is hardly necessary to say that it is a vast deal better to prune late than not at all.



Fan-trained Concord. FIG. 67

sults than many other methods in operation. In many vineyards a combination of Kniffin and the Fan system is giving good results, but, properly managed, the Kniffin-trained vineyard will yield as well as any, and nobody can question its greater cheapness and the conveniences it presents. Success can be achieved with all systems, and in this matter of grape-training, there is lots of room for the expression of a man's individuality. The main things are—see that the vine is in a good thrifty condition; do not

THE FAN SYSTEM.—In this system, which is not much in vogue in recent days, the wood is renewed almost from the ground every year. An excessive amount of old wood and a trunk are thus dispensed with, and after fall pruning the vine is easily covered, where winter protection is needed. Fig 67, from Bailey's "Pruning Book," shows a vine trained in this way. With so

much growing wood close to the ground there will be more difficulty in keeping the fruit clean than where a higher system is adopted, and the tying is somewhat inconvenient.

MANURING.—The fertilising treatment accorded to the grape should be on as liberal scale as that given to other fruits. Where a big growth of wood is being made it is a sign that enough nitrogen is present in the soil. Additional barnyard manure is not necessary, and will in fact tend to promote

planted near. *Rogers 4*, *Salem*, *Brighton*, and *Rogers 9* (*Lindley*), will be unsatisfactory when planted alone. *Niagara* and *Delaware* have an abundance of pollen, and *Concord*, *Roger 15*, *Vergennes* and *Worden* will fruit satisfactorily alone.

List of varieties for home use :

Black.—*Moore's Early*, *Worden*, *Rogers 4* and *44*.

Red.—*Brighton*, *Lindley*, *Delaware*, *Salem*.

White.—*Niagara*, *Moore's Diamond*.

With respect to this list, it may be added that *Vergennes* is a good bearer, fair quality and excellent keeper, but it ripens too late for many sections. *Moore's Early*, although a good early black grape for the amateur, is not vigorous or productive enough for the commercial grower. *Wyoming Red* is early and prolific, but poor quality.

DISEASES.—Black Rot, Brown Rot, or Downy Mildew, Powdery Mildew, Yellow Leaf, Anthracnose, called Bird's-eye Rot when attacking the fruit are the

more common. It would take too long in a brief practical treatise, such as this, to describe different diseases. Readers are referred for full information to Bulletin 92 of the Ontario Agl. College and to "Fungous Diseases of the Grape and other Plants," by Professor Lamson-Scribner. Yellow Leaf is a disease of comparatively recent origin and little is known of its nature. The bright yellow color of the foliage, the shrivelling of the berries and the dying condition of the vine readily indicate the trouble. It is advisable to uproot diseased vines and reset with healthy plants. Bordeaux mixture is the standard remedy for the rot and mildews. For the common form—the Powdery Mildew—ordin-

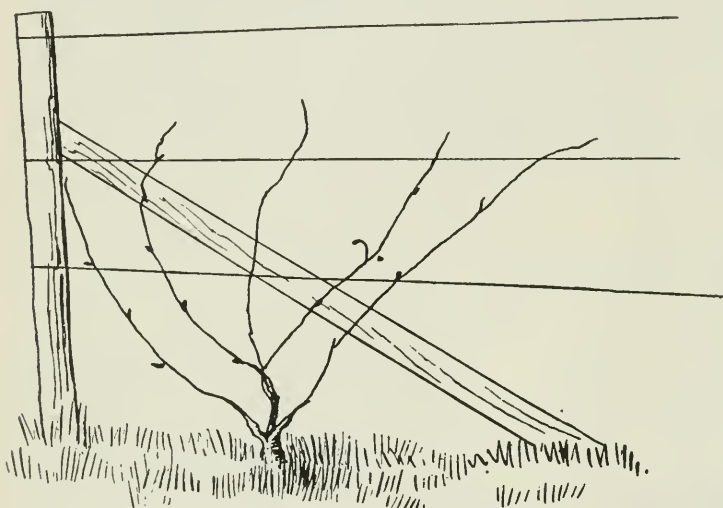


FIG. 68. THE VINE PRUNED

an overgrowth and induce mildew. A heavy dressing of ashes, or muriate of potash will then give excellent results, the grape being one of the heaviest consumers of potash of all fruits.

VARIETIES.—A good list for the commercial grower is the following :

Black.—*Worden*, *Roger 4*, *Roger 44*, *Concord*.

Red.—*Wyoming Red*, *Roger 9* (*Lindley*), *Delaware*, *Roger 15* (*Agarwam*), *Vergennes*.

White.—*Niagara*, *Moore's Diamond*.

Many varieties of grapes have imperfect blossoms, and where this occurs, other varieties of a self-fertile character should be

ary flowers of sulphur will be as good or a better remedy than Bordeaux mixture. It can be dusted through and under the vines directly the leaves expand, and a second time when the grapes begin to form. The varieties chiefly subject to mildew are

Brighton, Rogers 44, Rogers 9, Salem and Agawam, but if the sulphuring is done early and thoroughly there will be no difficulty in growing a clean fine sample of these choice grapes.

St. Catharines.

M. BURRELL.

DISCUSSION ON VARIETIES OF FRUITS.

CROSBY.

Mr. McCollum inquired about this peach.

Mr. J. F. Hunt—I have fruited it in a small way for a number of years. It is a small peach with me, but extremely hardy. I think it is one of the best canning peaches, for flavor, but don't think much of it as a market peach.

Q.—Isn't it comparatively worthless as compared with the Crawford?

Mr. Willard—No, sir; I have fruited it for two seasons, and have been very much pleased with it in point of size and quality. Customers are pleased with it. I think soil and situation have a good deal to do with the development of good peaches.

Q. Isn't it too small for a market peach?

Mr. Willard—Not by any means; it is a good market peach.

Mr. E. Ashley Smith—I grew it this year, and the size was perfectly satisfactory.

Mr. King—I have fruited it, and it didn't prove satisfactory. The first fruiting was good size, but since that it has run small, even with close pruning.

Mr. Wood—We find that the older the tree the smaller the fruit. One thing in its favor is that it ripens in a season when we appreciate peaches.

Mr. Severn—The trouble is to get the right variety. If I had only known of the Crosby and had set my whole orchard to that variety, I should have been all right.

The Secretary—One firm, Lamming & Rudman, in the neighborhood of Rochester, sold their crop of Elbertas for over \$6,000.

A Member—I had Elberta and Crosby side by side; both grew well; but I like the Elberta full as well as the Crosby, and I think one Elberta would weigh as much as four of the Crosby.

Mr. Woodward—I agree with this gentleman. One basket of Elberta will sell for four times as much as Crosby, and you can raise four times as many.

A Member—Sixteen to one. (Laughter.)

CHAIRS' CHOICE.

Mr. B. J. Case asked after this peach.

Mr. Willard—There are some sections of the country where it is highly regarded and in demand. It does exceedingly well with me.

Mr. Pillow—It does better further south.

Mr. Willard—It originated south, but does well as far north as Sandusky, Ohio. Ripens about time of Late Crawford.

Mr. Barns—Mr. S. L. Quinby, of Marlborough, grew it, and says it is excellent. It bears well and looks well.

STEVENS.

Mr. Nelson Bogue—This peach is a seedling and originated on the grounds of the late Hon. R. S. Stevens, of Attica, N. Y. Fruit very handsome, nearly covered with a deep red, a little above medium size and ripens soon after the Early Crawford. Regular bearer, excellent shipper. Requires thinning. Tree very hardy and a strong grower.

DEACONESS.

Prof. Van Deman—Most of the fruit, I

have heard, has been either insignificant or worthless. I think the placing of this peach on the market one of the biggest frauds ever perpetrated in the state of New York. A firm of Ohio nurserymen worked this state last year selling what they labeled "Daniel Boone" and "Deaconess" peaches, warranted to be immune from yellows and to be very long-lived. I have heard of the Deaconess being delivered on which the Elberta tag had not been taken off. There are a number of gentlemen present who have been skinned to the bone. They have whistled to the tune of several hundred dollars. I think there were five thousand sold near Geneva.

Mr. Ira Pease—They worked Oswego.

Mr. H. R. McNair—A friend of mine was induced to buy some, and has them planted. Would you advise pulling them up?

Mr. Willard—I would not. There might be some Elberta among them.

TRIUMPH.

Suggested by Mr. Pillow.

Mr. Willard—I have understood from those who have grown it that it is not sufficiently large to warrant it as an orchard fruit.

WILLARD.

Mr. Willard—Some of the best fruits are oftentimes in your own locality. I have a peach myself, and I induced the Maxwell's to plant some. Don't you think the Willard a good peach, Mr. Anderson.

Mr. Anderson—We had some doubt about it for a year or two, but I would gladly say that this last year it proved very fine; would be glad to recommend it to anyone. Its season is after Early Crawford.

NIAGARA.

Mr. Woodward—We have a peach which is, I understand, an accidental seedling of the Crawford. I wouldn't set a Crawford. You could not give them to me if I could get the peach I refer to. It is about one

picking later than Crawford; averages a good deal better, better color, better leaf, and holds its size to the end of the season. You can't sell any other tree in that section if the variety I speak of can be obtained. It is called the Niagara.

Prof. Van Deman—I have heard the Niagara spoken of in the highest terms. Those who have fruited it prefer it to any other, and I think it even better than Elberta or Early Crawford.

Mr. Dewane Bogue—I think the Niagara is the Newark seedling.

Mr. Woodward—There isn't any doubt about it. I know the man on whose land it originated. I happened to get "defrauded" by getting two or three hundred trees of that variety instead of Crawford. I never found any fault. A year ago last fall I supplied Dansville Sanitorium with peaches. They wrote me half a dozen times this last summer to know if I could not send them some more. They bore a nice crop, and the fruit holds right up to the end of the picking. The quality is superb.

MARKHAM.

Mr. J. A. Anderson asked about this peach.

Mr. Willard—It originated at Hart, Mich. In correspondence with the best fruit grower I know, he said: "You remember being with me on Mr. Markham's place? He has one of the best peaches I ever saw grown. It is called the 'Markham.'" He finally secured some buds and sent them to me, and I have a few trees. From this man's statement, up in northern Michigan, where they require a hardy peach, and from his reputation as a peach grower, I am inclined to think that it might be a good peach. I will tell you next year.

CHAMPION.

Dr. Chas. A. Ring inquired if anyone knew anything of this variety.

Mr. Barns—We have two trees. It is a very desirable early peach. It is white with slight carmine cheek, freestone, and without exception the finest-flavored peach I ever ate. It is a good cropper, with season about same as Mountain Rose.

Mr. J. W. Smith, Winona, Ont.—Hynes Surprise is one of the best white peaches we have. I like the Champion; got it from Ohio. Quality is superb.

Mr. Hunt—One of the best white peaches I have, and am more than pleased with it.

KALAMAZOO.

Mr. C. A. Goetzman mentioned this peach.

Mr. Willard—I like it very much. It is one of the best they have in Michigan. A hardy variety, that gave us some superior fruit last year. Yellow, large size, a little late, good handler, and commendable in every respect.

CRAWFORD.

Mr. T. H. King—Is the Crawford doing as well as formerly? It is not with us. We are putting the Brigdon in its place. It bears a larger crop and is fully as fine.

Mr. Willard Hopkins—Is it not a fact that Early Crawford is more liable than any other variety to the disease known as "little peach"?

Mr. B. J. Case—We haven't any that excels Early Crawford, unless it is the Elberta; but Early Crawford is our stand-by yet.

Mr. Hopkins—Out of an orchard of 800 trees, after the first or second crop, about 500 were affected with the "small peach" disease. Were they grown from the pits, or is it a disease, or how did it come? I cleaned the whole orchard out.

Prof. Van Deman—This disease is just now being investigated by Dr. Smith, of Washington. As yet nothing definite is known about the germ, and there is no remedy known.

Mr. King—We had a little of it, but not

so much last season as a year ago. The affected trees were given four pounds of nitrate of soda each, and they seemed partially to recover.

BECKWITH.

Mr. Pease—It is a late peach, of rich dark color. If properly grown and thinned it is a freestone, otherwise it is a cling. In quality is very rich, and bears freely, and the trees are very hardy, but do not know if it is grown anywhere but Oswego.

GREENSBORO.

Replying to an inquiry, Mr. McKay said Mr. Maxwell had some. It is extremely early, but not absolutely freestone.

Prof. Van Deman recommend the trying of the Greensboro and Sneed, both very early peaches.

WIARD AND SNOW'S FAVORITE.

Mr. Edward A. Powell—This peach, the Wiard, is a new, very handsome and promising peach. Another good one, originating in Syracuse, is the Snow's Favorite, which ripens about the same time as Crawford's Early. Larger in size, higher colored, very fine in quality, of excellent flavor, and I consider it very desirable.

Who has experience in spraying peaches?

Mr. W. T. Mann—I made a careful experiment of spraying on dormant wood four or five years ago, and the treatment was successful. Last year similar experiments were made, and while there was not a large amount of curl there was sufficient to show favorably for the treatment, and I think you can depend on it as a practical preventive of curl.

Mr. Hopkins—What time do you do your spraying?

Mr. Mann—Just before the buds open. We also sprayed on the foliage after they were out, but that was harmful. I would not dare to use it on the leaf. I think you should spray on the dormant wood before the buds open.

Mr. Willard—Mr. Morrill took the ground that he could do the spraying all at the time suggested by Mr. Mann, but he has been doing it all winter. The result was magnificent, for he had a most wonderful crop last season. He cultivates thoroughly.

In a drouth can we work the soil too much?

Prof. Van Deman—I know of a gentleman in Illinois who undertook to determine the point. He had a piece of corn between the barn and the adjoining fields, and he had the boys, every time they drove out in the morning and at dinner time, run right through these rows, so that they made four trips and covered that piece with the cultivator almost every day, and he said he never raised such a crop of corn.

Hrof. Van Deman—We know the peach crop was a failure last year, especially about Mr. Morrell's neighborhood in Michigan, with the exception of his orchard; he had cultivated and thinned and pruned so thoroughly that his trees were in such condition they went through the terrible February blizzard all right. He took in nearly \$35,000 off from fifty acres. He sold some peaches as high as \$7 a basket; any three of them would weigh two pounds.

Has anyone had experience in top-working Keiffer pear on the Bartlett or any other variety: if so, with what results?

Mr. Hooker—It grows readily on the Bartlett, but the Bartlett does not grow on the Keiffer. I don't know what pear will do well on the Keiffer.

Mr. Geo. T. Powell—Bosc will do all right on Keiffer.

Mr. Willard—There seems to be a lack of affinity between the Keiffer and certain other varieties. I have tried Winter Nelis, and it looks all right so far.

Is there any reasonable chance for profitable returns from the planting of nut trees, or for timber growth?

Mr. Woodward—We have a Paragon chestnut growing very nicely. If you get a dozen to grow out of a hundred you will be happy. It is about three times as large as the common sweet chestnut. After removing the film my taste is not good enough to tell one from the other. I believe there is a great future in growing black walnuts. I know of one tree that when I was a boy I dug up and took home, and now it is thirty-two inches in diameter. I believe there is profit not only in growing nuts but also nut trees.

Mr. Barns—We are making some experiments with chestnuts, but it is too early to show definite results.

Is the Champion quince of any value in this latitude?

Mr. W. H. Pillow—The Champion is all right, but it is too late here.

Winter Pears—What do members know about the Directeur Alphonse and the Dorset; are they desirable to grow for market? Name their weak points, and are there any better varieties?

Mr. Barry—We have been growing Directeur Alphonse for some years. It is a very handsome fruit. The tree is vigorous and a great bearer; but of course it is of too recent origin to state definitely its value. Dorset is large size, handsome, and good quality, valuable as a late pear and a good shipper. It is a question in regard to the introduction of new pears; you have so many already; but both of these are additions of considerable consequence.

What is the latest report regarding the Japan plum October Purple?

Mr. Willard—I have been disappointed in it. It bloomed well, but failed to set well. I do not regard it as a great acquisition and would not advocate planting it.

—Report W. N. Y. Hort. Soc.



TIMELY TOPICS FOR THE AMATEUR—VII.

SEPTEMBER is usually a time of uncertainty and uneasiness to those who have tender plants to care for, especially after the first week or two of the month has passed. Alternate periods of summer or chilly autumn weather, the mercury often rising or falling very rapidly in even a few hours, compels the plant lover to watch closely any indication of the approach of the first frost of autumn.

The change from summer heat to cold, even to freezing point, is often so sudden, that it is well to have the greenhouse and conservatory in readiness to receive the more tender plants early in September.

Plants in tubs or pots standing outside may be protected from early frosts by removing them to the shelter of a tree near at hand, a fence or building, or the more certain protection of a verandah. For beds of foliage or tender plants, a covering of cotton, or even a few newspapers, will often be sufficient protection to ward off slight frosts. The covering should be secured by means of stakes or wires, as close to the plant as possible without actually touching them. If the first few frosts of early autumn can be prevented from nipping foliage plants, they will often retain their rich coloring, and brighten

up the lawn and its surroundings, until the more gorgeous and resplendent tints of late autumn foliage appear to warn us to prepare for winter frost and storm.

Should any plants be unfortunately nipped by frost, keep them covered until the sun and heat of the following day has passed, as immediate exposure to sun and air is very disastrous to plants, even if only slightly frost-bitten. I have found this method of excluding light and air for a time from plants touched by frost, more successful in restoring them than syringing or plunging them in cold water. To be successful with either method, it is essential that frost-bitten plants under any circumstances, should at once have a gradually rising temperature to a few degrees above freezing point to recover in. This condition comes naturally during the increasing heat of the day, to plants exposed at night to early autumn frosts.

If you have a few choice tender plants, and feel doubtful whether there will be frost or not, it is always best to be on the safe side, and place them, if only for a single night, where they are safe. Many fine specimen plants have been ruined by leaving them outside just one night too long.

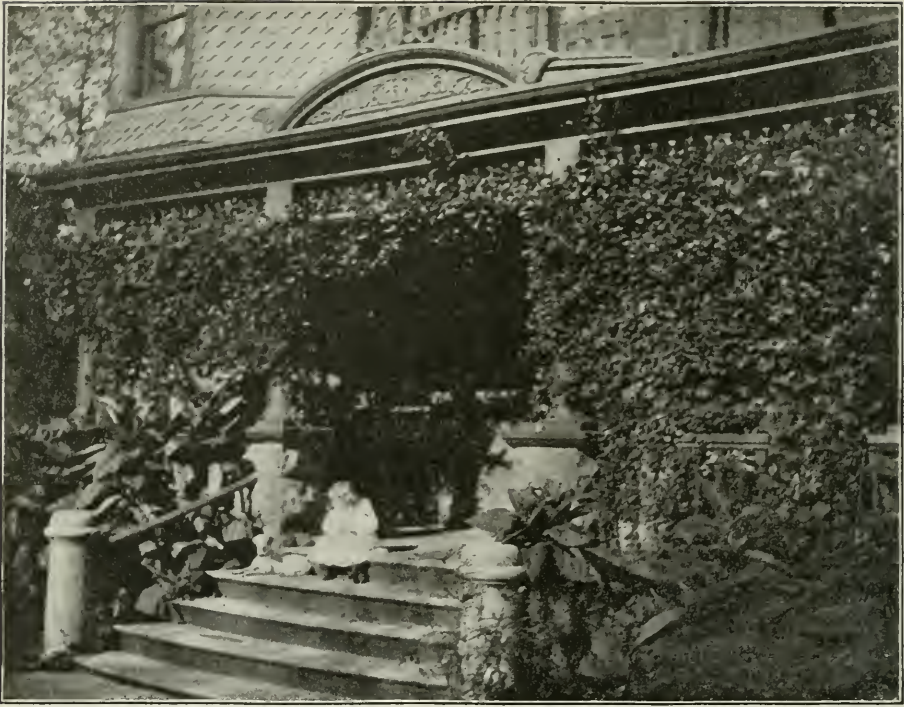


FIG. 1908. COBÆA SCANDENS, AT HAMILTON, NOV. 1899.

The trite old saying "Better be sure than sorry," should always be borne in mind and acted upon by horticulturists at all times, but more especially during the uncertain and changeable weather experienced during the early autumn.

THE GREENHOUSE.—See that the heating apparatus for this department is in good working order before heavy frosts commence, it might save your plants, and perhaps several nights of worry and watchfulness later on.

The cutting bed should be ready to commence propagating cuttings of geraniums, coleus and all perennial bedding plants, necessary to secure stock for next season's use. Coleus, achyranthes and ageratum cuttings more especially, should be secured before even the slightest frost has touched them, as it is very difficult to strike cuttings of these, or of any other plants, after being

exposed to cold, chilly weather. A few old plants of coleus and achyranthes may be lifted carefully from the beds or borders before being touched by frost, and potted in light loamy soil in four or five inch pots. These can be stood down on the floor of the greenhouse, where they will get a fair amount of light and sunshine during the winter. If watered carefully at the roots only, and placed where the drip from the bench does not bother them, they will often give a good supply of much needed cuttings during March and April, when perhaps cuttings from fall stock are hard to obtain. The third week in September as a rule, is early enough to take cuttings of geraniums, and the more hardy varieties of bedding plants.

Tender plants, such as stevias, abutilons, poinsettias, eupatoriums, bouvardias, etc., will require to be taken indoors before the first early frost, the poinsettias being

*Agave, Amer. Var.*FIG. 1909. DIERVILLA (*Weigelia*) ROSEA.

particularly susceptible to cold chilly weather. Freesias and Easter lilies started in pots outside, should be taken in before frost.

Agaves, palms, ficus elastica, azaleas, fuchsias, genistas, pelargoniums and other similar plants may be left outside until the weather gets cooler. Both varieties of the *Agave Americanus* will bear three or four degrees of frost for one night without injury, but it is not wise to risk them outside when the thermometer registers at freezing point, unless they are well protected.

Cinerarias, herbaceous caleolarias and cyclamens, may be left out in cold frames for perhaps a few weeks, but the sash should be placed over them on cold nights. Re-pot these plants into larger pots as required. Gloxinia bulbs out of flower should be gradually dried off. Re-pot old corms or bulbs of cyclamen.

Chrysanthemums grown in pots or planted outside, should be taken in about the middle of the month. Although most varieties of those useful plants are almost or quite hardy, a few degrees of frost will materially injure the flower buds, as well as induce an attack of mildew that will mar the beauty of both flower and foliage. Extremes of either heat, cold, dryness or moisture induces mildew, and should therefore be avoided as much as possible in growing these lovely autumn and winter flowers. If large flowers are required, disbudding will have to be attended to every day or two during the next few weeks. This is done by pinching off with the thumb nail and finger, or removing with a pair of scissors, all the small lateral buds, leaving only one or two perfect crown or terminal buds near the top of each branch or stem of the plant. A little liquid manure will help to

swell the buds during this period. Give the plants plenty of water, as the foliage of chrysanthus, especially at this stage, should never be allowed to wither and droop. A light shading for these, and all lifted or repotted plants, will still be found beneficial. Syringing early in the morning will also help to keep the foliage bright and fresh looking.

Carnations planted out in the borders, should be either potted or planted on the benches early in the month; syringe daily to keep down red spider. Bench roses will require plenty of water and regular daily syringing with tepid water, early morning will probably be the best time for this operation. Tea roses in pots that have been resting, should be pruned back as required, and repotted firmly into good, rich, clay loam soil. Hybrid perpetual roses grown in pots for winter flowering can be left a month later before being repotted, as a slight frost or two is beneficial to harden the wood of these before being taken indoors.

Young bushy plants of antirrhinums, (*snap dragons*) and ageratums, etc., if lifted and potted carefully, will often give a supply of bloom during a great part of the winter. Double white allysum plants cut back, and potted three or four in four inch pots, are also useful for this purpose, and will furnish an abundant supply of cuttings as well, early in the spring.

If petunias, heliotropes and similar quick growing plants are wanted from the beds or borders, cut them back a week or two before taking them up, and give very little root room for a time.

Geraniums grown in pots (as recommended in May number of Horticulturist, page 201) for winter flowering, should be taken indoors toward the end of the month and allowed to flower.

Close ventilators early in the afternoon, and keep the floors well dampened. A little fire heat may be necessary toward the end of the month, especially for bench roses and

tender plants. Paint the hot water or steam pipes in the greenhouse with flour of sulphur well mixed in water, it will prevent and keep down mildew.

WINDOW PLANTS.—The beautiful annual climbers that are used with such pleasing effect around and about windows and verandahs in summer, will soon lose their brightness and show signs of approaching cold weather. These can, however, by a little care and attention, often be made to look quite fresh and attractive long after the flower beds have been dimmed or blackened by the first frosts of autumn. The accompanying photo, Fig. 1908, taken in Nov., 1899, showing the beautiful Mexican climber, *cobea scandens*, with its profuse, delicate foliage and tendrils, and its large purple campanula shaped flowers still fresh and vigorous, proves that even the slight protection of an open verandah will prolong the beauty of the most tender plants almost into the winter months. Many methods of temporary protection to plants of similar character, will suggest themselves to those who wish to prolong the summer beauty of their pet window plants and climbers. *Cobea scandens* is especially useful as a summer climber.

A few plants of lobelia, white alyssum, etc., may be potted up from the borders to brighten up the windows until the early winter flowering bulbs commence to bloom. Later on, before the boxes are emptied, some plants of the variegated vincas (*periwinkle*) tradescantias, *isolepsis*, *Festuca glauca*, *cethonna crassifolia*, etc., may be potted; these will help to fill up the window and furnish a supply for next season's use. A few cuttings of German ivy or the perennial *tropaelums* can be struck in pots in sand, and when rooted, grown on in hanging pots or baskets for the window in winter. The old fashioned, but pretty and graceful looking trailing plant, *saxifraga sarmentosa*, known perhaps better by its numerous local names, such as "mother of thousands," "creeping

sailor," etc., makes a very pretty, effective and easily grown plant for a hanging pot or basket. A nicely grown specimen of this plant, especially when in flower in summer, has a pleasing appearance suspended in a window. *Othronna crassifolia* succeeds best in a hanging pot or basket in winter.

Roman hyacinths bulbs may be potted two or three in a four inch pot at intervals of a week or two. By potting a few bulbs at a time at intervals, a succession of these useful and fragrant flowers can be had from October until April if required. For culture, see page 456, November, 1899, Canadian Horticulturist. Cuttings of geraniums, etc., can also be taken as recommended in the above mentioned number of this journal.

Avoid using larger pots than is necessary for wintering plants in; over potting, especially in winter, has proved fatal to many a pet plant. Use plenty of drainage when potting plants for winter effect. Water thoroughly all plants when water is required. Commence operations against insect pests early. Prevention is better than cure.

FLOWER GARDEN.—Asters and other late flowering annuals will be at their best during this month. A little weak liquid manure once or twice a week will help the dahlias, if the plants are not robust and strong.

German iris and pæonies may be divided and planted out toward the end of the month or early in October, as the rush of spring work often prevents these from being planted out early enough in spring to give flowering results the same season. A light mulch, applied late in the season will help the pæonies through the winter.

Japanese lilies growing in the open border should still be making a showy display early in the month. I prefer planting these valuable bulbs inside in large 7 or 8 inch pots, and plunge pot and all outside in the open ground, in slight shade if possible, about the end of May. The pots can then be lifted into the house if the plants are in

flower when the first frosts arrive, as is often the case. *Lilium auratum*, *L. rubrum*, *L. speciosum album* and many other varieties of these gorgeous Eastern lilies can be had in flower in this way until quite late in the autumn. If the bulbs are properly cared for and given their proper resting period they will still be useful for planting out permanently in the open border and give good results. Flowering shrubs and perennials have given grand flowering results this summer, many of them continuing in flower almost the whole of the summer. Amongst perennials the *campanula persicifolia alba* and the numerous varieties of herbaceous phlox have flowered very well indeed. The accompanying photo of *Diervilla* or *weigela rosea*, Fig. 1909, shows one of these beautiful shrubs in full flower in early June. At this date (August) there are several fine sprays of bloom on this plant.

FRUIT GARDEN.—Gathering in the early autumn fruits will be the principal operation in the fruit garden during this month. Fruit picking is often very carelessly done; too much care can hardly be devoted to this operation. It is very little use to devote a lot of time and attention in pruning, cultivating, and spraying fruit trees, and then lose 50 per cent. of the fruit, as it often the case, by careless handling at picking time. Handle fruit carefully and as little as possible.

Daily pickings of fruit, especially peaches, apricots, nectarines, and even plums, is advisable. A little practice will soon enable the close observer the proper time to start fruit picking and supply the table with luscious, healthful fruit from the garden. A dish of fruit from your own fruit trees, carefully handled so as to preserve the natural bloom, will be more pleasing to the eye, as well as tempting to the appetite, than a whole basketful of fruit would be with the natural bloom all smeared and smudged, to say nothing perhaps of bruises from careless handling. It is pleasing to

note the interest that is being taken by commercial fruit growers and the great advance made in this direction of recent years, so as to place our delicious Canadian fruits before the consumers in the best possible condition.

In arranging compartments of fruit for the table, a few bright colored, perfectly shaped leaves, taken if possible from the same trees as the fruit, and placed around and about it, will show the fruit off to the best possible advantage. Autumn tinted maple leaves, or the leaves, or even the long trailing shoots of the *Ampelopsis Veitchii*, are very pretty and effective for this purpose.

VEGETABLE GARDEN.—Make a sowing or two of spinach for early winter and spring use, one sowing early in the month, and another about two weeks later. The prickly seeded Spinach is the hardiest variety, but the Round Summer is much used for autumn sowing, and often come through the winter almost as soon as the prickly seeded variety. The latter is not considered to be as tender eating or as nice flavored as the summer varieties.

Onions will be about ready to harvest now; see that they are thoroughly dried before storing. Do not leave them too long on the ground when growth is completed, as they soon commence to grow again after reaching maturity, especially during wet weather, if they are not pulled from the ground. Store them in a dry, cool place, with a temperature

only a few degrees above freezing if possible. Keep the bulbs dry and cool, is the best secret in storing onions to keep well until spring.

Celery will require watering if dry weather prevails, and earthing up a little as growth progresses. Celery can be blanched by wrapping a thick sheet of coarse paper once or twice around each head, and fastening with a piece of twine. Long clean straw, or short pieces of board placed and fastened close up on each side of the celery will answer the same purpose. The wrapping process is probably the simplest and easiest, where small quantities of this useful and healthful vegetable is used.

Beet roots must be stored, or at least pulled and protected temporarily, before severe frosts; handle carefully so as not to bruise them; leave the roots intact, and a few inches of the tops on the beet, as trimming either of these too closely detracts from the color and flavor, as well as causing the roots to rot early in the winter.

Cut all vegetable marrows that are ready for use before frost. These will keep several weeks if placed in a fairly dry cool place. Carrots, parsnips and salsify may be left in the ground till later. A few roots of the two last named may be left in the ground all winter; they are much nicer eating in the spring than those that have been wintered in cellars or root houses.

HORTUS.

Hamilton.

THE AMARYLLIS.—Those who love a gorgeously-colored flower should try the amaryllis *johnsonii*. Truly, it is a queen among lilies. A year ago I purchased a bulb and planted it in a large jardiniere filled with rich soil. It soon sent up five stately leaves several feet in length, then a large flower-stalk from which soon developed

three large, drooping, bell-shaped flowers. The petals had the appearance of rich red velvet with a white satin stripe down the center. Words fail to give an idea of its loveliness. Many persons seeing it in the window came in to know the name of this rare plant, and to admire its wondrous beauty.—*Park's Floral Magazine*.

PREPARING PLANTS FOR WINTER.

I would never advise putting the plants intended for winter use in the open ground in summer, for these reasons: The growth of the season must largely be sacrificed in the fall, when the plant is lifted and potted. This operation checks it severely, and in consequence the plant is in a weakened condition at the very time when it ought to be strongest and most vigorous. The change from out to indoor conditions is always a trying one to a plant, therefore it needs all possible strength to take it through the ordeal. If it lacks vitality when taken into the house, it naturally follows that what vitality it has must be greatly lowered by the depressing conditions it has to meet, and the result is that if it survives the strain put upon it it takes it nearly all winter to get well established, or to recuperate, and while this is being done it cannot be expected to produce flowers. By the time it gets fairly to growing spring has come, and the winter's experience has been a most discouraging one to the amateur. Therefore, the importance of having two sets of plants will be readily apparent to the thoughtful reader; one to bloom in summer, the other to be held in reserve for winter work. The same plants cannot be made to do duty during both seasons. I make it a practice to grow young, strong, vigorous plants each summer for the coming winter, and the older plants, those which have passed their prime, are allowed to bloom to suit themselves throughout the summer, and are then thrown aside. But good plants do not outlive their usefulness in one season. If they are cut back well each spring and kept as quiet as possible until September, they can be carried through several seasons and will be found more satisfactory when two and three years old than when but one year old. This is especially true of the geraniums. I know that young plants are often advised; and some

writers say old plants are worthless. These persons do not know what they are talking about when they say this. I never expect a geranium to show what it is capable of doing before its second year, and the third year it will be more satisfactory if one has room enough for large plants such as old geraniums will be when properly grown. I have in my greenhouse geraniums over six years old, and they are as healthy and vigorous as new plants and have a score of flower-trusses when the young plants have one. Visitors often ask me if they are not rare kinds. They had supposed that these plants were worthless after the first year, and are surprised to find how far superior they become with age to the ordinary small plants.

If young plants of any kind are to be grown from cuttings for winter use, they should be started early in the season. Get them to growing, if possible, in March or April. Heliotropes, Begonias, Ferns—in fact all plants except such as are grown from seed—must have this early start if one wants plants of good size. Late started plants will be more intent on producing branches than on flowering, for they will not have reached that maturity which they must attain before they get down to the serious work of life. Roses should be cut back until October. Then let them grow all they will. The new growth will always bear blossoms if strong and healthy. Geraniums should have all buds removed up to the time of bringing the plants into the house. Then let them begin to flower, but remove some of the buds that form, thus holding the plants somewhat in reserve for the season when flowers will be more appreciated. Carnations seldom begin to flower much before late fall, therefore some of the first crop of buds can be allowed to develop.

E. E. REXFORD,
in *How to Grow Flowers*.

CARE AND CULTURE OF CACTI.

MOST people who admire a well-grown Cactus in some other person's collection would like to have some themselves if they thought they would be able to give the plants the proper care to produce the best results. The writer has found also a widespread belief that a cactus must be about seven years old before it will bloom, and the thought of that long wait is enough to deter a great many from possessing any of this most interesting species of plant life. Some ladies have persevered and patiently went through the term of waiting, in the hopes of having at last the long coveted bloom, and under their treatment it has perhaps taken the required number of years to comply with the tradition. But in the writer's experience this idea has been entirely exploded. Very small specimens of some varieties, which have only been rooted and grown for one and two years have cheerfully contributed their quota of beautiful waxy flowers. It is true that some species are extremely shy bloomers, and very large plants have been kept for years without ever rewarding the owner with a blossom, and to the flower lover who only prizes the plant for its bloom this is a serious drawback. To a collector of cacti, who sees sufficient beauty in the diversity of spines, shapes, growth and other features, to prize a specimen for its own sake, even if bloom is scarce, this does not matter. A few suggestions as to care along the lines that have been most successful in the writer's case may be of interest. One peculiarity that is common to all kinds of cacti, is that the plant that is given the best care and most elaborate treatment, almost invariably rewards the owner by dying. They will not stand forcing; for although if fed on plant food they will flourish for a while, the final

result is almost sure to be disaster. So then it seems that neglect is a better plan to follow, and one need only consider the conditions in which cacti grow in their native home, to realize that this is what they are used to, and what nature has fitted them for. In clear, hot sand beds, where nothing else can live, there will be found some varieties of cacti, covered in their season with their fine flowers, and flourishing under these apparently adverse conditions. How then are we to make conditions resemble nature in our house treatment of cacti? Supposing one has a lot of cuttings of different kinds with which they wish to make a start towards a small cactus collection, a simple way to start them in a south window or conservatory is to make a shallow box about three inches deep and fill it with nothing but very coarse sand, the coarser the better, set the slips in this just far enough to be held firmly, and then after moistening the sand it would be just as well to forget the box for a week before again watering. Never keep the sand very wet or the cutting will rot off, but by giving them a little of the neglect which they naturally expect, growth will very soon appear, when the plants may be separately potted. In potting them care must be taken to have the drainage perfect. Fill in the bottom of the pot with broken crockery, stones or mortar, and on this just a layer of soil, composed of one-third garden soil and two-thirds coarse sand. Leave a hollow space in the center of the pot large enough to set the plant in, and in this put the plant, in clear sand, filling up the pot to the required depth with the sand only. This allows the roots to extend into a little heavier soil when the plant requires a little more nourishment, and the plant itself rests on the sand, which seems to suit it best. For a large window box a nice effect can be

secured by having a variety of kinds and arranging them so as to contrast the colors of the spines in any desired way, and putting a layer of sandy soil in the bottom and setting the plants in two or three inches of clear, coarse sand.

In this paper a general talk is given on culture at the outset of a cactus collection, and in some later issues special varieties will be taken up and described, with the particular treatment that they require.

Woodstock, Ont. J. H. CALLANDER.

RHYNCHOSPERMUM JASMINOIDES.

THIS pretty little trailing greenhouse shrub, that certainly does not deserve to have such a cruelly long and almost unpronounceable name attached to it, is a native of eastern lands, being found in India, China, Japan and adjacent countries. It was introduced into England from Shanghai,

all the attention it requires besides watering. I find the best time to repot this plant is early in the Spring, as soon as it shows the first signs of bursting its buds, to produce flowering growth. Keep it in the greenhouse from early in September until after it has done flowering in June, when it can be stood on the north side of a fence or building on coal ashes all the summer. This will prevent worms getting into the pot. Perfect drainage is very essential in growing this plant successfully. It requires very little water during summer, but must not be allowed to dry out completely.

The deliciously soft but powerful jasmine fragrance of its ivory white star-like flowers that it produces in such profusion in early summer, will especially endear it to all flower lovers from the old land, and awaken fond memories of the old jasmine-covered rustic porches, that add so much to the quiet, peaceful beauty of cottage homes, especially in the south and west of England; and around which perhaps many of our readers have spent many happy hours of their childhood and youth. Even a small plant of this fragrant greenhouse shrub when in flower will perfume a large dwelling house completely.

The accompanying photo of a small plant about seven years old from a cutting, will give some idea of the appearance of this eastern shrub when in flower, a plant of which should be in every collection of greenhouse plants, its flower being very useful for button-hole bouquets, etc., in spring and early summer.

HORTUS.

Hamilton.



FIG. 1910. *RHYNCHOSPERMUM JASMINOIDES.*

China, about half a century ago. As a greenhouse plant it is easy to grow, requiring very little care and attention; but like most of the hardwood greenhouse plants it is slow growing. Repotting into fairly rich, light loamy potting soil, with perhaps a little leaf soil or peat mixed with it, is about



The Canadian Horticulturist

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

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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 it 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.

NOTES AND COMMENTS.

ERRATA, PAGE 345, "Our Watering," should read "Over Watering. Page 348, "Bench Roses" should read "Bunch Roses."

THE WONDERFULLY FINE PROSPECT for apples will be much lessened by dropping and worms. Western New York and Southern Ontario give excellent promise.

OUR FRUIT AT PARIS seems to have attracted considerable attention. Five first prizes have been awarded us. The fruit was shipped on steamer Parisian to Liverpool in cold storage.

THE TRIUMPH PEACH is promising to be very popular in Ontario. Growers in the Niagara district think its time of ripening, closely following Alexander, its yellow color, its free stone, all conspire to make it the

most popular peach of its season. Fault is found with it by others on account of its furry coat and its toughness of skin, while the tree they say is much subject to blight, especially after a season of a heavy crop.

MR. R. B. WHYTE, Director at Ottawa, seems to be one of the chief prize winners at the Horticultural show at Ottawa on the 17th of July, both for fruits and flowers, judging from the report in the Ottawa Citizen.

SEEDLING GOOSEBERRIES, from C. L. Stephens, Orillia, received 26th July, 1900, all from four year old plants. No. 1, Seedling of Industry, picked 20th July, much resembles its parent in color and form, but from branch received would appear to be much more productive. No. 2, also Seedling of Industry, green in color, quite soft

when received. No. 3, Chance Seedling, green, apparently of little value, though larger than Downing, its supposed parent. No. 6, Chance Seedling, possibly of pearl yellow, larger than Pearl of good quality.

MILLIONS OF BASKETS of Elberta peaches are being harvested in Georgia. Daily shipments over the Central R.R. of Georgia, fill about eighty cars per day, along the line of which road there are over 1,200,000 bearing peach trees.

THE SNEED PEACH ripened at Grimsby on the 24th of July. The whole crop was shipped by the 26th. It is an early variety indeed, but you can say little more in its favor. It is very soft, a cling, and has very little flavor.

AN EXTRA DOUBLE TUBEROUS BEGONIA comes from Mr. R. Cameron, of Niagara Falls. This flower is composed of many double flowers in one. It is also very shapely, like a ball, and the size of a baseball, and of a rich color and splendid substance.

THE LEADING ROSARIAN OF CANADA, Mr. Henry Dale, of Brampton, passed away July 15th. At twelve years of age Mr. Dale came from England to Brampton, becoming in 1870 a partner, and in 1881 starting business for himself, in marketing, gardening and rose-growing, a business which grew until he had 200,000 feet of glass and a national reputation. He was just building six new houses, two of them 840 feet long.

THE FARMER'S INSTITUTE of Ontario, Fruit Growers' and other Associations, have united in making a special gift to Dr. Mills in recognition of the magnificent work he has done for the country at the Ontario Agricultural College. This gift has enabled Dr. Mills to take a holiday in Europe, a rest

from his severe duties which he sadly needs in order to recuperate his worn out energies. The public presentation will be made on his return.

THE MIDSUMMER SHOW of the London Horticultural Society was held in the City Hall on the 7th and 8th August. Hours 1.30 to 10.30 each day. The exhibit consisted of flowers and decorative plants; there was no entrance fee. In another column there appears some account of this exhibition, which was a great success.

THE ENGLISH APPLE CROP for 1900 is of unusually fine quality and very abundant, according to the report given in the Gardeners' Chronicle. The pear crop is a good average, though considerably better than in 1899. It is evident, therefore, that we must ship only our finest fruit, graded to uniform size and color, if we would receive satisfactory returns. It is far better to leave small and gnarly samples on the tree to waste than to spend the time gathering them and sorting them. In the end they may be gathered for cider, after the best are disposed of. Germany will probably take a good many of our red apples, if we may judge from the following lines, written by Aug. Stier to The Fruitman's Guide London :

Hamburg, July 30.—With reference to our Hamburg market for American and Canadian apples, I beg to inform you that special red-colored fruit, Baldwins, Ben Davis, Kings, Seeks, etc., are very much liked, while green apples in larger quantities are not so much wanted—medium size apples are preferred to large ones.

We have a large crop of apples in our country, but consisting nearly fully of cooking apples, we can surely do with large quantities of good colored American fruit. Doubtless prices will not be high this season on account of probable heavy arrivals.

Hamburg, Aug. 1.—Referring to my last of the 30th ult., you will no doubt be aware of the enormous crops of apples in the United States and Canada, and the probability of heavy exports to Europe. I repeat, we have a big crop in Germany, but ours are all cooking sorts. We have no table fruit at all, and there is every prospect of a strong demand for American and Canadian apples with us.

QUESTION DRAWER.

Sowing Seed of Ginseng.

1173. SIR,—Will any member of your Association tell me why my Ginseng seed does not grow. A year ago I planted fifty seeds in a box 2 feet 6 inches long by 1 foot wide, with 8 inches of good soil. I put 8 inches of good soil in it, put the box next the fence, banked earth around it and planted the seed about one inch deep. I covered the box with a fine wire screen to keep out the mice, and kept it moist last summer by sprinkling. This year I expected young plants but not one has appeared.

Clinton.

THOS. HOLLAWAY.

We have referred our inquirer to Mr. Harlan P. Kelsey, of Boston, Mass., who is the chief dealer in Ginseng in America, who has replied as follows :

I think your subscriber probably let the Ginseng dry out at some time, and he did not plant it properly in any case. There should have been at least 18 inches of good soil beneath the seeds, and the box should have been sunk to the level of the surrounding earth, instead of having banked up around it. Again, probably the seed was not good. This can be ascertained by cutting through the seed as one would cut through a cucumber or squash seed.

The best way is to put the seeds in layers as soon as collected, with sand or soil between in beds, and put in the open air. Plant out in large boxes sunk to the level in the soil with netting roller to keep it moist.

Again, the seed may have been a little too dry, and in this case they would not come up till next spring. But he can find out if they are good by testing as above.

Orchard Cultivation.

1074. SIR,—I was much interested in the able and lucid address given at the convention of the Fruit Growers' Association by Mr. Powell, of Ghent, especially that portion which treats of the ploughing under of clovers. He makes every point very clear, except one, which is not spoken of, and that is this: It is generally the custom to plough towards the trees in the autumn and away from them in the spring, or at any rate, to work the soil away in the spring with the disc harrow. I understand that he advocates ploughing, and in

the early spring, and doing the rest of the work with the cultivator. Now, my question is, "Is it not helpful to the trees to plough towards them before the winter. Is it not almost necessary in this latitude?" And, again, would he recommend ploughing towards and from the trees alternate years, or in your opinion, if the soil were thrown towards the trees every year, would cultivating and crosscultivating level the ground sufficiently? I am much interested in the clover question and should feel obliged if you would kindly answer in the next issue of your paper.

Yours truly

Woodside, Beamsville.

A. H. WANE.

In relation to cultivation of orchards, in all well drained land, it is better to keep the ground level. Cultivation sends the roots down, hence there is no danger in ploughing the soil away from them one year and towards them the next.

There is no need of deep ploughing near the trees, just enough to break up the soil and keep it stirred. Let the deeper ploughing be done outside, which keeps roots down deep, where they obtain more moisture and are safe from frost for that reason.

I believe in setting trees deeper and depend more on the lower roots; surface roots are more liable to injury from cultivation, from drouth, and from frost, hence deeper planting and getting the root system deeper in the soil will give us better trees and better results in every way.

This, with early and frequent cultivation, and then covering the land later with clover for winter protection and for improving the soil, has given me great satisfaction. For full bearing orchards this treatment gives fine quality and regular bearing.

For young growing trees this plan would have to be modified somewhat, but where small fruit culture is carried on between the trees for a few years, such as currants and raspberries, the plan will work with equally good results.

GEO. T. POWELL.

Briar Cliff Manor, N. Y.

Spraying For Thrip.

1175. SIR.—Can you inform me the best solution for spraying indoor grapes? Last year my grape vines were almost ruined by "thrip," and am afraid they will be so again. I have been spraying them with cold water in the evenings. I have a fine lot of the fruit, and it is on the new wood. You will very much oblige me.

Yours very truly,

Cobourg,

JOHN HAYDEN.

We have had good success spraying outdoor roses for thrip with Gillet's lye. We applied it with Mitchell's hand sprayer, a sort of atomizer, which throws an exceedingly fine vapor. We used a pound to five gallons of water, but found that this was injurious to the leaves. We would only use half a pound to ten gallons next time, and then spray in very fine mist. Most people use less coarse a spray. We would expect this same material useful in the case of greenhouse grape vines affected with thrip.

We would also suggest trying the application of dry insect powder, and leaving all doors and windows closed, or the house might be fumigated with dry insect powder, a thing that has been found effective in clearing out mosquitos from houses or tents.

Apples for Prince Edward Island.

1176. SIR.—Taking fruit and tree of Ben Davis as a standard of comparison for shipping to Great Britain in winter, in early bearing, hardiness, vigor, productiveness, freedom from spot or rust, color, etc., what would you say in favor of Ontario, Gano, Stark, York Imperial, Sutton Beauty (Cranberry Pippin)?

NOVICE.

Georgetown, Prince Edward Island.

As Dominion Superintendent of Horticulture at the World's Fair, Chicago, the writer had much experience with apples from all sections of the United States and Canada, and one conclusion was forced upon him, viz., the great variation in the same apple under different conditions. The Western Ben Davis was a magnificent apple, the best apple for the commercial orchard in certain States, the Baldwin of Western New York is proverbial, the Spy in On-

tario cannot be excelled by any other apple, nor the Newtown Pippin of the Alleghany mountains of Northern Pennsylvania. In certain parts of Ontario the Ontario apple is a magnificent success, far superior to the Ben Davis; in others, as for example in the Niagara District, the Cranberry Pippin is a finer selling apple than the Ben Davis, although not by any means so regularly productive. At Trenton the Stark is grown extensively and counted one of the best commercial apples. York Imperial and Gano are reported to be very successful in the Middle States, and Sutton Beauty in New York State. But so far as we know the various apples have never been fairly tried or reported upon in Prince Edward Island, and varieties which are very superior in other places to Ben Davis might prove a great failure in P. E. Island.

Apple Blight.

1177. I would like to ask if you can suggest any preventive for "apple blight," which has been very severely felt here this season and last. I put on a number of grafts last spring with the very best results, but they are nearly all killed. In common with other sufferers here I would be very glad to know the cause, and if there is any means of combatting it.

Ottawa.

A. H. TAYLOR.

No remedy is known for apple or pear blight. It is very injurious some seasons on certain varieties, and then again of quite rare occurrence. Some advise cutting off and burning all affected branches, but this is not always effective.

Pruning and Planting Evergreens.

1178. When is the right time to prune evergreens, especially Norway Spruce and Cedars? And can those trees be successfully planted after the season's growth is over, or in midsummer?

Brockville.

I. RICHARDS.

Evergreens may be pruned at any time of the year, as there is no time when they are leafless.

Transplanting of evergreens is best done when the trees are dormant, or just before or just after the summer growth. The

month of June is usually considered an excellent time, unless the transplanting is followed by very dry weather, which is more trying upon evergreens than on other trees.

The Malarial Mosquito.

1179. SIR,—There was an exceedingly interesting article recently in the Scientific American by Dr. H. O. Howard, of Washington, upon the distinctive features of the Malarial and Non-Malarial Mosquito (*Culex pungens*) and (*Anopheles quadrimaculatus*.) I don't suppose, however, "Anopheles Quad" are Canadian inhabitants.

A READER.

REPLY BY DR. FLETCHER.

The distinctive features of the Malaria Mosquito, as distinguished from the species of *Culex*, is the comparatively greater length of the palpi, the small processes which are found at the base of the proboscis. There is also a characteristic attitude when at rest. In the ordinary Mosquito *Culex* the legs are raised above the back, sweeping upwards, while in *Anopheles* they droop beneath the body. When at rest *Culex* holds its body parallel with the surface it is resting on, while *Anopheles* has the body at almost right angles, as if attached by the tip of the beak.

The Caprifig Insect.

1180. SIR,—I would like to know if any attempt has been made to cultivate the Fig in the Niagara District. I suppose, however, this can only be done under glass? Where can I find the

name of the insect imported from Southern Europe into California for the purpose of fertilizing the fig and increasing its size and production, and an account of it.

REPLY BY DR. FLETCHER, OTTAWA.

The insect imported from Europe into California for the purpose of fertilizing the fig and increasing its size is named *Blastophaga Grossorum*, or more generally the Caprifig insect.

North American Cricket.

1181. SIR,—Give some account of the North American Cricket, and if injurious to cereal crops in the same way as the Locust and Grasshopper?

REPLY BY DR. FLETCHER.

I do not know what species should be called distinctively the North American Cricket, for there are several kinds. Possibly *Gryllus Neglectus* is meant. This is a large black species which is commonly found under logs, but is also frequently seen hopping about in hot weather. I have never known it injurious to cereal crops although it consumes a considerable amount of vegetable matter. Its range of food is very varied, consisting about equally of animal and vegetable substances.

All of these questions could have been more suitably sent to an entomological or natural history publication, where they could have been answered more fully.

MR. E. L. GOODSSELL, of New York, has been abroad studying the apple market, and writes as follows in the New York Fruitman's Guide, on the apple market :

The apple crops of both Germany and England promise to be about the largest on record. But the quality is by no means commensurate with the quantity. Both countries have been sufferers from continued heat and drought, and as a result the apples, plentiful as they are, will be so small

and poor as to be unimportant factors in the market. As a result American apple shippers must bear in mind that they will win in the competition by force of sheer quality and quality alone, and accordingly they must be careful to send apples of only the best quality or size; otherwise they will get their fingers badly burned. It is believed that good apples will sell well in England and Germany, and will meet a large demand, especially in view of the country's recent favorable action in the matter of duties on American fruits.

Open Letters.

The Apple Crop of 1900.

Messrs. Simons, Shuttleworth & Co., of Liverpool, write as follows regarding the current season's apple crop:

SIR,—Following our usual custom at this time of the year, we now beg to put before shippers our estimate of this year's crop, as gathered by representatives, who have just finished their travels through the apple growing districts of America and Europe.

It appears unnecessary for us to put this information into an extended report. Taking America as a whole, the present indications are for a record crop of good quality, not excepting the phenomenal one of 1896. In saying this it must not be understood that there are no sections where apples are light and quality poor; there are spots where these conditions exist. The crop in Great Britain and on the Continent of Europe is also very large and of good quality. On both continents some varieties of fruit, where trees are heavily loaded, will be undersized, but otherwise clean and bright, particularly so where cultivation and spraying have been properly done.

The problem presenting itself for solution, therefore, is, "How can this large crop of apples be marketed to the best advantage?" The law of supply and demand ought to regulate prices every season, although as a matter of fact, from a shipper's standpoint, it rarely does. In view of this year's crop prices must necessarily rule correspondingly low.

While advising the utmost caution on the part of intending shippers, yet, owing to the superior quality of the American and Canadian product, we believe there will be times when large supplies of good well-packed fruit will meet with an active demand, at fairly moderate prices.

The importance of a wide and rapid distribution into the hands of consumers will be apparent to everyone—growers as well as shippers—and in connection with this feature of the trade we may say that during the season of 1896 we handled over 650,000 barrels of Americans and Canadians alone, and this year we have made preparations for the handling of an almost unlimited number with the greatest possible dispatch, without unduly taxing our facilities. As soon as the fruit is sold we cable the net proceeds so that our shippers may have their money in hand within a very short time.

A Good Advertising Medium.

The circulation of the Canadian Horticulturist certainly covers the Dominion. I have had enquiries for cacti from British Columbia to Nova Scotia, and as far south as Connecticut, U. S., all as a direct result of my advt. in the Horticulturist. Substantial orders have resulted, and it is a surprise to me to find so many interested cacti collectors in Canada. Your columns surely succeed in reaching the flower lovers all over the country.

Woodstock.

J. H. CALLENDER.

Our Affiliated Societies.

LONDON—Three thousand people saw the flower show at the City Hall yesterday and last night. The crush was greatest in the evening. So many sightseers turned out to see the exhibition by gaslight that it became necessary to increase the available floor space by removing some of the foliage plants altogether.

The show has been a success beyond the dreams of the London Horticultural Society, the directors of which had evolved the idea of holding the mid-summer exhibit. Not alone was the attendance far beyond what had been anticipated, but the exhibition was declared to be the finest ever held in Ontario. There were upwards of fifteen hundred exhibits of the choicest blooms that are to be found in the gardens of the province. Sweet peas were the feature, but the display of other blooms was not far behind that delicate little flower, the pea, which has been developed until every amateur florist has his row of them.

Judge R. M. Meredith's exhibit of sweet peas made yesterday was the finest among the amateurs. His Lordship showed no less than fifty varieties of peas, and had there been space could have added to them.

The City Hall was found too small for the purposes of the exhibition. Many fine blooms were so crowded together their beauty was not done justice to. "Next year we will have the Drill Shed," President Balkwell and Director Hamilton said last night.

So marked has been the success of the exhibition that it is believed that a great impetus to amateur flower growing will result, and that succeeding shows will witness keen competitions. The Horticultural Society is to be congratulated upon the outcome of this undertaking.—Free Press.

PARIS SUMMER FLOWER SHOW—The Paris Horticultural Society is to be congratulated on the success of its first attempt at providing a flower show for the citizens of Paris on Thursday last, August 9th. A large marquee was erected on the lawn of the Congregational Church, and this was filled from end to end with flowers and plants of every description. To particularize would be a hard matter, but special mention may be made of the exhibits of Messrs. Baird, Wickson, McCormick and Miss Burshall. In the

evening the sight under the electric light was an exceedingly pretty one. The tent was crowded all evening, and not the least interesting feature was an address by Mr. William Bacon, of Orillia, who by his lecture last winter firmly established himself as a prime favorite with Paris horticulturists. Mr. Bacon, at considerable inconvenience to himself, came here to act as judge, and his decisions, backed up as they were by a thorough knowledge of his subject, gave universal satisfaction. Kay's orchestra provided pleasing music, and an ice cream stand helped to cool the temperature of the inner man on a night which was perhaps the warmest of an exceedingly hot week. We trust the society will not be weary in well doing, but will repeat its efforts at a future date. The prizes were all honorary.

Out Door Art.

Being one of the Vice-presidents of the American Art and Out Door Association, the writer regrets not having been in attendance at the recent meeting in Chicago on the 5th of June.

Dr. Howard Taylor, in behalf of Mayor Harrison, welcomed the visitors to Chicago. His remarks were seconded by Wallace Heckman, President of the Chicago Art Association, and by P. W. E. Wight, who, in place of Franklin MacVeagh, represented other local art interests. President Charles M. Loring, of Minneapolis, responded to the welcome extended to the delegates and delivered his annual address. He complimented the association upon the growth of the last year, and the great interest which is being manifested in the work. "It is a matter of congratulation," he said, "that the Municipal Art League and the American Institute of Architects have the same ideals in view that the American Park and Outdoor Art Association is striving for, and that they are working harmoniously along the same lines. Our association is represented in twenty-eight states and territories, and in Canada. The influence of the present gathering will be far-reaching, inasmuch as the movement is just beginning to show its strength, and has reached that point where it will culminate in a wave of enthusiasm for beautifying scenery and landscapes throughout the country."

In impromptu addresses from the floor, delegates E. J. Parker, of Quincy, Ill., president of the Quincy Park and Boulevard Association, and Sidney A. Foster, of Des Moines, Ia., strongly advocated the establishment of such a system.

"I am pleased," said Mr. Parker, "to see throughout the country the manner in which our universities and higher educational institutions are taking up the work of landscape gardening. What we need now is to make the grounds of every village school a park, and after it has been made beautiful to keep it open the year round and allow the children to play there. If the school grounds were made park playgrounds throughout the country, the children who are being educated in parochial schools would flock to that place, and gradually overcoming the prejudices of their parents, the Public schools would soon make friends with the Roman Catholic taxpayer.

"To accomplish this we should establish a system of prizes to be offered for the best results obtained, and insist that the school boards throughout the country, as well as in the large cities, make public parks of the school grounds. I would suggest the necessity of the co-operation of the women's clubs throughout the country as a means to accomplish this end."

In order that delegates might see Chicago parks to the best advantage, the park commissioners entertained them with drives through the park and boulevard properties. The commissioners of the South Side were hosts the afternoon of the first day. The historical World's Fair site in its new dress was viewed with much interest, and the local committee took great pleasure in pointing out the landmarks of the vanished White City. After a ramble through the Field Museum, the bugles were sounded and the guests were taken for a tally-ho ride down Midway Plaisance to Washington Park, where the landscape effects and the greenhouses with their wealth of tropical verdure and mass of bloom were inspected with delight.

At Washington Park the guests were invited into the refectory (which, by the way, is maintained by the park commissioners) and a dainty luncheon was served to the delegates. Choice fern fronds were artistically arranged before the plates as souvenirs of the occasion. After this event the drive was continued down Drexel Boulevard to Michigan avenue, past typical Chicago homes, back to the Auditorium.

At the evening session J. H. Patterson and E. L. Shuey, of Dayton, Ohio, led in a discussion of ways and means of improving the conditions and surroundings of factories and employees' homes. The discussion was illustrated by stereoptican views, and much of interest was told of what has been done in the past few years by the National Cash Register Co., of Dayton. The views showed the homes of the laboring people before and after systematic attempts at improvement had been made by artistic grouping of shrubs and flowers.

"We have found the moral effect of beautifying the homes of our people most gratifying," said Mr. Patterson. "We all know that everyone is influenced by his surroundings, and if they are made attractive and beautiful the influence cannot but be good. On the other hand it will follow that unsightly, hideous surroundings will lower the moral, spiritual and physical life of the people. If we cannot make labor a pleasure, we can make the surroundings and conditions more bearable.

"I believe that the employer of to-day will find that in this very thing he has a problem of the gravest importance to cope with. Conditions since the advent of the locomotive and quick transportation have changed immensely, and we must adapt ourselves to them. In the old days men had small shops and few employees, and they were directly interested in their moral and physical welfare. I hold that the man who employs three thousand men and women has just a so much greater responsibility, and if he can make life brighter for them by showing them how

they can make their homes and small yards things of beauty, it is his duty to do so."

W. M. R. French, director of the Art Institute, was the next speaker. Said he: "It may be roundly asserted that the beauty of a small town is wholly dependent upon its trees. Watch yourself as you declare this or that village to be a beautiful place, and you will find that you mean simply that it has many and fine trees. Its beauty may be promoted by wide and orderly streets and by neat and tasteful buildings, and especially by care of trees and grass, but if the trees are really fine, it can scarcely be kept from being beautiful. With regard to the relation of trees and buildings or other artificial structures the principles are precisely those of pictorial composition. The effect of large, fine trees in the neighborhood of a building is so great as to need no enforcement. Visiting New Orleans, I was struck with the dignified, scholastic air of Newcomb College, the women's department of Tulane University, built upon an old estate where the walks are arched with great Live Oaks, as compared with the main buildings of the university upon new ground where the trees are yet to grow. I wonder that house builders do

not more often make sure of good trees. I have myself bought a tree with some land about it and built my home under it."

The entire afternoon of Wednesday was taken up with a trip through the West Park system, where the delegates were the guests of the West Park Board. Several stops were made in the parks, and places of interest pointed out to the visitors.

The business of the convention was all transacted at the morning session on Thursday. The officers whose terms expired at this time were re-elected for the coming year, except President C. M. Loring, who declined a renomination on account of ill health. Mr. L. E. Holden, of Cleveland, Ohio, one of the first and strongest friends of the movement, was unanimously elected president. Messrs. J. C. Olmstead, of Brookline, Mass. and Mr. E. J. Parker, of Quirey, Ill., were elected vice-presidents; Mr. Warren H. Manning, Boston, secretary, and Mr. O. C. Simonds, of Chicago, treasurer. The next meeting will be held in Milwaukee in June, 1901. A number of steps were taken looking to a wider field of work and to extending the interest in the movement in different parts of the country.

OUR BOOK TABLE.

SPRAYING CALENDAR, issued by Messrs. Stone & Wellington, Toronto. Free on application.

CANADA'S GREAT EASTERN EXHIBITION, 16th Annual Fair, September 3rd to 8th, Sherbrooke, Que. M. M. Tomlinson, Secretary.

EXPERIMENTAL FARM REPORTS FOR 1899. Dr. Wm. Saunders, Director, Ottawa. An excellent report of over 400 pages, full of valuable information for the farmer and the fruit grower.

GINSENG CULTURE. Information about this great Chinese root, with cultural directions by Harlan P. Kelsey, Tremont Building, Boston, Mass. This is a well written pamphlet, which we commend to all persons interested in the culture of this plant.

CYCLOPEDIA OF AMERICAN HORTICULTURE, comprising suggestions for cultivation of horticultural plants, descriptions 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, Professor of Horticulture in Cornell University, illustrated with over 2,000 original

engravings, in four volumes, at \$5.00 each. New York: The McMillan Pub. Co., 1900. Vol. 1.

The second volume of this excellent work has just come to hand, and certainly it continues to make the same impression for excellence of matter and execution which the first volume made upon us. Every department of horticulture, including floriculture, pomology, commercial nursery propagation, the botany of horticulture, is not only fully written up but also beautifully illustrated.

One of the important features of the work is its application to our country. That grand work by Nicolson is for Englishmen, and quite misleads one with regards to dates of planting, adaptation, hardiness, etc., but on all these points Prof. Bailey has taken care to enter into the minutest necessary detail. We do not hesitate to commend this work to all our readers, whether fruit growers, gardeners, gentlemen of leisure, or of whatever profession, for it contains such information as it would take scores of books to give, herein gathered together in one fine production, and which cannot fail to both interest and instruct every reader.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap*." It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says :

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel**. Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it :

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new and valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.



FIG. 2158. THE TRIUMPH PEACH.

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* * OCTOBER * *

THE TRIUMPH PEACH.



VALUABLE commercial variety, to follow the Alexander, but not very popular on account of its heavy coat of down, its dull color, and its susceptibility to rot.

ORIGIN : Georgia, seed of Alexander.

TREE : vigorous, hardy, very productive, subject to twig blight and leaf curl.

FRUIT : 2 inches long by $2\frac{1}{2}$ broad, roundish, somewhat shouldered and flattened ; color, yellow ground nearly covered with red and markings of very dark red ; cavity, deep ; apex, small, in a decided depression ; suture distinct ; pit, semi-cling.

FLESH : yellow ; texture, fine, juicy ; flavor, sweet, rich and excellent.

SEASON : August 15th to 20th.

QUALITY : good.

VALUE : home markets very good.

ADAPTATION : Michigan, Ontario, New York.

PEACHES IN 1901.

The season opened at Maplehurst on the 27th of July, with the SNEED, the earliest good peach, and one that well deserves to be planted freely. It is agreeable in flavor, very juicy, but a poor market peach, because it ripens too rapidly ; but it is much more

desirable for dessert than such varieties as Alexander, Hale's Early, Early Purple, Rivers, etc. For shipping it must be picked while still quite firm. On the 1st of August we found many prematures already overripe and fallen.

The ALEXANDER succeeded this variety about the 5th of August, and kept up the shipments until about the 13th. Owing to the scarcity of the fruit the prices of these early varieties were better than usual.

The TRIUMPH peach was harvested between the 15th and 21st of August, and was the best market peach of its season at Maplehurst. It is a yellow fleshed peach, and not a close clingstone as most early peaches, so that it suits a demand in Canada for yellow fleshed peaches. The tree is vigorous and productive, but is inclined to blight as the fruit ripens if conditions favor, a disease which sometimes attacks both twigs and fruit. The fruit is dull in color and very thickly coated with down, which stands in the way of its popularity.

EARLY RIVERS is a white fleshed peach about the same in season as Triumph (August 15th to August 25th in 1901) and was at one time largely planted in Ontario. We

harvested about two or three hundred baskets in 1901 at Maplehurst, but found them the most unsatisfactory of any peaches for shipping, because they are so tender in flesh and ripen so rapidly. Besides every mark causes discoloration.

GREENSBORO, a new white flesh peach from North Carolina with red cheek, above medium size and rather attractive, is also of about the same season with the Triumph. It is also too tender in flesh to be a profitable market peach; still it is much superior to the Early Louise.

HYNES, is another white flesh early peach of the Alexander type, more agreeable for dessert, but averaging smaller in size. It ripens about the 20th of August, and we judge is not likely to be much planted for market, as it is much inclined to rot on the trees and seems to be quite subject to yellows.

The YELLOW ST. JOHN was the first really good yellow peach, and it colored up beautifully about the last week in August, when fine samples would almost pass for Early

Crawford. It is a valuable market peach, but when it was left to hang into September, there was a great waste from rot.

THE CHAMPION came in about the 1st of September, closely following the Yellow St. John and the last were gathered about the 7th with the first Crawfords. It is a beautiful white peach with red cheek, and of large size frequently measuring $2\frac{1}{2}$ inches in diameter. The stone is free, the flesh is white, tender, juicy and the flavor is delicious. We consider it the best dessert peach of its season.

The EARLY CRAWFORD began ripening on the 6th of September, and, when it is going forward, really no other variety can compare with it either for size, beauty or general excellence. The crop was fairly good, and the price from 75c. to \$1.00 per basket. Where the trees were highly fertilized the increase in productiveness was very evident.

FITZGERALD came in about the same season as Crawford, and seemed to be similar in many respects.

THE FRUIT MARKS ACT.

Since our remarks on page 396, we have received from the Department of Agriculture some copies of the latest revision of this Act by the Senate of Canada, and find we have really got in this quite a different thing from what we asked. Indeed, instead of having too little, we have too much. We asked to have two fixed grades established with a definite name for each, and any one using these certain grades would be subject to inspection; this Act makes every closed package subject to inspection. We asked that the name of the packer be placed on such packages only; but this Act requires the name upon *every* package whether it be 1st or 2nd grade. We asked for certain fixed

grades to be so defined that there would be no confusion; this leaves it open for considerable dispute as to what grade is intended by the designation used.

Now in our home markets it is the constant custom to send No. 2 or second class under a number which identifies the shipper to the consignee. Such fruit may as well be sold in that way and we think many growers will strongly object to the change.

The Act is now so sweeping and so general that it will probably be difficult of operation.

The whole matter will be freely discussed at our annual meeting in Cobourg next December.

PAN-AMERICAN HORTICULTURE - IV.

THE AMERICAN POMOLOGICAL SOCIETY held its biennial sessions at the Epworth Hotel, Buffalo, near the Exposition grounds, on the 12th and 13th of September, and our visit that month was timed for that occasion. Many prominent members of our Association were in attendance and thus came in touch with the leading American horticulturists. Through the instrumentality of Mr. A. W. Taylor, the secretary, who has also been made a government official, plans are being made by the United States Department of Agriculture for extended experiments in the export of tender fruits in cold storage, and therefore the writer was asked to give some account of the work done in Canada in this direction.

He was followed by Mr. Geo. T. Powell, of Briarcliff Manor, who emphasized the the importance of sending forward only our very best. "The foreign markets," said he, "are no place on which to dump all kinds of stuff." He pointed out the importance of refrigeration, both at the packing house and in transportation, the importance of knowing just at what stage of ripeness fruit should be exported; the sizes that would qualify a fruit for the export trade; the quality of a fruit that would gain for it a permanent market, and the proper packages in which to put them up.

Senator Dunlap, Illinois, had just returned from England, and found not only the English but the French markets open for our best fruits; in winter time this latter market is comparatively bare of really fine apples, and he had seen them sold in March at thirty cents each, and peaches as high as \$1.40 each! As yet he had only heard of one cold storage house in France.

Mr. Charles Forster, New York, said the annual increase in the export of apples was very great, and during the past twenty

years the quantity exported had increased from 81,000 lbs. to 2,000,000 barrels per annum. In Liverpool they were sold most rapidly; in 1896 as many as 50,000 lbs. per day had been disposed of in the public auction room, two packages from each lot being brought in, one of which was dumped and one simply opened to show packing. In this way fraudulent packing was at once exposed. Last season 200,000 boxes of Newtown pippins were sent to Scotland from California, and netted the shipper \$1.00 per box, and this trade is constantly growing, and to encourage this kind of trade in the case we need small cold storage compartments to accommodate smaller consignments. The first real experimental shipment of Bartlett pears from the United States is now being forwarded from New York to London, the results of which will be made public.

Two years ago Mr. Forster had tried a private shipment at a loss, but two cars of Duchess netted him about \$1.43 per half bushel box.

Our foreign markets are unlimited—Germany wants our apples, China, Japan, Siberia, Phillipine Islands and other oriental countries want our fruits, and soon we will have them open to us.

Prof. Corbett, of Washington, commended the use of tobacco dust, strewn about the trees and over the roots to prevent attacks of aphids.

Prof. Craig, in treating of the University Extension course—horticulture and agriculture—pointed out that during the past twenty years the number of farm products had been multiplied by twenty; and the number of workers in proportion had been divided by two; wheat that once cost thirty hours a bushel now costs only about ten minutes; corn that once cost forty-one hours now costs only eleven and a half. This shows how important these branches are becoming, and

how useful the dissemination of advanced methods.

Prof. Bailey, of Cornell, explained why the Fruit Growers' Associations of California were more successful commercially than eastern organizations, because they were unions of men interested in one thing—as for example the Prune Growers' Association, the Celery Growers' Association. True the individual grower loses his identity in such a system, but unless a man has something remarkable and distinctive about his products he finds this system much to his advantage. We should study carefully the co-operative methods of California, for before we are aware of it these live organizations, with their systematic shipments of carlots, will capture our eastern markets.

Mr. Morill, President of the Michigan Horticultural Society, gave an emphatic testimony in favor of growing only fruits of the highest quality, and of giving the highest cultivation. The "Dust blanket mulch" and "Horseleg irrigation" might be vulgar expressions, but they were of weighty significance to American fruit growers.

Mr. W. C. Barry would favor introducing no fruit unless it had high quality. The Jonathan apple for example ought to bring double as much money as the Baldwin, and there are plenty of people who would pay prices for fruits according to quality.

Prof. Webster, of Ohio, said that fruit men have more to fear from the late brood Codling moth than from the early brood. Indeed this is now our most formidable insect enemy. Last year the experiment had been tried of covering a tree with lino after the first spraying, and all fallen apples were removed on the 29th of August. After about three weeks the fallen apples were gathered, and under the trees protected with netting there were only about 20 per cent. wormy, and under those not so protected 70 per cent. were found wormy. This shows what might be accomplished by complete protection.

Next year he proposes trying to protect the trees from various insect pests by using an adhesive insecticide, and if he can discover a combination such as will serve all purposes, he hopes every fruit grower will be willing to apply it without compulsion.

THE FRUIT EXHIBIT is now overflowing with fruit, and equal in quality to any shown in the Horticultural building, and the names of exhibitors are too numerous for mention here. Among the varieties we noticed fine samples of Old Mixon, Elberta, Crawford and Jacques Rareripe peaches; large Wickson and Paragon plums; fine Moyer, Diana, Delaware and Worden grapes, etc. A fine case of pears, packed for export, was shown by Messrs. Van Duzer and Griffith, of Grimsby.

A special table had to be provided for a large collection of over 160 varieties of apples which we sent forward from our Ontario Fruit Stations to compete for the Wilder medal, and we are pleased to report that it was awarded a silver medal; as was also Mr. M. Pettit, our experimenter in grapes at Winona, for his collection of over one hundred varieties of grapes. Medals were also awarded Mr. W. M. Orr, of Fruitland, and Mr. Albert Pay, of St. Catharines, for their excellent collections, so that, in all, Ontario was granted four of these medals by the American Pomological Society.

The Pan-American Everbearing Strawberry is still on exhibition in the New York State exhibit by S. Cooper, of Delavan, N. Y.; the finest Elberta peaches shown were sent in from Michigan, they were simply immense; and the largest Satsuma plums were exhibited by the State of Connecticut. We also noted in Mr. Orr's collection, the finest Souvenir pears, and in Mr. Pay's the finest Bosc. Mr. Pay, pointing out his Wickson and Paragon plums, said he preferred the latter as being more productive. He showed fine Campbells Early grape, but doubted whether it was just quite as early as the Moore.



FIG. 2160. CANADIAN HORTICULTURAL ASSOCIATION.

CANADIAN HORTICULTURAL ASSOCIATION.

THE fourth annual convention of the Canadian Horticultural Association opened its first session in the City Hall, London, Ont., at 2.30 p.m., on Monday, August 5th, with a good representation from Montreal, Kingston, Toronto, Hamilton, Stratford, Chatham and other places. The mayor of the city, in a few well chosen words, welcomed the association. He was responded to by Thomas Manton, of Eglinton, in his characteristic manner. After this the president of the London Horticultural Society also spoke in words of welcome. Then routine business was taken up.

The secretary's report showed the association to be in a flourishing condition, each year gaining in membership and spreading its beneficial influence throughout the

Dominion. The treasurer's report showed the finances to be in excellent condition, with a neat surplus to the credit of the association. Trade exhibition judges were appointed and a considerable amount of miscellaneous business was gone through with.

After the adjournment, the members were invited by Gammage & Sons to visit their establishment. After the inspection of the greenhouses and grounds, light refreshments were served. Returning to the evening session Dr. Bethune gave a lucid and instructive lecture on insects, describing the different species and the several methods employed in their destruction. W. J. Lawrence, of Mimico, followed with an extemporaneous address on the advancement of horticulture.

On the second day, owing to the immense

crowds which were attending the London Old Boys' reunion, the local committee changed its plans and the trolley ride came in the morning instead of the afternoon. Luncheon was served at Springbank Park. The social feature was very much enjoyed by those present. R. W. Rennie, secretary of the London Horticultural Society, very ably acted as chairman at the banquet.


A short afternoon session was held at which a paper was read from Joseph Bennett, of Montreal, on what can be added to the present list of cut flowers to meet the demand of customers for something different. This brought up a lively discussion, but it was the general opinion that nothing of importance could be added to our present list that would be remunerative. W. Holt, of Hamilton, opened a discussion on the question of a uniform scale of prices in the plant trade and the subject was pretty thoroughly thrashed out, the conclusion arrived at being that the best man will always be at the top.

Hamilton was chosen as the next place of meeting.

President, Joseph Bennett, Montreal; 1st vice-president, C. Webster, Hamilton; 2nd vice-president, G. Robinson, Montreal; secretary, A. H. Ewing, Berlin; treasurer, H. Simmers, Toronto; executive committee for three years, Walter Munston, Toronto, O. G. Johnson, Kingston, W. J. Lawrence, Mimico.

In connection with the trade exhibit, only two were staged, Gammage & Sons, showing a good collection of palms, araucarias, ferns, begonia Gloire de Lorraine and others. A. H. Ewing, of Berlin, staged some very fine Boston ferns. The flower show of the London Horticultural Society did not contain as many exhibits as last year, owing to the fact that the sweet peas in this section of the country are almost over. Notwithstanding these drawbacks, a very creditable display was made, containing upwards of 1,000 vases of flowers.

OUR EXHIBIT AT THE INDUSTRIAL.

 THE results of our experimental work in pomology is beginning to show itself in the increasing value of this annual exhibit. We had about 800 plates of fruits, of nearly as many varieties, on exhibition, a large number of them quite new, and exhibited in Ontario for the first time. Mr. John Mitchell, our plum experimenter, showed about 50 varieties of plums, all alphabetically arranged, a great convenience, for exhibitors in correcting nomenclature frequently came bringing their plates for comparison of varieties. Among his Japan plums, were the "Gold", which, on account of its golden color and red cheek, was much admired.

The Gold was certainly most attractive by reason of its rich golden yellow color, with tinge of red. It is said to be a remark-

able keeper and shipper, and has been introduced with great encomiums by Messrs. Stark Bros., of Louisiana. Probably this is the first time this variety has fruited in Ontario.

Hale seems very productive; a tree $3\frac{1}{2}$ years planted bore $3\frac{1}{2}$ baskets of plums; ripe about end of August. An Abundance plum tree planted five years in clay soil, produced ten baskets of fruit.

On the whole Mr. Mitchell considers the Japans too low in quality to be of permanent value for the markets.

There were a large number of the Domestic class of plums, and among them a seedling which he called Drake's seedling, season 20th to 30th of August, of yellow flesh, and with skin colored dull red on sunny side. He

said it was a favorite cooking plum. It is grown in the orchard of George Drake of Clarksburg.

Mr. W. W. Hillborn made a fair showing of varieties of peaches, the most prominent variety being the Champion, an excellent white flesh peach ripening just in advance of Early Crawford.

Mr. Hillborn also showed a collection of Japan plums, the largest and finest of which was the Wickson, but unfortunately the tree lacks vigor. It seems to be related to Simons plum, judging by the foliage, and is probably short lived.

Mr. M. Pettit of Winona, showed fifty varieties of grapes, well colored for the beginning of September.

The most prominent varieties in the collection were Berckman, a remarkable fine bunch 8 inches long, that promises considerable value, and Campbell's Early, named after its originator, Mr. G. W. Campbell of Ohio. It is certainly large and handsome both in berry and bunch, and, ripening along with Moore's Early or slightly in advance, it should be very profitable. The bunch is close, the berries hold well to the stem, and promise to be good keepers. Mr. Pettit speaks highly of Woodruff Red also, as a market grape; the Lady lacking in vigor, and the Green Mountain being too small in berry.

Mr. W. H. Dempsey showed about 120 varieties of apples, and among them very fine Duchess, Alexander, Kentish Fillbasket and Trenton. He has increasing confidence in the Trenton as a valuable early fall desert apple. It was a seedling raised by the late P. C. Dempsey, his father, who was so long on our Board of Directors. It is of good

size, covered with deep red, apparently of the Fameuse type, but a cross between Spy and Russet. Its season is October 1st. He has planted an orchard of fifty trees of this variety.

Mr. H. Jones of Maitland showed 33 varieties of apples, and among them the Brockville Beauty, a seedling of that section. It is a fine large red apple, of about the season of the Astracan, and he prefers it to that variety. He also showed the Scarlet Pippin, a rival of the McIntosh Red. It is certainly a beautiful dessert apple, and deserves to be universally grown as a fancy export apple.

Mr. Huggard showed a fine collection from his fruit station at Whitby, and Mr. G. C. Caston from his in Simcoe County. The latter showed in all seventy varieties of fruit.

This exhibit by our fruit stations was really the most interesting exhibit in the fruit building, and every year it increases in interest. Next year we shall require two long tables instead of one, and have made application for them already.

The first prize for forty varieties of apples, went to Prince Edward Co., as indeed we might expect, for apples there are not the failure that they are with us in the western sections. For 20 varieties of pears, both the first prize and the silver medal were taken by Hamilton exhibitors, this fruit being an excellent crop all about that part of the Province.

With the advice of the Dept. of Agriculture we have forwarded the whole collection to the Pan American, to compete for the Wilder Medal.

THE FIRST NATIONAL EXPOSITION OF MODERN DECORATIVE ART will be held at Turin, Italy, from April to November 1902; comprising the artistic and industrial productions which concern the æsthetics of

the street, and of the house and room. The American Park and Outdoor Association will probably exhibit designs for completed parks, home grounds and gardens, and photographs of the same.

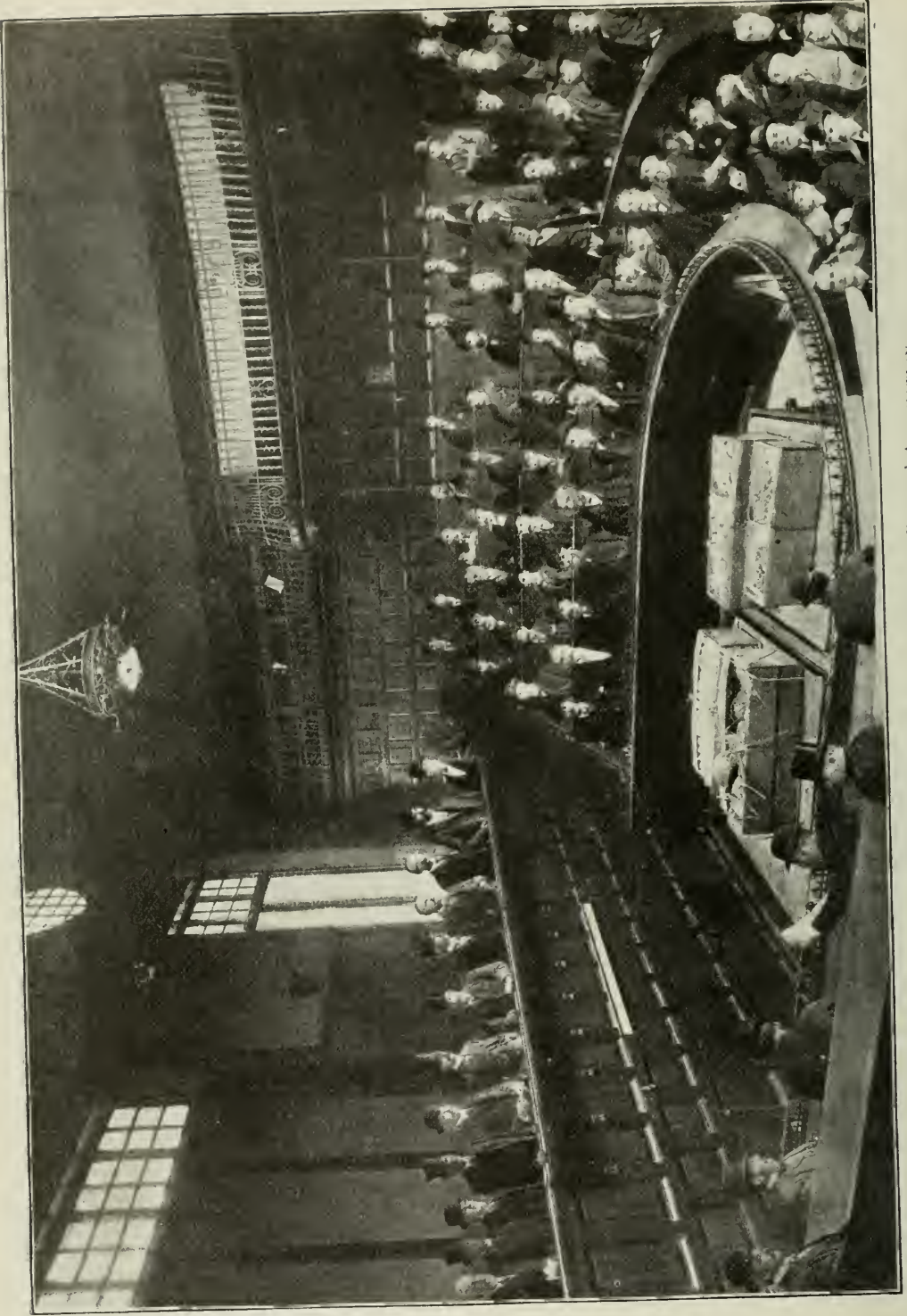


FIG. 2159. LIVERPOOL BROKERS' AND FRUIT BUYERS' ASSOCIATION.

LIVERPOOL BROKERS AND FRUIT BUYERS' ASSOCIATION.

THE frontispiece of this article shows the Auction Room of the Liverpool Fruit Brokers and Buyers' Association. The gentleman in the centre of the gallery is Mr. Woodall, of the well-known firm of Woodall & Co.

From small beginnings the Fruit Auction has now become the hub of the Liverpool fruit trade. Five years ago, when the apples imported into Great Britain aggregated 2,937,000 bbls., 1,598,294 were received at Liverpool and practically all handled through the medium of this association. The illustration only shows a small number of buyers, as on a busy day not only will the pit but also the galleries be crowded to the utmost capacity.

Not only the fruit kings of Britain, but down to the lowest barrow hucksters are there, each bidding on the class of fruit suitable to their trade. No place in England or perhaps in the world is there such a large congregation of buyers of such a varied class. Apples, of course, are only one of the fruits sold through this medium, as every kind of imported fruit is sold there; samples are exposed on these hydraulic hoists and in many cases tipped out for the scrutiny of the buyers, whose eagerness often causes an uproar like unto a stock exchange.

The total sales in this room some days are enormous; the beauty of this system is that it brings all classes of dealers together into competition.

There are six brokers who control this Auction, but other receivers who are not brokers sell their receipts through one of

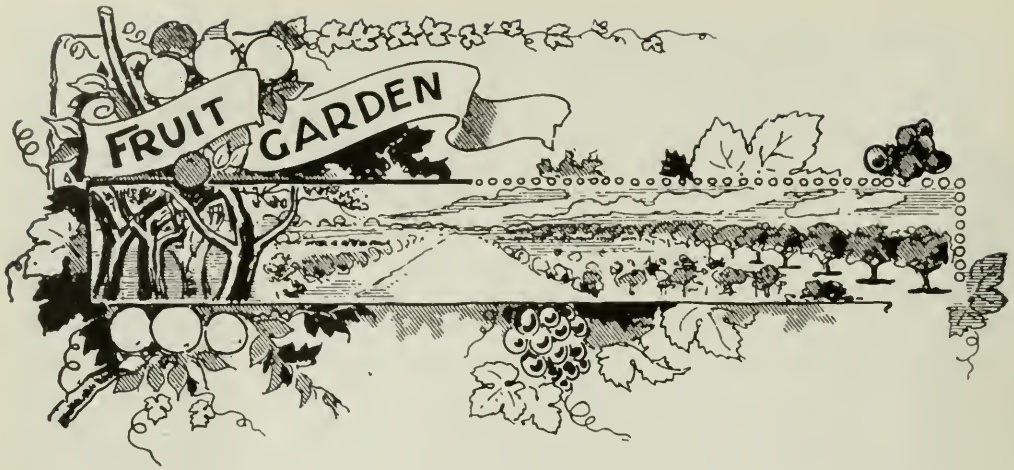
these six, who are Messrs. Woodall & Co., J. C. Houghton & Co., James Adam Son & Co., McGeorge & Jardine, L. Connolly & Co., Rogers Wray & Co., each taking their turn of 40 minutes and then 20, and sometimes selling till late in the evening.

The principal sales are held three days in the week, Mondays, Wednesdays and Fridays, and the large dealers from all the leading towns in England and Scotland come in to purchase. Stringent rules are in force, binding on buyer and seller, and the bid of any buyer is refused who does not fulfill the requirements. The Auction Room is strictly public, and catalogues of sales are issued by the brokers on the day following showing prices obtained.

This system of consolidating the buyer and seller has proved most successful in Liverpool, and Glasgow has for some years attempted to copy it, but so far it has been impossible to get all the receivers together; and in London this method has clearly proved its superiority over other systems, where different firms hold their sales at same time in different places.

Mr. Eben James, of Toronto, to whom we are indebted for this cut, represents the firm of Woodall & Co., who claim to be the first receivers of American apples on consignment to Liverpool, dating back as far as 1847, when Mr. Underwood, of Croton Point, N.Y., made a trial shipment in casks, and the original account sales is framed and hanging in the Underwood mansion, of which the firm is justly proud.





PICKING, PACKING AND MARKETING APPLES.

THE big end of labor and expense that goes into an apple crop is incurred in the picking, storing and marketing. Picking apples is, or should be, a "hurry-up" job. Every tree in the orchard of the same variety is ready to pick at the same moment, and should be picked the moment it is ready. Every hour that the picking of an apple is delayed after its clock has struck brings deterioration. In an orchard of one tree it is easy to accommodate the harvest to the requirements of the crop. But where apple people have several hundreds or thousands of barrels of one variety it is both difficult and unprofitable to practice such dispatch. For even if we assume, like a political economist, that labor is a sort of fluid to be turned off or on at will, the equipment for apple picking, the ladders, picking sacks, baskets, sorting tables, barrel presses, and all that, become an intolerable expense where they are provided in such abundance that a day or two's use in a year is all that is required of them. Most apple growers allow from two to four weeks for the apple picking. It has been reported that in 1897 the yield of one of the large orchards of Missouri was 120 carloads of apples, and that they were all gathered and either shipped or put in store in ten days.

Such expedition can only come with fine generalship and a perfect system of procedure.

There are different systems of picking, and there is much picking without system. The system followed grows in interest and importance as the number of people engaged is increased. When the "old man" works alone it is no great matter how he proceeds, but when the force is 100 or even a dozen hands the question of profit or loss may hinge upon whether that force works with the precision of an army or the discursiveness of a mob.

Some careful operators pick into baskets, and in turn hand the baskets thus filled to the packing-house or place of storage. But in the main apples are picked into seamless grain sacks prepared for the purpose, with a heavy wire sewn in the sack mouth for the purpose of holding it always open. Before this wire is put into place in the mouth of the sack, a ring an inch or so in diameter is bent into it. This ring is for the purpose of engaging a harness snap attached to a short rope or strap, the same being tied to one corner of the closed end of the sack, the purpose of it all being to provide a thing by which the picking sack can be suspended from the shoulder and expeditiously unslung

for emptying. The workmen will adjust the length of this tackle to correspond to his own length, and should be forbidden to throw the sack over his head. In apple picking, time is too precious for unnecessary movements.

When apples are barreled in the orchard, the packing gang, with portable sorting table keeps even pace with the pickers, the latter emptying their sacks as fast as filled directly upon the table. The sorting table is constructed with a slat bottom, slats half round, one inch by two inches, set one inch apart. A good size for the table is three feet by six feet. Sometimes they are made even longer, up to twelve feet in length. The sides of the table are six inches high. Its outlet is provided with an apron, which enables the packer to let the apples drop into the barrel without bruising. A piece of plank for the barrel to stand on while being filled and on which it may be frequently jarred, is an essential part of the equipment. The great advantage in this method of packing lies in the fact that it involves less handling than any other possible device. Its advantages, as compared with a permanent or temporary packing-house, are serious. With a packing-house the barrels are kept dry; the work of barreling is not interrupted by a slight shower; the culls are brought to one place, and, most important of all, the grade of the stock can be made to run much more evenly than with the orchard pack.

It is more and more apparent that where any considerable quantity of apples is raised there should be a permanent structure for receiving the apples, if not for storing a portion of them. A common form of apple house intended for storage is two storied—one story above ground and one partially below. The underground story will, of course, be frost proof; the upper story must be made practically so by hollow walls, sawdust packing, air spaces, or whatever method is used. In both stories bins are arranged on each side of a central alley. If the bins

are single decked, the apples are often piled up four feet deep by six to ten or twelve feet wide, according to the width of the bin. Such houses are often constructed double or triple decked. In such cases two and one-half feet is a common depth for the apples in the bins. Such a building must be fully equipped with ventilators and double sashed windows. If the ventilators are carefully kept open at night and shut by day, the temperature can be surprisingly controlled, and in ordinary seasons apples are often carried through to January 1 or even to March 1 without extraordinary loss.

Where apples are placed in farm storage the gathering is much simplified. Supposing the picking to be done in sacks, the hauling is done in barrels having but one head, on wagons fitted with barrel bottoms. The barrel bottom is made of two-inch planks bolted to crosspieces. It has no sides, but instead poles are secured to the top rings of the wagon stakes, in such wise as to be instantly detached, if desirable to have the pole out of the way for unloading. The ends of this rig are secured by ropes. If the "barrel bottom" is fourteen feet long it will hold sixteen barrels, which is enough for a load.

To make the apple harvest "go" with economy, each picking gang should consist of sixteen men and a boss. They will take four rows of trees at a time, and at each remove will take four trees in each row—sixteen trees, with a man for each tree. The wagon will keep along with the pickers, taking its stand every time in the center of the sixteen trees. The boss and driver will receive the apples from the pickers and carefully pour them in barrels. There should be wagons enough so that the work may not be interrupted for want of transportation. The boss may take charge of the wagon while it is loading and turn it over to the driver when loaded. In that way one team can be run without a driver. The manner

of unloading will depend upon the construction of the storage house.

When there comes a hot fall, like that just passed, when it hardly froze at all in November, the anxious orchardist longs for cold storage. And where fruit is perfect and intended for the late market and the cold storage complete, then it ought to be satisfactory. The charge for cold storage is commonly forty to fifty cents per barrel for the season to May 1. Freight, switch charges, shrinkage and unpacking will commonly make the cost about seventy-five cents per barrel.

Thrice and four times happy is the apple man whose fruit is near enough to a good market so that he can sell it in person, or by proxy, from his own wagon. Then everything goes at some price—culls, windfalls, seconds, and firsts. He pays neither freight nor commission. Most orchardists have harder ways of making sales. Some are harder than others, but the hardest of all is where the buyer is furnished the apples in piles for him to paw over at his leisure and

select or reject according to his fancy. Apple buyers of that variety should be shown the door that the lightning-rod peddlers go out. Before negotiations for a crop of apples are concluded, a perfect understanding should be reduced to writing, specifying what is to go and what is to be thrown out.

As a final word, many orchardists practice a false economy in saving their fruit at a loss. Whenever cider apples or evaporated apples are going at less than they can be delivered for with hired labor, the rot process of disposition should be introduced, except that where the farmer himself or his minor children have no other gainful employment, then the farmer and his kids will find even half wages the same as something found. But when people have paying jobs, their cider apples at twelve cents per hundred delivered on the cars or their evaporator apples delivered at the factory for ten cents per bushel will bring them nothing for their fruit and less than cost for their labors.

EDWIN TAYLOR,

Before Kansas Agricultural Society.

THE APPLE MARKET.

The Manchester Fruit Brokers write as follows :

Contrary to the expectation of many people the English apple crop now promises to turn out a fair yield in quantity and very good in quality. Advices from the continent of Europe are mostly to the effect that there is not likely to be a very large surplus there for export, but we consider that even here the estimates are likely to be exceeded because the weather prevailing on this side now is very favorable to the growth of the winter varieties. It is at any rate certain that for the next two months home and continental growers will be able to send in to

market very considerable quantities of apples, and, as other fruits are likely to be both plentiful and cheap, we do not consider that prices within the period named will run above last year's values.

Advices from Spain indicate that the crop of oranges this year will be an enormous one and, as this fruit will compete strongly with the sale of apples from the early part of November, we warn packers and shippers in Canada not to pay extreme prices. It must be remembered that the consumption of apples here falls off greatly when prices run beyond a reasonable limit.

THE APPLE BUSINESS.—II.

FRAUD EVEN IN LIVERPOOL.

Mr. Pritchard went on to show, although this was not perhaps just the sort of impression he intended to leave, that queer practices are not confined to this side of the ocean—that they extend to the innocent, dull-headed receiver in Liverpool.

“Dealers in Liverpool,” said Mr. Pritchard, “would sooner have a faced barrel than one running even all the way through. They are not deceived, because any barrel can be turned out on demand, and dealers see just what they are getting.”

M. H. Peterson said that, while this style of packing did not injure us in Liverpool, it would injure us in markets where buyers were not on to it.

Mr. James showed very clearly, however, that while Liverpool dealers may not complain of such packing, Canadian producers are very much injured by such a system even in apples sent to Liverpool. “The complaint does not come from the dealers,” said the latter. They are not deceived by the facing, and are probably able to sell a little above actual value a barrel packed in that way. It is the consumer, the man who buys for his own use a barrel in which the centre does not agree with the top, who kicks.”

THE AUCTION SYSTEM IN FRUIT-SELLING.

F. D. Cummings, of Portland, Me., gave a new turn to the discussion. He read a paper, in which he advocated the substitution of the auction for the commission system in disposing of fruit on this continent. “It is not,” he said, “considered exactly safe to leave uncounted money with a stranger, he knowing it to uncounted, and expect him to make returns of every penny and the profit earned by the money. But that is just what we do when we send fruit to a commission house for sale on commission. The unsatis-

factory nature of the present system is shown by the sort of laws it has been thought necessary to introduce for its regulation. In one State the law provides that a commission man may be called upon to show cause why he did not obtain the highest market price on the day of sale ; in another the producer of the fruit is given the right to go through the books of the commission merchant for the purpose of seeing what his fruit really sold for ; and in New York an attempt is being made to pass a law obliging the commission man to include in his return the name of the retailer to whom he has sold. How much better and less cumbersome the auction system, with its straight, clear-cut transactions.”

REJECTIONS IN LIVERPOOL AFTER AUCTION.

But Mr. Cummings' chief grievance was with the manner in which American apples are handled in Liverpool. “They have the auction system there,” he said, “but they have also the right of rejection for practically 36 hours after purchase. There should be no right of rejection. Prospective buyers have the right of examination on arrival ; they can, and do, use their hatchets to open any barrel they wish ; they can demand the dumping out of the contents of any barrel when the auction is on ; and still, after all this right of examination, they can reject practically 36 hours after purchase. This gives buyers an unfair avenue of escape, if the market goes wrong in the meantime. Once a sale is made there should be no right of rejection afterwards.”

A LIVERPOOL VIEW OF IT.

“We must remember,” said Mr. James, “that Liverpool is the greatest apple market in the world. We must remember, too, that the buyers have their views, and we as sellers cannot hope to dictate to them just

how their business shall be conducted. If a buyer purchases a lot of barrels, as 'tight' he should have the right to reject if when delivery is made they are found to be 'slack.' Remember this, too, that competition is too keen in Liverpool to render anything but fair dealing impossible."

"I have," said Mr. Pritchard, "known a lot of barrels to be 'tight' on Tuesday night on arrival, and 'slack' next day. The rolling about on the dock and the difference in atmospheric conditions caused the change.

"That sort of thing," said Mr. Dawson, "is a possibility, but a remote probability."

"The Canadian Government," Mr. James continued, "has maintained at great expense an agent in Liverpool for the purpose of seeing the manner in which Canadian produce is handled there. This agent has informed me that the only serious objection he had to make was the rough handling to which the fruit was subjected on arriving in Liverpool, but I told him if he had to handle 170-pound barrels all day, at 20c per hour, he perhaps would not be more gentle than the dock hands."

THE NEW YORK SYSTEM.

Mr. Forster, of New York, said that California oranges were sold by auction in New York without the right of rejection, and what was possible with oranges in New York should be possible with apples in Liverpool. "Grapes are sold in the same way," he added, "and that is the greatest gamble of the lot. The section from which the sample is taken may be worth \$6, and the rest not worth more than \$3, but we have got to take them."

"We are only wasting time in discussing this matter," said Mr. Peterson, "as the Liverpool buyers will do as they like anyhow."

CO-OPERATIVE SELLING SUGGESTED.

"I do not see why," responded Mayor Graham, warmly, "if those who really act

as our agents in Liverpool will not conduct the business as we want it done, we cannot send a man of our own over to handle the business for us. There are enough of us to do it. (Applause). When we buy lemons in Montreal we have no right of rejection. Why should such right exist in Liverpool, where there is unlimited freedom of inspection before purchase?"

"It must not be forgotten," said Mr. Pritchard, "that Liverpool is not the end of it. The apples landed there are largely forwarded to other centers. A buyer, 48 hours after buying, may have an order to send on to Dumfries or Edinburgh. That man does not want them to be forced to take melted apples which he bought on the basis of tight. If you remove the right of rejection you introduce the speculative element; you force buyers to guard against the loss that will follow being forced to take 'slacks' when 'tights' have been paid for, and the result will be that barrels that would bring a guinea under the present system will not bring over 15s. under the one you propose to exchange for it. Neither is it practical to have your own representative in Liverpool. Apples form a sort of surplus trade, and if the Liverpool buyers determine to freeze your representative out of business he will find apples collecting on his hands to such an extent that the Dock Board will have them thrown in the river. Besides, buyers, under the present system, have not the absolute right of rejection. They cannot refuse a barrel simply on their own statement that it is 'slack.' They must prove that it is so."

Mr. Cummings, in response to the implied threat as to what might happen if the association sent its own agent to sell in Liverpool, said it might be necessary to go still further and seek the co-operation of the grocers in towns beyond Liverpool, the men who sell direct to the consumer—thus bringing consumer and producer more nearly together.

A committee was, by unanimous vote, at a subsequent session, appointed for the purpose of endeavoring to have Mr. Cummings' views, demanding the withdrawal of the power of rejection after auction, given effect to.

ILLINOIS' SYSTEM OF SELLING.

Senator Dunlap, of Savoy, Ill., also spoke on marketing, but from the home market standpoint. "Some men," said he, "know all about production, but go lame on marketing. The selling of apples is different from the selling of wheat. There is a standard value for grain which everyone is familiar with. There is no such standard for apples. In Illinois different plans have been tried in the disposal of orchard crops, but the pretty general custom now is to sell by the barrel in the orchard, the buyer doing the picking and barrelling." Speaking of other systems of selling—of the sending of fruit to cities for sale—Mr. Dunlap expressed the opinion that the day is not far distant when the commission men as such will be eliminated and their places taken by fruit dealers, men who will buy the fruit outright.

BAD EFFECTS OF SELLING IN BULK.

Later on, too, an informal discussion arose on this general subject of marketing. Mr. Williamson said one of the greatest evils in connection with the fruit business was the buying of orchards in bulk. "That is," he declared, "a direct incentive to bad packing. If a man buys an orchard that way, and something happens to the apples on the trees after purchase, he is going to get the number of barrels counted on no matter how it is done. His No. 1 will be a little off. His No. 2 will be still more off; and his No. 3 will be the Lord knows what. This year the danger from this system will be particularly great, because, while the crop is perhaps the smallest on record, the amount of apples put up for sale may be very large. It is not nature which regulates the volume of apples

marketed; it is packers who by their grading fix the limit of the quantity which will be put on the market."

Another member of the convention said that in New York dealers prefer, when possible, to buy in the original package. "Apple producers should," he said, "so pack their apples in the fall that the fruit can stay in the package thus used until it reaches the consumer. The handling in repacking causes serious damage."

PROFESSOR ROBERTSON ON THE ENGLISH MARKET.

Prof. Robertson, fresh from Liverpool, added a valuable contribution to the discussion on marketing. "The Englishman is, said he, the best commercial man in the world—for England. He can present an account of sales which, while perfectly honest, will show the largest possible amount of charges for himself and the smallest possible amount of profit for you; and he will do all this with the blandest smile in the world. At the same time the market of London is the best market in the world for really gilt-edged products. A case in point: A Canadian apple-grower, for four consecutive years, sent the pick of his orchard to London, on consignment, a dangerous thing to do, and yet his apples netted him an average of \$3.51 in the orchard. That shows what can be done in London by discarding all small and inferior apples and sending the best only.

"There are two commandments lying at the very threshold of commercial success. The first is 'Thou shalt deliver goods as they are represented to be,' and the second 'Thou shalt not deliver goods in poor condition.' Observe these and success is assured in any line."

FAVORS STRAIGHT SELLING.

Prof. Robertson also touched upon the methods of late in England. "We are,"

said he, "sending nearly \$20,000,000 worth of cheese to Great Britain, and not two boxes to 100 are sent on consignment. The rest is practically the property of the party to whom it is sent in England before it leaves this side of the Atlantic. And that is the proper system; that is the system which should be adopted in the apple trade. The party to whom the goods are sent will then take much better care of the products than he otherwise would. A case in point: A lot of butter was sent on consignment to Glasgow during the time I was there. This, after having been carried to Glasgow under a system of cold storage provided for by the Dominion Government at a considerable expense, was left exposed for 48 hours during the hottest weather on the dock at Glasgow. Other like goods, sent at the same time, but but not on consignment—goods which had been sold before leaving this country—were hurried at once into cold storage."

"Yes," said Prof. Robertson, in answer to a question, "the party to whom the goods were consigned knew the butter had arrived, because he had taken samples from it for the purpose of making sales. Why did he leave it exposed? Because he was not obliged to take up his draft in payment for the butter before delivery was accepted. If he could sell it by sample, before actually accepting delivery, he would, possibly, save the use of two or three thousand pounds in the bank for two or three days. It is because of things like this I am going to start a campaign in this country against sending goods to England on consignment."

Speaking particularly in regard to the matter of apples Prof. Robertson said: "Something more than sorting as to size is necessary. There must be sorting, also, in regard to the condition of ripeness. This is particularly necessary in the matter of early fruit, as otherwise the over-ripe fruit will be apt to spoil that not so far advanced."

IMPROVED TRANSPORT FOR APPLES.

Dealing with the matter of accommodation for shipping apples, the speaker said: "Apples should not be sent by a vessel which is without facilities for ventilating the chambers in which the fruit is stored. We have just succeeded in making arrangements with all the lines leaving Montreal by which provision will be made for this ventilation. Three lines have agreed, in addition, to provide mechanical refrigeration, by which air will be reduced to 50 degrees before being driven through the hold in which the apples are held. The advantage of this is apparent when it is remembered that in passing through the St. Lawrence the temperature may be up to 70 or 80 degrees. Ten steamships have provided this mechanical refrigeration, and twenty-five will have a fan equipment for ventilation."

"We have also asked for ventilated cars, but the trouble is that the freight traffic of this country is developing in such a remarkable way that it is utterly impossible for the railways to keep up with the demands even for ordinary traffic. The best we can do is to whitewash the cars with a spray pump and leave the doors open for about three inches, thus providing for a partial system of ventilation."

AMERICANS INVITED TO SHARE A GOOD THING.

Speaking to the representatives of the United States apple industry present, Prof. Robertson, on behalf of the Dominion Government, offered to them the benefit of the facilities provided for the Canadian shipper. "We will be glad," said he, "to see your apples going by way of Montreal, because we believe the more apples that go that way the greater will be the disposition on the part of the steamship people to furnish an efficient system of ventilation, etc."

"We have," Prof. Robertson went on again, "gone further than this. We have

made arrangements under which the name of every ship on which fruit is roughly or improperly handled will be published by the department all over Canada. Some steamship owners say they will sue us for libel if we attempt this, but we are ready to stand a suit in order to effect the reform necessary." (Applause).

WHAT TASMANIA IS DOING.

Mr. Powell also referred, in the course of his address, to the question of transportation. "Tasmania does not," he said, "produce anything like as good a quality of apples as is produced in New York State. And yet Tasmania, by her improved system of transportation, can send apples 14,000 miles, largely over tropical seas, land them in London in better condition than we can, and get a better price." Mr. Powell congratulated Canada on the fact that the Canadian Government had done so much towards securing improved facilities for transport of Canadian apples by sea.

YIELD AND DEVELOPMENT—GUESSES AT THE CROP—PROBABILITIES OF DEVELOPMENT.

There was no point on which the members of the convention differed more widely than in their estimates of the apple crop of America. The president estimated the value of the crop in the United States alone at something like three hundred million dollars. This would be equivalent to two hundred million barrels at \$2.50 each. Mr. E. N. Loomis, of New York, said the Fruitman's Guide placed the merchantable product of the United States at forty million barrels, with the amount actually barreled and marketed at twenty-five million barrels. Mr. Powell, of New York, estimated the crop at 100,000,000 barrels. The Year Book of the American Agriculturist, an excellent authority, placed the bumper crop of '96 at seventy million barrels. As Mr. Loomis said, it is largely a matter of guesswork anyway, but the figures given by the Agriculturist would

seem nearest the mark. It does not seem possible that the United States, in any one year, has produced more than seventy million barrels of marketable fruit. Even this would allow very close to one barrel per head for every man, woman and child in the United States, after allowing for the export trade, and it is fairly certain that is the outside limit for the quantity of apples consumed in the Union. But even at this figure the industry is an important one; and, one point on which all agreed, and on which all seemed justified in agreeing, is that the industry is growing by leaps and bounds, and has before it almost unlimited possibilities of expansion.

POSSIBILITIES OF FUTURE DEVELOPMENT.

But what has been accomplished is but the beginning. It remained for George T. Powell, of New York, to point out the possibilities of the future.

"People predict the coming of a period of over production," he said. "That same prediction has been made every year for the last forty years, and yet not once in all that period have we had too many apples to meet the demand. We can increase the consumption at home by 100 per cent.; Germany has just got a taste of our good apples, and an enormous market in consequence is opening up in the German Empire; it is only a question of time until a demand comes from Japan and China, and when that time does come, even if our production is double and treble what it is now, we shall not produce enough to furnish our customers in the East with one apple apiece. It is merely a question of producing the right quality of fruit and arranging for proper distribution and marketing. Solve that problem and we shall not produce too much even when all our possible apple area is producing to its fullest extent.

"And to what extent may production not be developed? Just see what has been

accomplished under the crude methods employed in the past. I made a special investigation in 1898 as to the profit then being realized from apple production in that State. One authority from which I obtained a report estimated the average value of the return per acre from apple-growing in the State at \$100. On twenty adjoining farms in one county, the average return for five successive years (two of these years being failures), was put at \$85, or equal to 6 per cent. on a valuation of \$1,400 per acre. On some farms, in single years, the return per acre ran up as high as \$550, and in one case to \$700. When, added Mr. Powell enthusiastically, "we think of what has been accomplished under the conditions existing in the past, we find it impossible to compute the possibilities of the future. One thing certain is that no occupation offers greater security to a young man than fruit growing, and there is no safer investment for capital than is offered by a good fruit farm."

CARE OF ORCHARD. NO ONE ESSENTIAL IS SUFFICIENT IN ITSELF.

Senator Dunlap, in an address on Commercial Orcharding, said one thing which, although a sort of commonplace, illustrates in a striking way why orchard work must necessarily be confined to a comparatively few.

"You cannot," said he, "plant an orchard to-day and reap your reward to-morrow. Moreover, owing to the peculiar difficulties encountered in this business, fruit growing is really the work of specialists.

There are not many specialists, and not many in a position to wait; therefore fruit production is not a business for the masses.

Mr. Dunlap emphasized the point in regard to the necessity of special knowledge by mentioning something which had occurred in his State—something which has, in a measure, its counterpart in our own Niagara district, with peaches substituted in the latter case for apples in the former.

"Southern Illinois is," said Mr. Dunlap, an almost ideal place for the production of apples, and ten years ago, when the industry was at its beginning there, some record-breaking crops were produced. Business men, their imaginations fired by the big profits that were apparently to be so easily made, invested largely in trees and land. There are thousands of acres of apple orchards planted by these men that have never returned a cent, and never will do so. Why? Conditions have changed. The introduction of fungus diseases and insect enemies have rendered production more difficult, and these men have not the knowledge or the patience to grapple with the difficulties that have arisen."—*The Weekly Sun*.

NEW FRUITS.

STEELE PEACH.—"SIR,—I am sending you by this mail a few peaches. These have been produced on a tree which I have had in my garden for 14 years. They are a seedling and I have named them the 'Steele.' These samples are only about $\frac{2}{3}$ of the usual size and are not of as good flavor as usual. This is due I presume to the age of the tree and to the season and also to the fact that there are a great many

on the tree this year, about 2 bushel. The tree has borne well every year since it commenced with the exception of last year and one previous year when we had a severe June frost. It has never been injured in the least by the winter, although we have occasionally had a temperature of 20° or more below zero. The fruit ripens at end of August usually, but is a little later this year.

"As this is not in the peach growing dis-

tricts I thought this might be of interest to you.—M. STEELE, M.D., Tavistock, Perth County."

The hardiness of this peach may make it very valuable for sections outside the peach belt. Coming in with Yellow St. John and Champion it would not be of any great value where these succeed. The peach is attractive, skin cream with red cheek, flesh white, tender and juicy, of the flavor of the natural fruit which is excellent eaten with cream and sugar.

THE RUSSELL is a new apple shown us on the 3rd of September at the Industrial by Mr. J. P. Cockburn, of Gravenhurst. It originated, he said, near Ottawa, in the County of Russell. It is another of the Fameuse type, $2\frac{1}{4} \times 3$ inches in size, a bright red color, and white tender flesh, very agreeable. Its season is September.

THE MAMMOTH DEWBERRY is shown in the Rural New Yorker, of Sept. 7th.

THE MCPIKE GRAPE, a seedling of Worden, was on exhibition in Buffalo. It seemed to be similar in appearance and season to Campbell's Early. It is being introduced by the Silas Wilson Co., of Atlantic, Iowa, and was originated by H. G. McPike, of Alton, Ill. The introducers speak of it as follows:—

We have in this new wonderful grape great size, superior quality, hardy wood and bud, very large leathery leaves. Fruit ripens same season as Worden, which is one week earlier than Concord. This new grape ripens evenly, and only has one and two seeds; skin tender and pulp melting. Mr. J. P. Jones, a member of the Alton Horticultural Society of Alton, Ill., one of the oldest horticultural societies in the great Mississippi valley, reported to the Alton Horticultural Society that he made a trip to England in the fall of 1898 and took with him a basket of this wonderful fruit, and after being on the road 13 days the fruit opened up in Liverpool in fine condition and was pronounced worth 60 cents per pound in Liverpool market. This grape has taken all premiums at all the great state fairs in the fall of 1898 and 1899 wherever exhibited, over all competitors, including Campbell's Early. Many testimonials could be printed if space would permit regarding the success of this wonderful grape.

PRACTICAL SUGGESTIONS FOR MARKETING FRUIT.

*F. A. WAUGH, VERMONT.

IF it seems necessary to ship to two or three markets, stick to a single commission house in each city, but, as far as possible, ship to a single market. The man who is conducting business on a very large scale, like J. H. Hale or Roland Morrill, and who can keep his hand on the commission men, can afford to transgress this rule. Such men are superior to all rules. Most of us are not. For the ordinary fruit grower and shipper this rule of dealing always with one commission firm is of the utmost consequence.

Ship the same varieties year after year, and make the grade just as uniform as pos-

sible. Even if something short of the best fruit is shipped, uniformity of grade is highly advantageous. The commission house knows what to expect, and customers get used to the brand and the grade. There are hundreds of shippers growing all classes of fruits whose products are commonly already sold when they arrive in the market. Uniform and honest packing does it.

Select a brand which is neat, catchy, and not too large, and see that it goes on every package. Some men have made reputations and money out of their brands.

Grade and pack with the most rigid honesty. Don't try to cheat a commission man. It can't be done. The commission man has the last turn, and he is absolutely sure to protect himself, whatever happens to the

*From advance sheets of Prof. F. A. Waugh's book entitled "Fruit Harvesting, Storing, Marketing." Published by Orange Judd Co. Price, postpaid, \$1.

shipper. Moreover, any evidence of dishonesty immediately destroys the dealer's confidence in that consignor, and selling is seriously interfered with. Thereafter packages must be opened and examined before they are sold, and they are not offered to the best customers.

Follow the advice of the commission man

as far as possible when you have settled on a good one. Ship fruit when he wants it. Send the varieties and grades that he wants and in every other feasible way conform to the requirements of his business. His business is the fruit grower's business. He is the fruit grower's agent. He should be treated as such.

UNDER-PLANTING IN ORCHARDS.

CHAS. A. KEEFER.

THE fruit grower is often at a loss to know how to treat the orchard until the trees come into full bearing. The most common practice is to grow corn in the orchard a few years, and then, about the time the first crop sets, to seed down.

The grower should keep in mind all the time that the fruit trees are to bear the crop to which the land has been devoted, and always their welfare should be the first consideration. While this is true, the land should not be left idle until the trees come into fruit, not only because the expense of maintaining clean cultivation between the widely spaced trees would be too great, but because the soil, especially on sloping sites, would actually deteriorate under clear tillage.

Low growing crops are better than high growing crops for orchards, because they shade the soil almost equally well, and do not shade the trees. When corn is planted among young orchard trees, the lower branches of the trees are often so shaded as to greatly interfere with the work of their leaves. It must be remembered that leaves are at once the lungs and the stomach of trees, and that they can only do their work of assimilation in full sunshine. In a densely headed tree one may see that there are comparatively few leaves toward the center—there the branches are bare, while the outermost branches have the most vigorous foliage. Nothing should be planted in a

young orchard, then, that will shade the limbs of the trees.

The crop to be used in the orchard depends principally upon the condition of the land. If it is newly cleared land almost any hoed crop may be used—potatoes being one of the best. If the land is old, and especially if the soil is thin, an effort should be made to enrich and deepen it by planting to cowpeas which should be plowed under as they approach maturity, and be followed by a winter cover of rye. It is a too common practice to sow cowpeas and cut the crop for hay, the grower thinking that the roots of the peas are sufficient to enrich the land. While the roots of the pod-bearing plants are the gatherers of nitrogen, by far the greater part of the plant food gathered by the roots is stored in the leaves and seeds. The man who cuts the cowpea crop and in turning under the aftermath imagines he is doing the best for his land is like the man who would sell his oats and feed the straw to his stock, thinking this the best possible treatment for the cattle. Not only will the available nitrogen be greatly increased by turning under the cowpeas, but the mass of vegetable matter thus added to the soil will improve its character, making it looser if too compact and more firm if too sandy. Green manures are peculiar in being a corrective for both sandy and clayey soils.

Cowpeas should not be used in land that is very fertile, as the added nitrogen returned

to the soil will stimulate the growth of the fruit trees too much, and thus induce a great growth of wood at the expense of fruit. There are few old fields, however, in which this danger need be feared, and hillside orchards, where the washing of the soil is a principal cause of loss of fertility, may well be planted to this soil-improving crop.

In using such crops as cowpeas and rye, which are drilled or sown broadcast, the ground immediately about the trees should be well tilled, either by cultivating a strip on either side of the trees, or by hoeing a wide space around them.

The constant cultivation demanded by hoed crops is the best treatment that can be given orchard land. It prevents the tree roots from growing too close to the surface, as they are apt to do in grass land, keeps the soil well aerated, thus improving its

chemical condition, and by maintaining a loose surface cover saves the moisture in dry times for the use of the cultivated plants. The trees share these advantages with the plants that may be planted among them. In young orchards, by good judgment in the selection of such crops, they will frequently more than repay the expense of cultivation, and thus one may establish a vigorous orchard at comparatively little outlay.

In the bearing orchard no cover crops should be grown except to prevent soil washing, or as green manure. One of the most impressive things in the vast orchards of California is the wonderful thoroughness of their cultivation. The owners must have discovered what few eastern orchardists seem to realize, that the fruit tree repays high tillage as well as any other plant.

COLD WATER REFRIGERATOR.

FOR the last two years I have used a homemade water refrigerator in the farmhouse which has some advantages over ice. It saves the expense of putting up ice; saves labor of getting it out and putting it into the refrigerator. It is purer than ice and furnishes drinking water of guaranteed quality, which is better for the health than ice water. Director Sage, of this state, makes a strong point against putting ice into a refrigerator and then breaking off a little to put into drinking water—this on the score of health.

The windmill sends the water from a drilled well to the tank in the top of the refrigerator through the short pipe indicated by dotted lines, the over-flow runs back

through the other pipe and goes to the stock water tank. The water is needed for stock so none of it is wasted. It is also needed at the house, and faucets permit its being taken out at the house as desired. Shelves in the lower part hold the milk, butter, fruit and whatever else is desired to be kept cold, and the wife does not have to go down cellar after butter, nor to the well for water, nor the man of the house have to get ice for which he has no need.

The tank I use is four feet high, three feet wide and one foot thick, and made of galvanized steel. A cupboard-like structure without shelves in the upper portion affords a good place to locate this tank, and the windmill will do the rest. The pipes run underground from well to house, in a trench six feet deep, so to be free from frost. A stopcock at the pump allows the water to be sent to the house when desired, or direct to the stock tank without first passing through the house tank.—*Am. Agriculturist.*

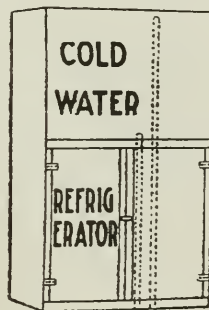


FIG. 2161.

OUR CANADIAN FRUIT AT BUFFALO.

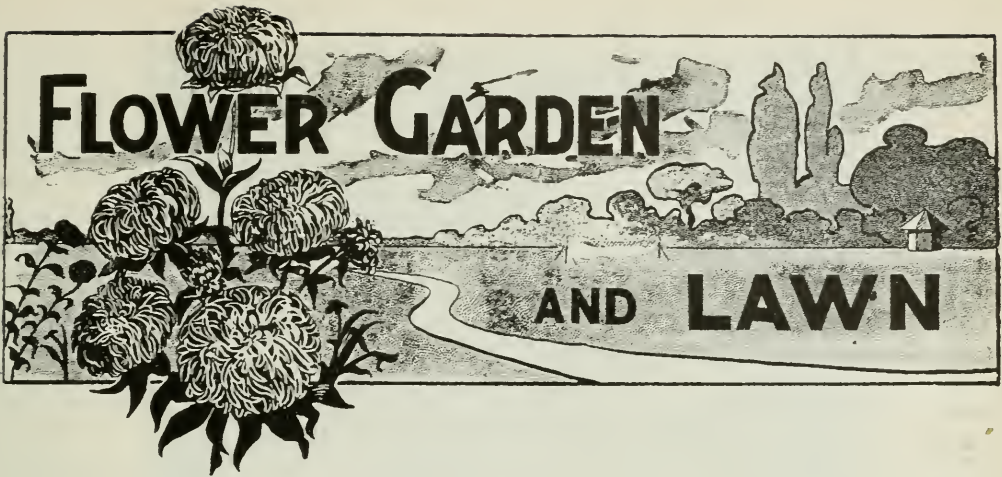
SIR,—Since your visit here in connection with the very successful meeting of the American Pomological Society, I desire to report, through the columns of the Horticulturist, to our many Canadian friends that our Ontario Fruit Exhibit here at the Pan-American Exposition has not abated in interest, but rather from day to day has been growing in value and popularity. The very large supplies of grapes, peaches, plums, pears and apples, which have come forward from all parts of the Province, have so fully taxed the capacity of our large section, that we have been obliged to resort to quite a number of expedients in order to find room for properly displaying the beautiful samples which have been sent to us. In this short letter it would be impossible for me to mention the names of the many exhibitors who have been forwarding samples. Their names will, however, appear in my report, which I shall have the honor of preparing at the close of the Exposition. I may say that it has been a matter of surprise to me that in what is generally considered to be an off season for fruit in our Province that it has been possible to send me such fine samples and so many of them, of our best fruits, and time and time again as the days pass by, we have been complimented upon the appearance and quality of our fruits by visitors, who are entirely disinterested and who are fully competent to judge horticultural exhibits. In a few days the preliminary list of awards for

our entries in connection with permanent displays will be made, and I have every reason to believe that they will be quite satisfactory to the Province and to all those who are more particularly interested.

The Michigan exhibit of peaches, in which state, I understand, they are harvesting a full crop this season, has been a close competitor with us during the past two weeks, and I have felt extremely pleased that our friends have enabled me to keep so fully up with them as we have done. As far as grapes are concerned up to the present time we have, I might say, entirely exceeded my expectations and have, without doubt, put up the best display to be found here. From the many assurances that I have had, from those who have visited us from time to time, I have no doubt that we will be able to round up the season in a way eminently satisfactory to all concerned.

The attendance on the grounds, while not so large as was hoped for, still is running from 60,000 to 70,000 per day, and seems to be comprised of a class of people who are deeply interested in horticultural matters and who have given very close attention to the exhibits from the Province of Ontario. I have not the slightest doubt but that our exhibits here under different departments, Horticulture, Mines, Forestry and Ethnology will prove of lasting value to the Province at large.

Buffalo Sept. 26, 1901. W. H. BUNTING.



WINDOW GARDENING IN WINTER.



WINDOW facing the south, or some intermediate point between an east or west aspect, as near due south as possible and exposed fully to the sun, is the best position to grow and flower window plants in during the winter. Partial success with some flowering plants can be attained in a less favorable position, and in one having a more northern aspect than those mentioned, but the results as a rule are not at all satisfactory. Light and sunshine are elements that cannot be dispensed with in plant culture, more especially if the best flowering properties of the plants are to be brought out. In growing or selecting plants therefore, that are to occupy the window in winter, care should be taken to select only those that are best suited for the position they are to occupy.

For a window having a north aspect it would be useless to think of growing and flowering successfully even the commonest window plants, such as geraniums, oxalis, callas, etc. Even bulbous rooted plants, such as hyacinths, daffodils, amaryllis and many other winter and early spring flowering plants are not a success in a window not fully, or at least partially exposed to the rays of the sun in winter. Much can how-

ever, be done toward brightening up even a north window by using bright-colored and graceful growing foliage plants. Amongst the latter may be mentioned palms, dracenas, *Cyperus alternifolia*, *Asparagus plumosus*, *aspidistra*, *Ficus elastica* and the variegated type of the cyperus, *Cyperus variegata*. *Begonia manicata aurea* makes an ideal window plant, and succeeds well in almost any window, whether in a shaded or sunny position, the beautifully blotched, ivory white and green coloring of its leaves giving it a decidedly bright and attractive appearance amongst a collection of window plants. The thick, fleshy nature of the leaves of this begonia also serve to increase its value as a window plant. The plain leaved type of this begonia, *B. manicata*, is also a fine window plant, but its foliage is less robust and is more sensitive to a low temperature, excessive moisture, etc., than the variegated type, the latter being the hardier of the two. *Begonia sanguinea* is also a good begonia for a shaded position in winter. The variegated anthericums and agaves can also be used very effectively in brightening up a group of window plants in a window having a north aspect.

The spotted *Farfugium* (Leopard plant),



FIG. 2162. RICHARDIA ALBA.

is also a good house and window plant, in fact, like the *Sanseveria Zeylandica* it seems to thrive in a window or dwelling house much better than in a greenhouse or conservatory. It is a well-known fact that better specimens of the two last named plants can be seen in cottage windows than can usually be found in the best equipped greenhouses or conservatories. Both of these are ideal plants for the house or window, whether in a sunny or shaded position. The *Farfugium*, however likes a liberal supply of water, whilst the *Sanseveria* should be given water very seldom, only once in every two or three weeks will suffice, unless the atmosphere of the room is very dry, when a more frequent application can be given it. The *Sel-*

aginella emeliana is also a pretty little dwarf growing plant for the window, succeeding best in a position not fully exposed to the sun.

The spotted calla (*Richardia alba*) will succeed well in a window where very little sunshine comes, its long arrow-like leaves, with numerous short stripes and spots of pure white on its otherwise deep green foliage, makes it a plant deserving of special notice for the window. Dry bulbs of this spotted calla secured now and planted in a 4 or 5 inch pot will make nice plants before spring. These, like the common calla or *Richardia Ethiopica*, do not like their roots to become dry when in a growing state.

Very few geraniums succeed in a window

facing the north, a plant or two of the dwarf growing silver variety Madame Saleroy being perhaps the only partial exception to this rule. For trailing and hanging plants tradescantias, vincas, and German ivy will be found effective for a north window.

For a window facing the south a much wider range of plants is open to select suitable varieties from. All of the varieties mentioned for windows having a north aspect will succeed in a window facing the south, to which may be added double and single flowering geraniums, fuchsias, begonias in variety, *B. incarnata*, *B. rubra*, *B. fuchsiaoides*, *B. semperflorens*, *B. gigantea rosea*, and *B. ingrama* being among the best for winter flowering varieties, whilst begonias *diadema*, *metallica*, *sanguinea*, *manicata* and *manicata aurea* will be found useful for the beauty of their foliage during the dark winter months. To this list can be added winter flowering bulbs of all kinds, not forgetting a few hanging pots of *oxalis lutea* (Bermuda butterfly). A plant or two of *epiphyllum* (lobster cactus) will also make a desirable addition to the collection. The variegated and flowering ivy leaved geraniums and the hybrid variety, *P. Crozy*, as well as many of the silver and gold tricolors as well as bronze foliaged varieties will be found to succeed well in a sunny window in winter. The pretty little plant that may be fairly termed a window-shrub (*Linum trigynum*) is one of the most remunerative of winter flowering plants, producing its large bright yellow flowers in great profusion during winter and early spring. A pot or two each of primulas—more especially of *primula obconica*—cyclamen, freesia, with a pot or two of climbing asparagus, (*A. tenuissimus*), or of the perennial varieties of *tropeolums* or *smilax*, will complete a list from which a selection of plants can be made that will make a bright and attractive appearance during the winter, when all the recent beauty of out-

door plant life has been marred or destroyed by the keen biting frosts and winds of winter.

CARE OF WINDOW PLANTS IN WINTER.—Watering window plants is one of the features of winter window gardening that requires great care and close observance of the requirements of the plants, so that they may not suffer from drought, or on the other hand—as is often the case—become stagnated and the soil made sour and consequently dangerous to the life of the plants from too much water being given them. Tapping the pots with the knuckles will in most cases be a sufficient guide to the inexperienced plant grower to ascertain whether it is necessary to give the plant water or not. If the pot emits a ringing or hollow sound when struck, give the plant a good watering, sufficient to moisten all the soil in the pot. If on the contrary there is only a dull heavy sound in response to the tapping, very little if any water is required. When plants require water at the roots, the soil on the top of the pot assumes a somewhat lighter appearance in color and feels dry and crumbles when touched. When this is the case it is safe to give the plants water. On the other hand if the soil is sticky and pasty when touched, in all probability no water is required. When water is required give it liberally so as to soak the soil to the bottom of the pot. Use tepid water if possible, at about a temperature of 45° to 50°, or just luke warm. Water the plants early in the day, and on fine warm days if possible.

INSECT PESTS.—There are four or five insect pests that are a source of annoyance and often of destruction to plant life, more especially to window or house plants, the usually dry atmosphere of the house presenting just the conditions suitable for the introduction and subsequent increase in numbers of most of these pests. Green fly or aphid, red spider, mealy bug and scale, are the principal enemies to plant life in windows in winter.

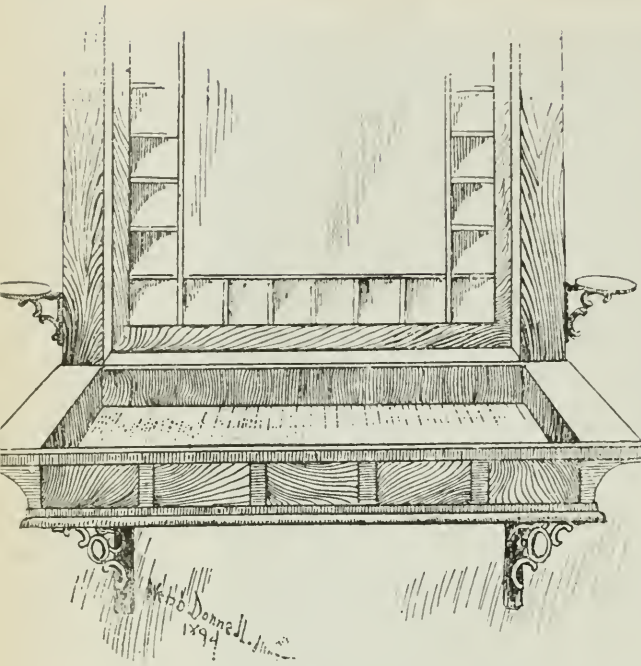


FIG. 2163. WINDOW BOX.

The mealy bug is easily seen and found by the white flowery or mealy appearance this insect presents when fully developed. Picking out the bugs with a small pointed piece of stick is about the best and safest method of keeping down these white, but objectionable and undesirable pests. The scale is not as easily detected as the mealy bug, as it is—except when quite young—scarcely discernible oftentimes from the bark of the plant from which it is slowly but surely sucking the life blood from. Its appearance when mature can perhaps be best described by terming it a miniature tortoise of very wee proportions, it being in most cases scarcely $\frac{1}{8}$ of an inch in measurement and almost oval in form. When near maturity the scale does very little harm to plants, but from the time that it is about the size of a small pin's head until it is near maturity is when it gets in its work of destruction. It is also at this period very hard to be seen on some plants, as it will if left unmolested entirely cover the bark of the plant on which

it is feeding, and is easily mistaken as being part of the bark of the plant itself. Roses, hydrangeas, fuchsias, ficus, dracenas and similar hardwooded plants are specially liable to scale. The best remedy is to wash off the scale with a weak solution of whale oil soap and water. It used to be a common saying amongst gardeners in my apprenticeship days that "to move the scale was to kill it," so that friction sufficient to move the scale is desirable, as well as the application of the solution mentioned. Ordinary soap suds, if not too strong, will answer just as well as whale oil soap and is safer to use. Both should be syringed or washed off the plants before it has time to dry on, as unless this is done the plants will look dirty and unpleasing in

appearance.

Keeping the atmosphere where the plants are growing as moist as possible, not allowing the temperature of the room to go beyond 70° or 75° at the most, will prevent the appearance to a great extent of both the other pests mentioned, viz.: green fly and red spider. Constant washings and syringing with clean water will materially assist to prevent the intrusion of these pests. All house and window plants, except a few, such as coleus, begonias—especially the Rex and rough-leaved varieties—should be syringed or sponged once every week or two, as neither of these insects mentioned appreciate the application of water to the foliage of plants. A very weak solution of whale oil soap applied once or twice during the winter will help to prevent attacks of these pests, but be sure not to use the solution too strong, or the remedy will prove more injurious to the plants than the insects. Weak tobacco water will kill and keep down the green fly or aphid. If these applica-

tions of water and insecticides as described are commenced with early in the season, and applied occasionally during the winter, it will prevent the appearance of these enemies to house and window plants. Too often the application of preventives and remedies is neglected until the plants are infested with insects, when severe measures have to be taken, and strong solutions used, that will perhaps kill the plant before it removes the pest. "An ounce of prevention is better than a pound of cure." This old adage certainly commends itself to plant lovers, who wish to have the plants in their windows looking bright and fresh during the cold dreary days of winter.

In conclusion I would say to those who take an interest in window gardening that they should at all times endeavor to make the surroundings of their plants in the house as nearly as possible similar to the natural

conditions and surroundings as found by the plants in their native haunts. If a little study and application is devoted to these important points and conditions of plant life, success will be sure to crown the efforts of those interested in the delightful and pleasing occupation of winter window gardening. If, on the other hand, no attempt is made to give the plants the surroundings they have when growing naturally, failure and disappointment will be sure to be the result. It is surprising how easy it is to succeed in window gardening, as many of our readers can testify, if plants are only given even a small modicum of natural treatment amidst the certainly unnatural and trying surroundings that plants in windows have usually to contend with during severe winters.

W. HUNT.

Hamilton.

WINTER FRUITS AND BERRIES.

ANOTHER bright fruit is the high cranberry, *Viburnum oxycoccus*, a relative of the European snowball or guelder rose. It is a good shrub in foliage and flowers, and the berries are eatable, of a keen acid flavor. The black berries of the sloe, so-called, *Viburnum prunifolium*, are also conspicuous in winter. They are sweet, and with a little more pulp in proportion to their skins and seeds would be quite a successful fruit.

We must not forget the red hips of the sweet-brier rose, which are so highly polished that you can see yourself in them as you come near, and the evergreen habit of the bush for the first weeks of winter helps the effect.

The exotic barberry covers itself with the brightest red. Its fruit is eatable if one likes its keen sourness.

Here in the woods are knolls and mounds

—formed of the earth that has fallen from the roots of great trees upturned by prehistoric tempests—of all sizes and forms. The dry summits of many of them are covered with a thick mat of evergreen vines beautifully mingled with verdant ferns and mosses, the gray or green cups or the red caps of the *Cladonia* lichens, while even the stones are decorated—it is the partridge berry, squaw, or tea berry, *Mitchella repens*, with its scarlet berries. The last extremity of cold and mild sunny days, of bare and frostless earth, are all the same to this hardy plant. Its sweet and eatable fruits keep their form and tint until spring is nearly here, while the dark evergreen foliage enhances their effect. Each berry has borne two white tubular, fragrant flowers. Filled with down they came forth in midsummer under the heavy shade of forest foliage.—*Vick's Magazine for November.*

SOME ATTRACTIVE CACTI - I.



GREAT many people deprecate the entire cactus family because, they say, "they are such ugly-looking things." Many of these speak only from having seen a few specimens of those varieties commonly met with, such as some of the *Opuntias*, or prickly pear family; or *Echinopsis*, which goes by numerous names, from "policeman's club" to "devil's pin-cushion." Admitting that, when not in bloom, these varieties are not specially attractive, yet that is not enough to support the sweeping assertion that all cacti are ugly. First, taking the *Opuntia* class, we find some particularly attractive plants among them, and a bed, having a large variety of different members of the species grouped together, makes a splendid show. The variation in form is very great, from the slender, much-branched stem of *O. frutescens* to the large oval joints of *O. monacantha*. A few of the specially attractive *Opuntias* are the very slender-growing varieties, *O. frutescens*, *O. fulvispina* and *O. arolescens*. *O. fulvispina* grows rapidly, and the matured growth is covered with long, bright yellow spines, each of the spines having a sheath of the same color that can be drawn off quite easily: *O. vaganta*, *O. tessellata* and *O. tessellata* var *denudata*, have stems one grade larger than those first mentioned, and are also very pretty plants when well grown. A most beautiful and odd sort is a cristate form of *O. tessellata*, which grows in fan shaped branches of very many different styles. Among the larger cylindrical forms of *Opuntias*, there are many fine looking varieties. *O. Bicolor* has long variegated spines and sheaths, and makes a good contrast amongst others. *O. Fulgida* is a many branched plant with long white spines, and glistening white sheaths which show

well on the green branches, while *O. bernardino*, has long yellow sheathed spines to make still another shade in the collection. Some of the large round-jointed varieties are really beautiful, the palm being taken by *O. monacantha* variegata, whose joints are irregularly mottled with white, and the new growth is usually white with a pink shade. The different *Basilaris* classes are all fine, and show many shades of color. *A. basilaris* grows in cabbage form and the joints are purple; *O. basilaris cordata* has joints of a beautiful light green with a purple cast over it; *O. basilaris coerulescens* has fine blue colored joints and *O. basilaris alba* flora has a pea green color. These are only a very few of the most attractive *Opuntias*, and only their appearance as a plant not in bloom has been mentioned, but when covered with their splendid flowers, they are able to take their place amongst the best decorative plants. The flowers are of different colors, white, all shades of yellow, rose and crimson. Some of the yellow flowers have crimson centers and are very showy. The flowers of *O. lurida* or candle cactus are a fine crimson and as double as a rose.

When a collection of cacti is being made, most fanciers prefer the globular sorts, with the long, heavy, horn-like spines, that have so many fine variations of form and color. This is the *Echino-cactus* class, and it includes some real gems that do not need flowers to make them extremely ornamental. Perhaps the finest of all, and a very rare sort, is *E. grusoni* or Golden cactus, which is so completely covered with its bright, clear yellow, almost transparent spines, as to deserve the name Golden cactus. In Mr. McDowell's exhibit at the Pan-American there are a number of these in very large

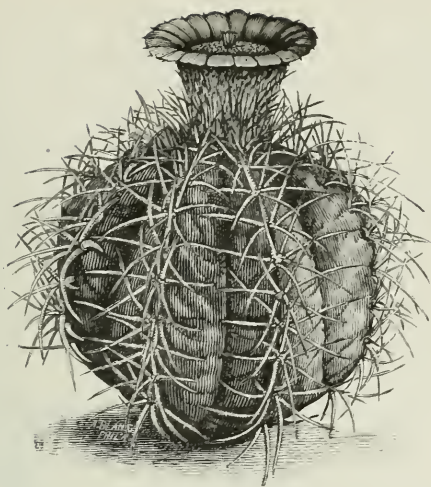


FIG. 2164. ECHINOCACTUS HORIZONTALIONUS.

specimens, which are held at long prices. Another that rivals the above is the Lizard cactus, or *E. cornigerus*. This gets its name from the large central spine, which is flat and curved sharply at the end, and so strong that they will support a weight of twenty pounds. There are two varieties of the Lizard cactus, the difference being in the color of the spines, which on one are deep purple, and on the other a clear yellow. The yellow spined sort is much the rarest. *E. cylindraceus*, bears very long curved spines (4 to 5 inches) that interlace over the plant and are of all shades from white to red and very stout. *E. dugens* always attracts attention, its gray color and rigid, pearl-gray spines, giving it an individuality in contrast with others. Another gray colored plant with nice even ridges and regular spines, that needs to be seen to be appreciated, is *E. horizontalionus*. Another beauty that should not be passed over is *E. ornatus mirbelle*. The plant is a fine shape, with prominent, sharp-edged ribs; color is green, but it is so closely covered with little white woolly spots as to almost look white. The spines are yellow and very strong. This rivals in beauty the Golden cactus. A very rare and odd plant of this

family is *E. turbiniformis*, which is so wonderfully made that it looks as though laid out by a compass, and carved by a skilled mechanic from a round block of green stone. Still another Echinocactus of great merit is *E. wislizenii* or Fish-hook cactus. This grows to a large size, and its chief attraction is the stout central spines which are hooked like a veritable fish-hook, and sometimes four inches long. The above class is by many considered the handsomest of all cacti and the writer confesses to being of that opinion himself. The great difficulties encountered in procuring them, coming as most of them do from the interior of Mexico, where they have sometimes to be carried out on men's backs for days, over the mountains, makes the price usually high on most of them, and this prohibits their being more generally found in collections. The Echinocereus family does not contain so many attractive plants in regard to spines, but they make up for it in the profusion of their magnificent blooms. *E. candicans*



FIG. 2165. ECHINOCEREUS.

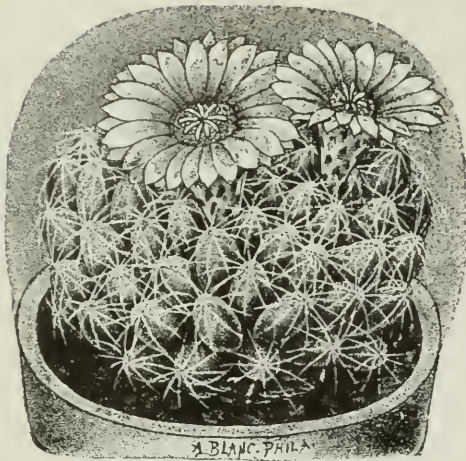


FIG. 2166. CACTUS MAMILLARIA.

or Rainbow cactus, is indeed when in good condition quite pretty, with its alternate rings of different colored spines, giving it the appearance from which its name is derived. The three varieties of *E. engelmanni*, must be mentioned amongst the attractive cacti, as their long, heavy spines are beautifully variegated from white, yellow and all shades of red and purple to black. They are bound to attract attention when seen in a collection.

This article has gone too far already in speaking of attractive cacti, without mentioning that most wonderful plant of all, *Pilocereus senilis*, or Old Man cactus. This form of plant is the greatest curiosity in nature. The plant itself grows upright, of stout growth, and is covered with a remarkable coat of long, snow-white hair, which is trained down over the plant from what is apparently the crown of an old man's head at the top of the plant. The hair is quite soft, and is sometimes six inches long and so thick as to completely hide the body of the plant itself. There are quite a number of *Pilocereus*, but none of such distinctive attractiveness as the Old Man. Amongst the *Mamillarias* are some real little gems, that can be used with good effect in carpet

bedding, the spines of each variety being so distinct as to make fine contrasts. A few pretty ones are *M. lasiacantha*, which is covered with soft feathery spines so closely as to look like a ball of snow; *M. micromeris*, or Button cactus, a miniature plant covered with tiny rosettes of spines that are so soft as to have the resemblance of velvet to the touch; *M. sanguinea* is so closely covered with bristly red spines as to resemble a brush; *M. nickelsonii*, of very regular form; *M. waltone* and *M. nivea* with snow-white spines, and *M. pfeifferi* with clear yellow spines are also very pretty. The effect of carpet-bedding of cacti can be seen in a fine large bed in the grounds of the Pan-American Exposition, where several thousand cacti are grouped together in a splendid design. As there are between one and two thousand varieties of cacti known, it will be readily seen that only a very small number could be mentioned in an article like this. Some classes I have not even touched. The *Cereus*, which grow in all styles, from the slender *Cer. grandiflorus*, that climbs over a trellis, to the tall massive varieties, such as *Cer. peruvianus* and *Cer. giganteus*, the latter attaining enormous proportions.

The *Phyllocactus* family, which was treat-

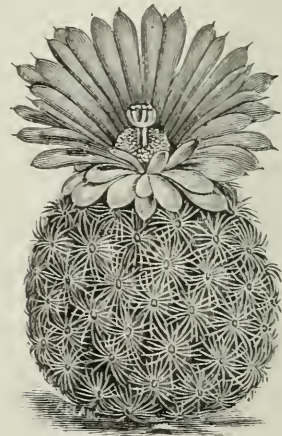


FIG. 2167. MAMILLARIA PECTINATE.

ed in a late number of the Horticulturist, and whose chief beauty consists in their wonderful flowers. The Euphorbias, which are of a fleshy, thorny growth in all colors and shapes, and which add greatly to a collection; and also the Aloes with their spotted leaves; the Gasterias and Haworthias

and all the other succulents. Then there is the Agave family or Century plants, of which there are a great many varieties, and many of which are quite attractive, but these and many others cannot be mentioned here, as this article is already too long.

Woodstock Ont. J. H. CALLANDER.

SPIRAEAS FOR PLANTING.

THE woody Spiraeas are among the most desirable shrubs for the lawn, the garden, or the hardy border of shrubbery. Their time of blooming extends over several months, beginning in the early spring and lasting through the summer. By a proper selection of species and varieties continuous bloom may be secured. They are easily cultivated, will grow in almost any soil, are perfectly hardy, and most of them are profuse bloomers.

There are many sorts differing in size, in foliage, in manner of growth and of bloom. The name spiraea was used by Theophrastus and is supposed to be from the Greek speiras, to wind, alluding to the fitness of the plants for forming its garlands, but many of the species now cultivated have a stiff, erect manner of growth.

The foliage of the spiraeas is exceedingly diversified and many species are named from peculiarities of the leaves, or from their resemblance to those of other plants. There is *callosa*, the callous-leaved; *cana*, the hoary-leaved; *ceanothifolia*, the ceanothus-leaved; *ulmifolia*, elm-leaved; *prunifolia*, the prunus or plum-leaved; *salicifolia*, the willow-leaved; *sorbifolia*, the sorbus-leaved; and many others too numerous to mention. In the color of the foliage there is also a great variety; some species have yellowish-green leaves, some bright, vivid green; *apifolia* var. *aurea* has golden-yellow tinted foliage, and

to some species the autumn brings bright tints which last a long time.

The manner of blooming is also much diversified. Some species have long, drooping sprays of leaf and bloom, two feet or more in length; in others the flowers in clusters thickly scattered over the bushes. Some bear tiny blossoms in stiff, upright spikes and panicles, others in flat corymbs, and still others in soft and feathery plumes. Some species have single flowers, others have blossoms as double as miniature roses.

In color the blossoms of the spiraeas are usually white, or pink of various shades deepening into rose, carmine and crimson.

Spiraeas sometimes require a year or two after planting to develop their characteristics, and they should not be condemned if they do not quite meet one's expectations the first time they bloom; the yellow foliaged varieties, especially, are much more satisfactory after becoming well-established.

The white-flowered species of spiraeas are particularly effective when planted among shrubs which bear bright-colored blossoms, or near dark-foliaged plants like the purple-leaved barberry. Planted in masses, with an eye to the best intermingling of colors and species they present a beautiful appearance, and they also make elegant low, ornamental hedges. Single specimens on the lawn or in the garden, with plenty of room for development make a magnificent showing in a few

years, particularly species with long, willowy branches so heavy that when in bloom that they sweep the ground.

For cutting the spiraeas are eminently desirable; a few graceful sprays in bouquets of bright-colored flowers soften and harmonize the whole, adding the exquisiteness and delicacy to the general effect, and the long, graceful flower-wreathed branches of the drooping sorts are effective for decorating.

The spring flowering species of spiraeas have an opulence of bloom that makes the bushes a mass of white, like drifts of snow. As a whole, white-flowered, early-blooming species are ones most admired and most generally planted, but many of the summer-blooming kinds are valuable as furnishing variety and color in the hardy border, and because they successfully withstand the heat and drouth.

A large collection of spiraeas would necessitate extensive grounds, but a dozen species would give variety and afford continuous bloom, and half a dozen choice ones would make a very good assortment. If you have only room for one, two, or three, it may

be hard to make a selection, but you can scarcely fail to obtain some satisfactory kinds, for all are beautiful, desirable and highly ornamental.

One feature which makes the spiraeas particularly desirable for general planting is the moderate price at which they can be procured. Many a one whose taste is not at all proportioned to the length of her purse looks with longing, if not with envy, at the beautiful shrubs which adorn the grounds of her more wealthy neighbor, knowing that she cannot even hope to have similar ones, but spiraeas are not at all expensive. The price varies from fifteen to fifty cents, some of the most beautiful species being obtainable at the minimum price.

In the fall, after the year's growth has been hardened by light frosts and the leaves have fallen, is the best time for transplanting spiraeas. New plants may be propagated, if desired, by making cuttings of soft wood during the summer, rooting them in sand, or by separating from the main plant some of the numerous shoots which spring from the root.—*Vick's Magazine.*

A LOVE AFFAIR IN THE GARDEN.

With whom did he fall in love? Rose Geranium.
 Was she handsome? An American Beauty.
 Did she have many admirers? Phlox.
 What was his name? Basil.
 How did he propose? Aster.
 What time of day was their first meeting? Morning Glory.
 What was the color of her eyes? Violet.
 What was the color of her cheeks? Pink.
 What did he wear upon his hands? Fox Gloves.
 What fastened his coat? Bachelors' buttons.
 What had she upon her feet? Lady slippers.
 Her parents were worldly and what had she been told to do? Marigold.
 What did her lover offer her? Tulips.
 What was the result? Love in a Tangle.
 Faithful to her parents' commands, what did she say? Touch me not.
 What did he say, pleading with her? Honeydew.
 What did she hope would efface their love? Thyme.

He fell down upon his knees before her and what did she say to him? Johnny jump up.
 What did he do? Rose.
 What did they both have when they parted? Bleeding hearts.
 What did he think of adopting? Monkshoods.
 What did she think of becoming? Veiled nun.
 When, after many months the parents relented, what did the lovers find? Sweet peas.
 What hour was set for the wedding? Four o'clock.
 Who were her bridesmaids? Violet, Lily, Marguerite and Daisy.
 Who was the best man? Sweet William.
 What did the mother say to the bride? Forget-me-not.
 Where did they make their home? Cape Jessamine.
 What did they find in married life? Heartsease.
 —*Designer.*

OUR VILLAGE IMPROVEMENT SOCIETY.

BY EBEN E. REXFORD.

A HINT FOR OUR HORTICULTURAL SOCIETIES.



OUR village is pleasantly located. It has river frontage and some very fine trees and quite a number of attractive residences.

It also has a two-acre lot which had long been known as "the park," because it was public property. It was bought years ago, when the town had a "boom," as a site for a court house. But a rival town got the court house, the boom collapsed and our "park" became village cow pasture.

Its fine elms made it a shady, pleasant place, and many of us saw great possibilities in it, if as we used to say to each other, "the town ever improved any." But, like the rest of the village, as a village, the two-acre lot was neglected, we took no pride in it, and the question of cutting it up for residence purposes finally came before the village Council.

It was this suggestion on the part of some members of the Council which gave birth to our Village Improvement Society, for, when the matter came up for serious consideration, one Councilman opposed the measure vigorously. In conversation with his friends, outside the Council room, he had some severe things to say about our lack of public spirit, which he asserted had resulted in the general air of "gone-to-seedness" which characterized the place.

"Why," said he, "we might have one of the most charming little villages in this part of the country if we had more pride and interest in it. But we don't seem to have any. Every season I hear people from the city remarking about our shiftlessness and neglect of the place. 'It might be made delightful, if ——.' And that 'if' of theirs is equal to a volume in its unspoken criticism on our

lack of enterprise and improvement. In my opinion, it would be a shame to sell off the park. We may not need it now, but if we ever wake up and do something we'll see the mistake we made, but we'll find it out when it's too late to help matters, for there's no chance to get another piece of land like it. I wish I could stir up some enthusiasm among the people, and get them to go in for a reform all along the line. I read of Village Improvement Societies in other places. One would be a good thing for us, I think."

"Why not have one then?" suggested one of the group.

"Why not, indeed?" said another. "I'd be glad to join such a society and do what I could to help it along, and I think the rest of our neighbors would. We all see the need of improvement."

So it came about that in less than an hour the village improvement idea was enthusiastically received. It seemed as if it was just what everybody had been waiting for. A public meeting was decided on, and a notice was posted up, asking all who were interested in the improvement of the village to meet at one of the churches on Wednesday evening.

Wednesday evening came, and the church was filled with men and women. The man who had objected to selling off the park was made chairman of the meeting, and he briefly stated its object to the audience. Then two or three of the leading citizens spoke heartily in favor of the project, and an informal discussion ensued. The result was that we had no difficulty in effecting an organization, and our Village Improvement Society came into existence with a membership of over fifty.

In discussing the method of management we decided to have everything about it as simple as possible, for some of us recognized the fact that success in undertakings of this nature is largely dependent on simplicity and directness. In order to avoid friction and "running expenses," it is wise to have but little machinery in a society of this kind, and that of the simplest character consistent with effectiveness. We dispensed with a formal and elaborate "constitution" and "code of by-laws," for we did not think either was needed. We simply drew up a paper setting forth the object of the society and the few rules we thought necessary to formulate for its operation, and when we had subscribed our names to it we were full-fledged, active members.

In this paper it was stated that membership was conditional on an agreement on our part to devote at least one day's work, spring and fall, to the improvement of home grounds, and to give one day's work, spring and fall, to the improvement of public grounds and vacant places belonging to non-residents, if called on to do so.

Each member pledged himself to the payment of one dollar semi-annually, the money thus secured to constitute a general fund to be drawn on in meeting the expenses attendant on the improvement of public places. We had but three officers, a president, secretary and treasurer. It was understood that the president was to have supervision of all work on public places, with the power of appointing such committees as might be deemed necessary whenever they were needed.

At first we had not proposed to take women into membership, but it was suggested that they had as much right in the society as men had, and would, no doubt, take as much interest in it,—and quite likely a good deal more. Accordingly, it was unanimously voted to admit them.

Let me say right here, for the benefit of

those who may decide on having an Improvement Society, that in my opinion it will not be what it ought to be unless it admits women to membership. Let this be honorary membership, if thought best,—by that I mean exemption from the payment of dues and the performance of manual labor—but by all means let women come into the society. Their opinions will be found valuable and helpful, and they will do much by their enthusiasm to encourage good work.

As was stated in the paper to which we subscribed our names, the work of improvement was to begin at home. We began it at once. It was surprising to note what a change was made in the general appearance of the place by one day's work about home. It seemed incredible that so much could be accomplished in so short a time. We began to realize, then, as never before, the importance of concerted action.

Our first day's work was a valuable object lesson to us. But many of our members were not satisfied with one day's work. They felt that entire satisfaction could only come from thoroughness, and accordingly they kept at it until everything about their places was in apple pie order. Their efforts proved contagious. Those who were not members of the society caught the enthusiasm of improvement, and the good work went forward on every hand. It lasted long enough to enable us to accomplish really remarkable results—not remarkable, perhaps, when individually considered, but quite so when looked at in the aggregate. Old lawns were renovated and new ones were made; trees, shrubs and vines were planted and beds planned for flowers; old fences were mended and painted, some were removed; we cleaned away the rubbish which had accumulated everywhere because of the careless, slovenly habits we had fallen into;—in short, we did a hundred and one things which I need not make special mention of here, but which each member of a society

for general improvement will find waiting to be done when an aggressive campaign is begun. In going about the village shortly after the era of reform had set in we were delighted at the evidence of neatness which met us on every hand, and we congratulated ourselves on what had already been effected by combined effort expended along the same line.

We began public improvement at the church. The grounds about it were cleaned up thoroughly, and some trees and vines set out; old hitching posts were removed and neat new ones provided; the sheds at the rear were reboarded and painted a quiet, neutral color. Then we went to work on the school grounds, and we did not leave them until they were as tidy in appearance as the grounds about our homes were. We set out a good many trees there, some of them evergreens, made provision for beds to be filled with flowers by the children, and arranged trellises of lathwork, to be covered with vines, as screens for the outbuildings.

Then "the park" was taken in hand. Thistles, mulleins, nettles, and other weeds of an aggressive character had taken full possession, and the cows which had been allowed to feed there had not interfered with them. These we cleared away and sowed the places where they had grown with lawn grass seed. We built seats here and there under the trees and erected a rustic band stand in the centre of the lot, about which we planted ampelopsis and bittersweet and wild clematis. These vines have since grown to such size that they completely hide the wood of which the stand is built, and make it really "a thing of beauty" in summer. In some of the open places we set out native plants—golden rods and asters. In others we planted perennial phlox, hollyhocks and clumps of "golden-glow" rudbeckia. Here and there, where they would show to good advantage, we made groups of hydrangeas and wild roses and the white-

flowered elder of the roadsides and fence corners. In this way we secured considerable variety without the expenditure of a dollar, as all the cultivated plants we used were given us by those who had more than they had use for, and the native plants were to be had for the taking in the fields and pastures. The result of our work here was most gratifying. When we got through with "the park" it was something we were all proud of. We speak of it nowadays in a respectful and appreciative way, and we are justified in the pride we take in it, for it is a park that would be a credit to any village.

Every pleasant evening in summer the young people congregate in it, and once or twice a week the band practices there, and we all turn out to listen to it and visit with our neighbors and congratulate ourselves on the new order of things. It is natural that we should feel a sort of partnership pride in what we have done, because it has been the outgrowth of co-operation.

Each summer affords us fresh proof of the wisdom of our undertaking. Visitors from the city compliment us on the spirit of progress visible on every hand. "It doesn't look like the same place," they tell us. "You have made a model village of it, so far as outside appearances go. Your sidewalks put our city pavements to shame because of their trustworthiness. Your homes show thrift. Your public places are kept in as tidy a condition as your homes are, and that's something that can't be said of many villages. We like it here, and we're coming again." And they kept their word, and our village is becoming quite a summer resort. So we have found that what we have done with very little inconvenience to ourselves has proved a good advertisement for the place and its people, and the present prospect is that we shall get back many times the value of the labor and money expended in improvement, for several sales of property

have been made at much better figures than prevailed before we began our work. The increase in the value of real estate is directly attributable to the improvements which have been made by our society.

What we have done others may do. We have proved to our satisfaction that a large amount of money is not needed in an undertaking of this kind. Organized effort is the important thing. Of course some money will be needed, but the sums coming in from dues will generally be found sufficient to meet all demands, unless improvements far more elaborate than ours are undertaken. If more is needed, it will be forthcoming, I am confident, for everyone will feel a personal interest and responsibility in the accomplishment of what has been undertaken, and they will not be willing to let failure result from lack of means to carry it forward to satisfactory completion.

In almost any village the young people could be enlisted in the work, and they could give entertainments for the benefit of the society and thus realize a good sum, since everybody would feel in duty bound to patronize them.

We have not been ambitious to make

costly experiments. Instead, we have been satisfied to make the most of possibilities in a practical way. We have let competent men, having good taste and good judgment, plan the public work for us, and we have been sensible enough not to interfere with them or hamper them with unwise and uncalled for suggestions which we have insisted on having adopted. Wherever and whenever this is done there will be friction. We have performed the work assigned us by those whom we have chosen to take the lead in an honest, hearty fashion, glad to do it, because we felt that it was of general as well as personal benefit. It has stimulated and strengthened our pride in the place we live in. It has made us feel, as never before, the mutuality of our interests.

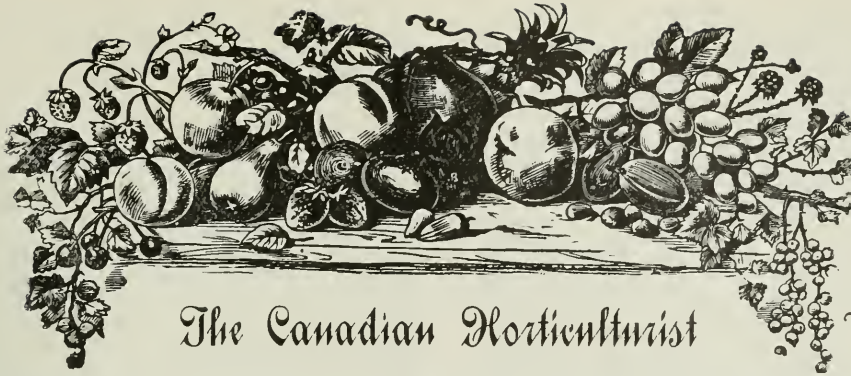
But we are not so satisfied with what we have done that we feel content to fold our hands and rest on our laurels. We have other improvements in view. Our society seems to have become a permanent thing. One improvement naturally leads to another, and the work of a live Village Improvement Society like ours is a process of general evolution which may go on indefinitely.—*Vick's Monthly.*

PROPER LOCATIONS FOR LILAC BUSHES.—The suckering character of common lilacs should be borne in mind when deciding on their location. A slender, neat little plant this year will be a large clump five years hence, with a diameter at the base of perhaps four feet, and with abundant capabilities of future increase.

Lilacs make effective screens—and especially in hedge form. Outbuildings are rendered more sightly by their use, while, at

the same time, the wealth of bloom furnishes additional beauty to the scene and the very best kind of cut flowers for house decorations. This cutting of the flowers, by the way, likewise acts as a desirable pruning.

The "improved" named varieties of lilacs are frequently grafted on privet roots, in which case suckering does not occur unless roots are finally sent out above the graft.—*Meehan's Monthly.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

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

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

APPLE PACKING will be exemplified at our Cobourg meeting by some of the Brighton apple packers.

MR. C. C. JAMES, Deputy Minister of Agriculture, has kindly promised to give an address at our Annual Meeting at Cobourg.

"ROSE GROWING BY AMATEURS" will be introduced for discussion at our Cobourg meeting by Mr. J. G. Jackson, gardener at Port Hope.

THE CANADIAN HORTICULTURAL ASSOCIATION met in the city hall, London, on the 5th of August. Delegates were present from Montreal, Kingston, Toronto, Hamilton, Stratford, Chatham and other places.

THE ANNUAL MEETING at Cobourg has been fixed for Wednesday, Thursday and Friday, the 18th, 19th and 20th of Decem-

ber. We are securing excellent talent, and expect to have a live program. Members of the association everywhere, are invited to send in suggestions for our program.

THE FIRST CAR LOAD OF BARTLETT PEARS left Grimsby on September 9th, 1901, consisting of 1,120 cases, and the second on September 16th, containing about 600.

HORTICULTURAL SOCIETIES are invited each to send a delegate to represent their society at our Annual Meeting, and Mr. Creelman proposes that we give one session to the discussion of subjects of especial interest to the societies.

THE BARRY MEDAL has been awarded by the Western New York Horticultural Society to C. C. Hooper, Rochester, for his new red currant "Perfection," a cross between Fay and White Grape. It is said to combine the

mild rich flavor of the latter with the size and appearance of the former, with larger bunches and more of them than the Fay. This medal is offered for a new fruit, ornamental shrub, tree, flowering plant or vegetable which, after three years' test, shall be considered worthy.

MR. H. E. VAN DEMAN, the most expert pomologist in the United States, is to be with us at our Annual Meeting in Cobourg next December. He is late U.S. pomologist, and now employed as expert judge in fruit at the Pan-American.

GROFF'S HYBRID GLADIOLI certainly make a magnificent showing at the Pan-American Exposition, and deserves special notice. For fifteen years Mr. Groff has made the hybridization of these flowers a special study and offers thousands of new and distinct types to his patrons under the general name of Groff's hybrids. He has on exhibition continually about 10,000 spikes of bloom, the product of 150,000 bulbs set especially for this purpose.

BEST GRAFTING WAX.—One pound tallow or raw linseed oil, two pounds beeswax, four pounds rosin. Slowly melt all together, stir well and when partially cooled pour into pans which have been moistened or oiled to keep the wax from clinging too tightly to them. When thoroughly cold break into convenient pieces.

For use it should be melted and applied carefully over all exposed cuts and open cracks around the grafts. A small paint brush is the most convenient for this purpose. It can be applied safely much warmer than can be borne by the hand, but care

should be used not to have it very closely approaching the boiling point of water.—*L. Burbank.*

WILDER MEDALS FOR ONTARIO.—At the Biennial Convention of the American Pomological Society a few silver and bronze medals are conferred upon meritorious exhibits, in memory of that eminent horticulturist, the late M. P. Wilder. Acting under instruction from the Department of Agriculture, we forwarded our fruit experiment station exhibit from the Industrial to Buffalo where this convention was to meet, and we are gratified that it has been awarded a silver medal. It was certainly a most interesting collection, containing about 150 varieties of apples, besides grapes, pears and plums.

In addition to this a silver medal was conferred upon M. Pettit, Winona, our experimenter in grapes, for his excellent collection of varieties; a silver medal upon Albert Pay, St. Catharines, for his collection of fruit, and a bronze medal upon Mr. Orr, President of the Ontario Fruit Growers' Association, for his excellent exhibit.

PEACH CULTURE is a specialty with Mr. R. Morill, of Michigan. He applies annually to his trees 100 lbs. wood ashes per acre and 400 lbs. of bone meal. He plows the ground about 2½ inches deep, just after blooming season, and then cultivates continually, going over his whole orchard of one hundred acres every day. He does not try to cultivate close to the trees, but thinks that by cultivating the middle of the rows each way he gets the result aimed at, viz., the retention of the moisture. This is what he calls "horse leg irrigation."

QUESTION DRAWER.

Seedling Plum.

1246. SIR,—To day I send you a sample of a seedling plum, first time of bearing. They have been picked several days (they grow on my farm near Belmont), they should have remained on the tree awhile longer; I like them cooked. The tree is a rapid grower, and stands strong and erect. What is your opinion of it? I am thinking of starting a fruit growing association here. Could we affiliate with the O. F. G. A.? Kindly give me particulars so we can start right.

Yours, etc., S. T. PETTIT, Aylmer.

The plum has excellent quality, but it is too small, and, too lacking in color to be profitable.

You can start a local horticultural society at Aylmer, and devote your attention to both fruits and flowers. Such a society would be allowed a Government grant, and would be allowed to affiliate with us. Better correspond with Mr. Thos. Beall, Lindsay, our organising director.

Langstroth's Seedling Crab.

1247. SIR,—By this mail I send to you a specimen crab apple grown on a seedling by myself; this is the first year it has fruited. There was only four crabs on, they were all in one cluster. Kindly give your opinion of it in Horticulturist at an early date. Note the blossom end, as it is just as picked; it is perfectly clean.

ISAAC LANGSTROTH, Seaforth.

This is certainly a very interesting little seedling of a waxen yellow color, with a tint of red, and without a calyx. The flesh is tender, very mild acid, and rather pleasant flavor. About the size of Montreal Beauty.

New Peach.

1248. SIR,—I send you under another cover a peach which was grown here in our village, the most northerly part of the County of Waterloo. Not being able to name same, or any one else I could find, and being desirous of knowing the name, kindly let me know it.

R. JACKSON, Elmira.

Sample came to hand September 10th in condition for eating; form round, with apex prominent, $2\frac{1}{2}$ inches in diameter, green

with red cheek; flesh white, tender, juicy, free from stone, flavor excellent; fine desert peach.

So far as we know this peach is not one of our named varieties.

Apple Inspection.

1249. SIR,—Being a constant reader of your paper, I would like to know if it is imperative to have all apples inspected before they leave Montreal. I have been shipping apples to England for the last 16 years with good results and I am satisfied if my apples have justice done to them on the steamship there is no need of inspection. I think the government should see after the apples, how they are loaded on board the steamship; that would be more to the interest of the shipper than it is to inspect the barrels for if the apples are ever so good and are cooked on the steamship they are done for. I am yours,

Mount Brydges.

T. R. VEALE.

No, it is not necessary to have the apples inspected, and probably not one barrel in five hundred will be actually inspected, but all are subject to inspection, and the inspector has the privilege of opening as many as he pleases.

Thrip on Virginia Creeper.

1250. SIR.—Will you kindly give me some advice upon what to do with my Virginia Creeper. I enclose you a leaf. Those little insects you see on the back of the leaf, mature into a little white and brown winged fly which rise from the vines like a mist when you touch it. I have noticed nearly all the vines in East Toronto are affected the same way.

I have searched through all the Horticulturists, but can find nothing touching upon this matter.

Your valuable advice would greatly oblige.

MRS. H. C. MOORE.

This hopper is often very troublesome and difficult to destroy. Three years ago it was very bad on our Virginia Creeper at Maplehurst, and the only remedy we tried was an exceedingly fine spray of petroleum. This was fairly effective, but had to be used with extreme care. We applied it with a tin atomizer, which can be purchased for about \$1.

Plum for Name.

1251. SIR,—Enclosed you will find a branch of plums, and I would like you to give them a name if you can, we have nothing like it here. I grafted a very large plum, but do not know the name, into a shoot from a Moores' Arctic plum, since dead. This is the first year it has borne any, and it is loaded, and the prettiest one ever I saw
St. Thomas, Ont. B. DIXON.

This plum considerably resembles Glass Seedling.

Borer in Spruce Trees.

1252. SIR,—A Buffalo friend of mine, who has a summer home at Ridgeway, very much fears that he is going to lose some handsome spruce trees, by the ravages of a black insect, about an inch long, much resembling a beetle. The creature bores into the tree, making a deep hole, as clean cut as though with an auger; the hole measures about one-sixteenth of an inch in diameter. It is obvious that his trees are failing. Can you tell me what this insect is and how to eradicate it, or what to do to preserve the Spruce? A reply at your earliest convenience will be greatly valued.

E. P. BLACHFORD & Co., Toronto.

It is somewhat difficult to identify the borer which is destroying the Spruce trees at Ridgeway, without seeing the trees, or specimens of the insect.

However, from the description of the hole, I will at least make a venture and say that it is the work of the Longicorn Borer (*Monohammus confusor*), but the color of this insect is not black as you say the insect in question is. This insect bores a deep hole quite round and regular into the wood of sound trees. Frequently the hole made by the emerging beetle is one-half an inch in diameter. The adult insect is grayish brown in color, a little over an inch and a quarter in length, and has very long antennae, by means of which it may be readily recognized.

I know of no practical remedy against

these insects. Usually the trees which are beginning to decay are most liable to attack, so that possibly in this case it would be unwise to spend time in treating the trees, even if practicable measures could be devised.

Will you kindly send me specimens of the borer. Very truly yours,

O. A. C., Guelph. W. LOCHHEAD.

Canadian Apples Wanted.

1253. DEAR SIR,—A friend of mine, Mr. Ralph Richardson, Probate Registrar, of 10 Maydale Terrace, Edinburgh, Scotland, has written me thrice in reference to our Canadian apple, which he had seen in the Glasgow Exhibition, and he asks me why the finest Canadian varieties are not sent to the Scottish market. He says he ate a capital Canadian apple at the Glasgow Exhibition in July while no such apples had been for sale for months, though the cold storage system should enable us to send them to Scotland all the year round.

Our mutual friend, Professor Baker, suggested to me that I should write you as a person who took great interest in the matter. If you will kindly answer Mr. Richardson's enquiries I shall forward your letter to him. Yours truly,

GEORGE R. R. COCKBURN, Toronto, Ont.

The possibilities of cold storage were not realized before, but have been well proved by the storage of those magnificent apples for the Glasgow Exhibition. We forwarded them in November to Montreal, where they were held until the following May, and then forwarded to Glasgow to be brought on the tables from time to time. The result proves what can be done, and we would take advantage of the opportunity at once were it not for the apple failure of this season. Another season no doubt such apples will be placed on the Glasgow market in July.

Open Letters.**Gooseberry Notes 1901.**

SIR,—I have to report another season's fight with mildew upon the gooseberry with only partial success. The early part of the season was not favorable for spraying, we had so many showers. The first two sprayings were made before the leaves

came out, with blue stone water, two pounds to twenty-five gallons of water. Afterwards liver of sulphur was used, one ounce to two gallons of water. Sprayings were made after every shower. The Imperial nozzle was used, which throws the finest spray, and by holding the nozzle and direct-

ing the spray upwards as well as from above and laterally all parts of the bush was reached.

Our bushes were pruned severely last fall but in addition to this all suckers and over half of the new wood has been cut away this spring. This was done to let in the air.

Mildew made its appearance on the 6th of June upon the fruit. The foliage has been but little affected during the season and went ahead rapidly for six days by which time half the fruit was affected.

I am satisfied that the persistent spraying not only checked the spread of the disease at this time but killed that upon the berries as their growth was not checked. The pure English varieties again were less affected than the seedlings, this may be owing to the smallness of the seedlings Chautauqua, Queen, Crosby's seedling, Golden Prolific, and Large Golden Prolific suffered most. For vigor and productiveness nothing approaches Whitesmith and Autocrat though Whitesmith is the better fruit. Ontario promises well and Columbian and Dominion are vigorous.

The American varieties, Red Jacket, Pearl, Downing, Champion and Smith's Improved were not sprayed and gave a large crop of clean fruit.

Now to sum up, the foreign gooseberry is superior to the American varieties in size and in size only, and Red Jacket is large enough for all practical purposes when preserved ripe, as they should be, for there is no more reason in canning the gooseberry green than there would be in doing the plum or cherry in the same condition. The thick skin of the large berry are against them. Again the big berry is sweet, in some cases inspired while Red Jacket has a fruity acid taste peculiarly pleasant. We can or rather preserve the Red Jacket for our own use and no other. No berry compares with Red Jacket in appearance when picked just as they are turning to ripen. At this stage they are a pinkish transparent color, very beautiful. To sum up, this variety is the most vigorous, hardy, prolific, beautiful thin skinned variety on our grounds. In size it is well up to Whitesmith when equally loaded with fruit.

If I were planting extensively I should certainly set Red Jacket for main crop and Champion for picking green for sauce, etc., at a season where there is a dearth of material for this purpose. Champion is full grown two weeks before any other variety except Smith's Improved and it is too uncertain a cropper. If a foreign is desired then Whitesmith is more vigorous—my bushes of this variety are as large as Downings—and more prolific than any other foreign variety tested here except Autocrat.

I am certain that when the Red Jacket is fully tested and compared with others it will take first

place as a cooking berry but will also put the gooseberry where it rightfully belongs, at the head of preserving fruits especially for the poor man. I say the man with limited means because there is less waste in this fruit than almost any other and it can be grown cheaper. Our Red Jackets this year gave $7\frac{1}{2}$ quarts to the bush all around. To those who prefer a sweet fruit then the Downing or Pearl fills the tree.

As far as profit is concerned even supposing spraying will control mildews, and it will not, when the cost of spraying, material and labor is counted, it will pay better to grow Red Jacket and Champion at 6 cents than the foreign at 10 cents. Green Chisel still maintains the first place as a pure English variety.

Nantyr.

STANLEY SPILLETT.

Tomatoes on the Channel Islands.

SIR,—Enclosed find a slip I cut from the Southern Times, published at Weymouth (my home 45 years ago). I thought it might be of interest to some of our readers to know the amount of tomatoes *now* grown on the Channel Islands.

When I left Weymouth in 1856, tomatoes were then an almost unknown luxury, but it is very evident that they are now largely grown, and must ripen much earlier there, than with us.

Yours truly, CHAS. JAS. FOX.

THE FRUIT TRAINS.—One of the sights of the Great Western line this summer has been the passing of the fruit trains from Weymouth. With an engine at the front going at topmost speed, and another pushing at the rear to help it along, the trains go through the small stations at a terrific rate, highly suggestive of the importance of the business on which they are bent. To the growers of the luscious products it is the essence of the trade that the fruit should be got to its destination within a few hours of its being picked, and the railways are not slow in providing the prosperous growers of the Channel Islands all the facilities they need. That they are doing well there is no reason to doubt, which perhaps is more than can be said of the people who rely on the pleasure traffic. The official returns show that so far this season over half a million packages of fruits, vegetables and flowers were despatched, and a large proportion of them were shipped by the Weymouth route. Tomatoes are grown on an enormous scale, and it is stated the output this year was over a quarter of a million baskets, averaging fifteen pounds each. What this means to the Great Western anyone who pays a visit to the landing stage on a busy afternoon can see.



Our Affiliated Societies.

WOODSTOCK.—The once hospitable doors of old Knox church were thrown open last night for the first time since the old church was deserted by its congregation for their new building. The days of the old church are numbered, and in a short time it will be torn to the ground, but even in its palmiest days it seldom presented a brighter appearance than it did last night. If Knox were an Irish church anyone might have supposed on seeing the lights and the flowers and hearing the music that "Sure, it must be a wake, plaze yer honor," being held in honor of the passing away of the old church, but as Knox is not Irish, a more prosaic explanation must be found in the fact that the Horticultural Society had rented the building to hold their annual exhibition of flowers and fruit.

The society were very happy in their choice of a building, as the church lends itself well to purposes of decoration. The exhibit this year was also an exceptionally fine one, and a great deal of artistic taste has been displayed in the arrangement of the great variety of plants and flowers. The galleries were draped in red, white and blue bunting, which formed a very effective background for the green foliage of the plants. The draping, by the way, was done by Mr. Smith, of John White & Co. Between the posts of the gallery hanging baskets were suspended and Chinese lanterns.

The centre of the building was occupied by a large rectangular bed, composed of palms, foliage plants, geraniums, etc., and banked with ferns. Two large banana palms belonging to Mr. J. S. Scarff, and a handsome palm, the property of Mrs. J. J. Hall—the latter is for sale—were the most notable features of this bed.

The pulpit was elaborately decorated, and, if there are sermons in flowers as well as stones, many eloquent sermons must have been preached last night. A very handsome rubber plant, the property of Mr. W. H. Van Ingen, occupied the centre of the reading desk; baskets of asparagus spengari, belonging to Mr. Hoar and Mr. Thos. Douglas, Brock street, were placed at the sides and in front, while clusters of golden rod and sunflowers gave the needed touch of color.

A long table placed across the front was devoted to cut flowers, as were also two tables at the back of the building. Along the sides stands were arranged on which were displayed the different exhibits.

CUT FLOWERS.

The display of cut flowers was a very fine one. Conspicuous amongst these were the large bouquets of geraniums, salvias and petunias that were brought from the garden at the Central school. There were also some fine specimens of asters, gladioli, zinnias and other seasonal flowers.

There was not a very large display of fruit, but it was of a very fine quality. Mr. John McLean had an assortment of plums and pears a number of baskets of which were offered for sale and disposed of before the evening was over. Mr. Jas. Canfield showed pears, plums and peaches; Mrs.

H. J. Finkle, grapes and plums; Mr. J. S. Scarff, grapes.

Doyle & Son have a splendid display of plants of different varieties. Their ferns are exceptionally fine. A great many beautiful specimens of the Boston and maidenhair fern were shown. In fact, one large stand was devoted solely to these varieties. Another large stand was occupied by palms, begonias and geraniums. This exhibit is worthy of special attention from all horticultural enthusiasts.

Amongst the private collections Mr. Jas. Scarff showed the greatest number of plants. Nearly the whole south side of the building was occupied by his exhibit. Mr. Scarff has devoted most of his energy to begonias, and had a great variety of fancy-leaved, tuberous rooted and rex begonias. He also showed some fine foliage plants.

Mrs. George McPherson's exhibit was a beautiful one, and included a great variety of different plants, probably more variety than any other exhibit. Besides a lot of cut flowers, she showed a fine specimen of the day lily in full bloom, palms of several different kinds, begonias, a century plant and cacti. All looked in the pink of condition, and showed signs of care from a practiced hand.

Mrs. John Pascoe showed two fine specimens of begonias in full bloom and with fine foliage.

Mrs. Hoar supplied a number of hanging baskets, one of asparagus spengari deserves special mention, and also two large stone vases of trailing nasturtiums.

Mr. D. C. Richmond exhibited hanging baskets and two large pots of varied flowers.

A window box belonging to Mrs. H. J. Finkle excited a great deal of admiring comment. It is ten or twelve feet in length and is filled with a great variety of plants, cordylina, foliage plants, geraniums, petunias, etc., forming one of the handsomest window boxes to be found in the city.

Mr. C. R. Reid's collection of cacti was an interesting study. He possesses a great many varieties of these freak plants and not satisfied with nature he has brought art to bear upon them and has grafted different varieties of cacti on to each other. One plant has specimens of six different varieties grafted on to its stem, forming a curiosity that it would be difficult for a botanist to name.

Thomas Douglas, Brock street, had an exhibit of great variety. He showed a *complanata persicaefolia* in full bloom and of great beauty, the only plant of that variety shown. It is placed in a conspicuous position in front of the pulpit and should not be missed by anyone. Mr. Douglas also shows a magnificent sweet-scented geranium, an asparagus fern of exceptional beauty, and a basket of asparagus spengari.

The pleasure of looking at the flowers was very much enhanced by the excellent impromptu concert that was given during the evening. A pianauto, operated by Mr. D. W. Karn, gave a great variety and number of selections and the following well known vocalists rendered solos in

their accustomed excellent style: Mrs. Knight, Misses McLeod and Dignam, Dr. Brown and Mr. Charles Hamlyn.

When the audience grew weary of walking around and looking at the exhibits they could retire to the gallery and rest, and be served with ice cream, if desired, from an ice cream stand presided over by the Misses Parker.

This afternoon is children's day at the show and the successful candidates in the public school competition will be awarded prizes. In the evening the successful candidates from the Collegiate Institute will receive their prizes. The presentations will be made by the mayor of the city and other leading men. An excellent musical program will also be given in which Misses Powell and Farrell and Messrs. R. J. McAlpine, Sykes and Dugit will take part. The pianoto will be a feature of the evening's entertainment.

Thursday afternoon was children's day at the Horticultural Exhibition, and a most enjoyable time was spent. The schools were dismissed a little earlier than usual, and a great many of the children visited the exhibition. The great feature of the afternoon was the presentation of the prizes received by the school children in the competition for the best gardens. Mr. Angus Rose and Mr. James Hoare were the judges in the competition, and the society is very much indebted to them for the painstaking and conscientious manner in which they performed their task.

The prizes were presented by Messrs. William Grey, T. H. Parker, D. W. Karn, J. S. Scarff and President G. R. Pattullo, who made appropriate remarks for the occasion, and encouraged the small gardeners to continue in their efforts.

The attention of the children was pretty evenly divided between the speakers and the tempting array of fruit ranged in front of them. The president observed the longing looks that were directed towards the luscious plums and pears, and after the presentations had been made he stood treat to a basket of plums, a practical method of enjoying an exhibit of fruit that appealed very strongly to the children.

THURSDAY EVENING.

At the third and last session of the exhibition the attendance was much larger than at the two held previously and more encouraging to the promoters of the exhibition. If a fourth session had been held the building would probably not have accommodated the audience.

As on the previous evening, a most enjoyable musical programme was given opening with a number of selections on the pianoto. Miss Clara Farrell sang very sweetly "The Creole Love Song," and for an encore gave "The Tale of the Kangaroo," from "The Burgomaster"; Rev. R. J. McAlpine, Mr. P. J. E. Dugit and Mr. H. Sykes also sang in a highly acceptable manner. Misses McMullen and Bushby and Mr. E. Karn acted as accompanists.

In addition to the musical programme there was a programme of speeches and the presentation of the prizes won in the competition for the best cottage gardens and flower beds. The following were the successful competitors:

COTTAGE, GARDEN AND FLOWER BEDS.

To the President and Members of the Horticultural Society:

Gentlemen,—We beg to report as follows the result of our work as judges of cottage gardens and flower beds:

Best cottage flower garden, not to exceed $\frac{1}{4}$ acre—First, D. C. Richmond, Riddell street, \$3; second, Geo. McPherson, Colledge avenue, \$2.

Best kept garden and grounds, including boulevards, not exceeding $\frac{1}{4}$ acre—First, H. B. Sproat, Ingersoll avenue, \$3; second, R. H. Bond, Victoria street, \$2.

Best cottage vegetable garden, not to exceed $\frac{1}{4}$ acre—First, John Whitehead, Drew street, \$3; second, Robt. White, Wellington street, \$2; third, Frand Pond, George street, \$1.

(Signed, ANGUS ROSE,
JAMES HOARE.)

Rev. Dr. McMullen and Mr. D. W. Karn made the presentations.

Among the speakers was Mr. Angus Rose, who spoke in the highest terms of the gardens he had visited in his character of a judge. He also had something to say about the increasing beauty of the town and the number of gardens being cultivated.

KINCARDINE.—The officers and directors and especially Mr. Jos. Barker, the able secretary, may feel quite satisfied with their efforts in the way of horticultural displaying. The town hall was most beautifully illuminated with electric lights, and the plants, flowers, fruit, etc., were very tastily arranged. Great care was taken in the collecting, handling and displaying, and the large numbers who viewed the exhibits were more than surprised. We predict more interest in the exhibition next year, judging from the many remarks and promises made by old members, new members and non-members. The indomitable Secretary and his able assistants deserve every praise. No pains or expense were spared to make the display a complete success. The Highland Cadets added very much to the enjoyment of the hour by their sweet strains of music. As Longfellow says:—

In all places, then, and in all seasons,

Flowers expand their bright and sunlike wings.

Teaching us, by most persuasive reasons,

How akin they are to human things.

And with child-like, credulous affection,

We behold their tender buds expand;

Emblems of our own great resurrection.

Emblems of the bright and better land.

One table contained no less than fourteen varieties of sweet pea, grown and exhibited principally by Mrs. Robert Sellery and Mr. M. McCreath, our respected caretaker of God's Acre. The spacious room was filled with the delightful odor of sweet pea flowers.

On the same table were a couple of dishes of beautiful samples of peaches, the Early Canada, grown and exhibited by Messrs. McCreath and E. Miller. The first named gentleman also had on exhibition some samples of water melon, which

was delicious to the taste. We speak from practical experience for our reporter had his share of the "water melyun."

Dar war a water melyun a growin' on de vine,

Dar war a pickaninny a' watchin' it all detime,
And when dat ar water melyun was ripened in de

sun,
Long comes dat pickaninny and wid that mel-
yun run.

Gold fish owned by Messrs Wm. Bishop, sr., and P. McGaw were on exhibition under the spreading boughs of a Night Blooming Cereus; in the language of flowers meaning "a wealth of true affection," owned by Mrs. Andrew Malcolm. Then came that wonderful plant known as the Pitcher Plant, brought from near Silver Lake not far from Kincardine by Messrs S. W. Perry and W. Welsh who were appointed to gather specimens. This plant in bloom drew quite a lot of attention.

A beautiful rubber tree or plant nine feet in height, owned by Mrs. Loscomb was greatly admired.

A lovely plant was the Plumosus nanus. There were two varieties, the Sprengeri and A. temussimus owned by Messrs. George Hunter and Joseph Barker.

A Golden Gate Rose owned by B. Coombe and cut flowers from Victoria Park were attractive.

Messrs Perry and Welsh's collection of flowers and plants included the Hop Horn Beam (iron-wood) in seed; grasses, wild cucumber vine, Touch-me-not, in bloom, Sumac, Cat Tail, rare bushes with berries, Basswood in seed. There were foliage plants, a great variety of Coleus plants and scores of other plants of which space will not permit us to mention. There was no charge or collection and we feel sure our citizens will take more interest next year.

Another attraction was the hornet's nest we made note of in our last issue. Mr. Welsh cut the nest in two and several large hornets showed fight.

LONDON.—On Tuesday, Aug. 6th, the president and directors of the London Horticultural Society entertained the delegates attending the Canadian Horticultural convention. The forenoon was spent in a trolley ride through the city in a special Springbank car, which was profusely decorated with golden rod, gladioli, asters and bulrushes. At eleven o'clock the party proceeded to Springbank and partook of luncheon at the pavilion. There surrounded by the green hills and favoring airs of London's favorite resort, the place seemed happily chosen for an outing especially by florists, whose duties bring them so closely in contact with the beautiful in nature.

Trumpet Creepers

A lot of fine plants of this beautiful creeper

FOR SALE

At Maplehurst Nursery, Grimsby, Ont.

The Trumpet Flower, *Pecana radicans*, is a splendid hardy climber, with large trumpet shaped scarlet flowers in August. Hardy in Southern Ontario, and one of the pattern climbing plants. A fine strong plant, outdoor grown, sent prepaid, on receipt of 50 cents. Address,

P. BLANCHARD Grimsby, Ont.

Complete Set of Back volumes For Sale.

I have a complete set of the Canadian Horticulturist from the beginning in 1878, that I would like to dispose of. The first 10 years are bound in 5 vols., the rest unbound. Do you know of any one who would like to buy? Some of the younger directors might want it.

I am giving up my beautiful home, as my wife is dead and my family scattered and I am getting too old to attend to it properly, so I will not want the Horticulturist after this year.

I was a director of the Association at one time and have the reports from 1869. but I presume that they have no money value.

Yours truly,

Collingwood, Ont

HV. ROBERTSON.

Dealers in Nursery Stock.

Before buying your fall supplies, get our prices on **Apples, Pears, Plums, Cherries and Small Fruits**. Specially low figures in some lines. Send us your lists to figure on

CAVERS BROS., Galt, Ont.

The Possibilities of North Windows.

Few people appreciate the possibilities of sunless northern windows, where "flowers will not bloom." When given "classical" treatment with such beautiful-leaved plants as palms, ferns, dragon-trees, crotons, ivies and araucarias, which require no direct sunlight, they may be made as attractive as any windows in the house.—*The Ladies' Home Journal for October.*

Cacti Collectors

I have the largest variety and finest collection of Cacti in Canada, 400 kinds including many very rare. I make a specialty of making up collections, and can give special value in this way from \$1.00 to \$500.00.

12 varieties, postpaid for \$1.00

12 varieties, finer and rarer for \$2.00

J. H. CALLANDER

Box 533.

Woodstock, Ont.



FIG. 2167. JESSICA.

Photo by Miss Brodie.

THE CANADIAN HORTICULTURIST

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No 11

* * NOVEMBER * *

JESSICA.

An excellent dessert grape for the amateur's garden.

ORIGIN: Canada, a seedling raised by W. H. Read, of Port Dalhousie, introduced by Mr. D. W. Beadle, of St. Catharines, and first described in the Canadian Horticulturist for February, 1884.

VINE: fairly vigorous, hardy and healthy.

BUNCH: 5 inches long by $3\frac{1}{2}$ broad, shouldered, compact.

BERRY: medium, $\frac{1}{2}$ to $\frac{5}{8}$ of an inch in diameter; color, yellowish green to white; skin thin; pulp tender, juicy; flavor sprightly, sweet and very agreeable, free from foxiness.

QUALITY: very good for dessert.

VALUE: market, too small; home uses, first-class.

SEASON: last of August.

ADAPTATION: general.

WHEN well grown and well ripened the Jessica is a variety of which we are not ashamed to say that it is of Canadian origin. Our photograph, by Miss Brodie, well represents its appearance, and is almost a fac-simile of a colored plate prepared for Mr. Beadle by Rolph Smith & Co., of Toronto, in 1884.

Mr. Alfred Hoskins, of Deer Park, Toronto, ripened this grape in 1883, and claimed for it productiveness and earliness, and the merit of being the only one out of twenty varieties which fully ripened its fruit. Mr. Jas. Vick writes in his monthly in 1885 that

the Jessica ripened with him, on Canandaigua lake on August 22, ten days earlier than Champion, and in 1887 Mr. S. Powers wrote of it as follows:—

The Jessica outdoes in flavor any garden grape known, and it is a wonder that no more is said about it. The little white grape, with its small clusters, is not over-attractive, but once between your lips, you will avow it has all the good qualities a grape can have in one. Sweet, with honeyed touch at first taste, succeeded by a freshness of mild acid, and a bouquet that lingers on the sense, it is a grape for connoisseurs to linger over and praise.

All these good words are fully borne out this season by its conduct in our experimental plot. Near it we had the Green Mountain, and on selecting samples of both for photographing we were much struck with their close resemblance in bunch and berry. The flavor of our Canadian was superior to Green Mountain, but otherwise one could declare them identical.

We in Canada have been much disappointed in the latter, which was introduced with so much eclat by Stephen Hoyt &

Sons, of Connecticut, It is too small for market, and inferior as a dessert grape to Jessica, and yet the Bushburg catalogue gives nearly a column to it, and less than an inch to the latter ; while the Jessica is not even mentioned in the catalogue issued by the American Pomological Society.

We have had a remarkably fine showing of grapes of all kinds at Maplehurst this season.

Moyer was the first to ripen, and was quite delicious eating long before Early Victor, Berckman, Ohio or Campbell's Early were ready for use. This Moyer is another that is valuable for a home garden, but probably not profitable for market, because of its small berry and straggling bunch, but it is a treat to get so pleasing a flavor so early in August. The Moyer too is of Canadian origin.

SUCCESSFUL STORAGE OF APPLES.

THE following should prove interesting to fruit growers and produce men generally, as it proves again that cold storage of fruit pays and pays well :

For three years now we have placed Baldwin apples in cold storage with remarkable success. We refer to cold storage houses worked by ammonia and machinery, such as are built in large cities on scientific principles. We pick our apples as soon as they have matured, place them immediately in barrels, and draw at once to the cold storage house. The sooner they are put into cold storage after being taken from the tree the better ; when the apples have lain in barrels for a week or two, they have not kept as well as those moved at once to cold storage house. We find that the apples shrink some, and have to be run over before shipment if held until the latter part of March. Sometimes it has taken one barrel to fill out the shrinkage of ten barrels. We often find five or ten decayed apples in a barrel of Baldwins opened about April 1. If the apples were held in barns a few weeks before

putting in cold storage we might find a peck or more of bad apples. Baldwins which we put in cold storage, and which we could have sold for \$1.20 per barrel last fall, we find no difficulty in selling in large quantities at \$3 per barrel March 15.

Our apples have been carefully graded, and have pleased our customers wherever they have gone. C. W. Jennings, a large dealer in North Carolina, writes us that he has bought many carloads of apples each year, but that he has never seen such fine apples as those we sold him ; he says the quality and flavor and beauty are superior to apples he has previously purchased, and yet we do not consider our Baldwins of last year up to the average size on account of the long spell of dry weather. Our experience encourages us in placing long keeping winter apples in cold storage. It is certainly profitable to do so. We pay 50 cents per barrel for cold storage from November 1 to May 1. Bartlett pears can also be put in cold storage with profit.—*Green's Fruit Grower.*

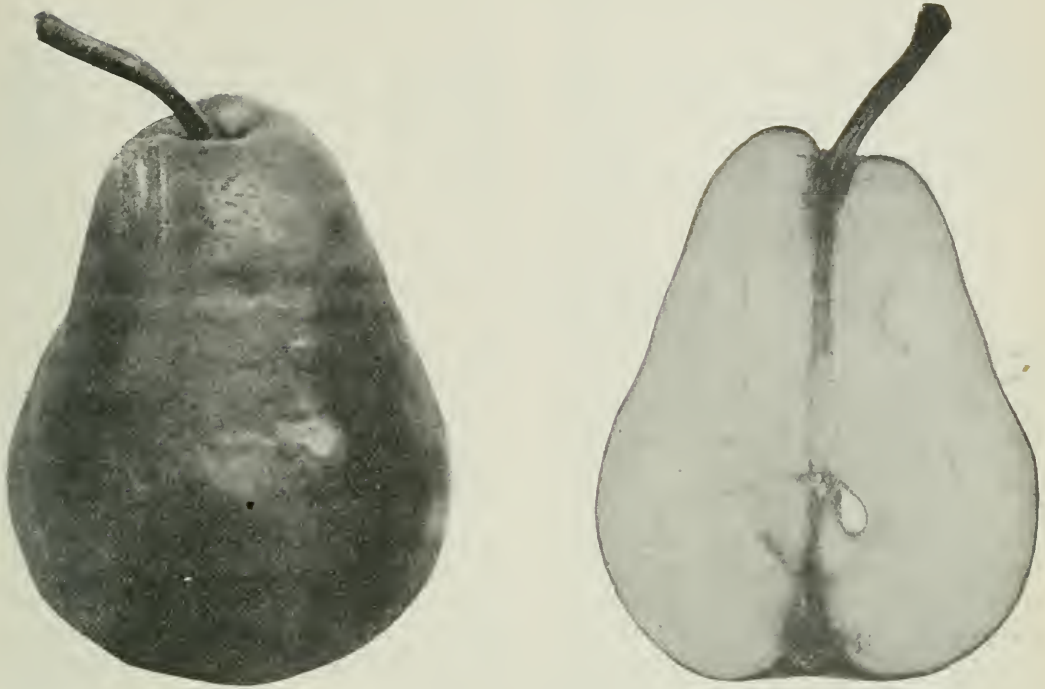


FIG. 2168. THE WILDER PEAR.

THE WILDER PEAR.

A valuable early market pear, being beautiful in appearance, of fair size and very good flavor; probably the best of its season, but inclined to rot at the core if left hanging on the tree.

ORIGIN: chance seedling on south shore of Lake Erie.

TREE: vigorous, very productive and an early bearer when grafted on the quince.

FRUIT: fair to large in size, $2\frac{1}{2}$ to 3 inches in diameter; form, ovate, obtuse pyriform, sometimes shouldered at stem; color, greenish yellow, with deep red cheek and numerous grey dots; stem stout, $\frac{3}{4}$ and 1 inch in length, calyx open.

FLESH: white, tender, fine grained; flavor sweet, aromatic and very pleasant.

SEASON: August 12th to 25th.

QUALITY: dessert, very good.

VALUE: home markets, excellent.

WE have a few trees of this variety in our experimental plot, and there was none of them that attracted so much attention as the Wilder by reason of its rich beautiful dark red cheek on a

yellow ground. The Giffard, an excellent variety, and the Summer Doyenne were just over for all purposes, the Clapp not ready, and if perchance there were some of the former still hanging, they were not to be looked at when such fiery cheeks were in view as were presented by the Wilder.

Our readers will be interested in the following little account of this pear, which we found in an old copy of *The Farm and Home*:—

The original tree of this delicious pear was found on the shores of Lake Erie. It came up wild in a thicket of sprouts and rubbish and was grafted to Buffum, a few branches being left for natural fruit. The latter was found to be so good the Buffum branches were removed. Since then the tree has borne profusely each year. It

somewhat resembles Bartlett in shape with smooth skin, pale yellow with a deep shading of brownish carmine. The basin is shallow and regular, the eye nearly closed, sepals long and reflexed, apex rather abrupt with slight cavity, stem short, core closed and small. Seeds small, flesh pale whitish yel-

low, fine grained and tender. Its quality is very good, resembling the Bartlett, but the flavor is more sprightly and free from all muskiness. It is in season in August in New York. The tree is a vigorous, upright grower, wood dark, resembling Clapp's Favorite.

BLACKBERRY CULTURE.

FOR blackberries I prefer clay soil, as it holds the moisture much better than black loam. After putting my ground in good condition for planting I take a single shovel plow and run furrows eight feet apart. Then I took good thrifty plants and plant in the furrows four feet apart in the row. When through planting I cultivate between the rows to fill up the furrows. The first season I raise potatoes between the rows set. I hoe and cultivate blackberry plants every season and do not mulch with hay or straw. I prefer keeping the ground clean and a dust mulch. Plow two or three times a week with cultivator.

My experience has been mostly with the Snyder. I think they are most prolific in bearing and surer of a crop than Ancient Briton or Stone's Hardy. With me the canes do not grow large or stiff, which makes them easier to lay down in the fall. In this respect I prefer the Synder, and they are not much harder to handle than raspberries except for the thorns. In put-

ting them down I use the same method as in raspberries.

I do not pinch or trim the vines off in spring, but I go through and trim off the new wood that comes out in the way of picking the fruit. Early in the spring I cut off the tops of canes that are to bear fruit, leaving canes three and one-half to four feet high. Pruned in this way, they send out branches producing a heavy crop of fruit. The last two years I have received \$2.00 per case for 24 quarts each throughout the season, making \$200 per acre some seasons. Some of my neighbors have tried raising blackberries on marsh lands, but it has not proved a success. One great objection is that the stalks grow too large and are then too brittle to lay down. I do not wire them upon a trellis, as the vines hold the fruit up good in clay ground. Those vines that are eighteen inches to two feet above ground and where the fruit is shaded, I find bear the largest and sweetest berries.—*Report Minn. Horticultural Society.*

GRAPE WINE.—No. 1: To 1 qt. grape juice, add 3 qts. water, 2½ lbs. brown sugar, stir until the sugar is all dissolved, and store in an open vessel for three weeks, covered with mosquito netting or cheesecloth, to protect against insects. Put in jugs and keep closely covered until March or April, then rack off, bottle and seal.

No. 2: To each gallon of juice, add 1 lb. white sugar, let stand 3 days, skim, strain and measure, and to each gallon add another pound of sugar, let stand three days, measure, and again add a pound of sugar. Bottle and seal. This recipe makes a very rich, sweet wine.

NOTES ON SUMMER PEARS.

OUR experimental plot of dwarf pears consists of over fifty varieties, and we had hoped for a splendid assortment of samples for our report, but, unfortunately, the same condition which blighted our hopes as commercial fruit growers, also swept away our hopes of a grand collection of varieties for study and for exhibition purposes.

The first pear to ripen with us in the season of 1901 was Summer Doyenne about July 30. The fruit was in clusters, very small, too small for market, but of delicious quality for dessert. The trees are not as thrifty as Brandywine or Wilder. The last picking was August 12th.

The Chambers closely followed the Summer Doyenne, ripening about the 5th of August. The trees are heavily loaded, and the fine size of this pear makes it the most promising variety of its season for

market. The tree is vigorous and healthy and, so far, has not shown any tendency to blight. The last picking was August 20th.

The Giffard closely followed Chambers in season of ripening, coming in this year, which is unusually late, about August 10th. It yielded a good crop, and the quality is so good and its appearance so pleasing, that it is the most largely planted for market in the Niagara district of any early variety.

Osband's Summer ripened about August 10th, and is a variety over much planted; this year the trees were heavily loaded, but very small, especially on the older trees. We do not recommend the planting of this variety now that finer ones of the same season have come in.

Lawson and Andres des Portes ripened about August 12th, on dwarf trees, but both are rendered worthless by a fault in com-



FIG. 2169. ANSAULT.

mon, namely, the rotting at the core almost before maturity. Lawson is a beautiful pear and the tree is very vigorous, but this season is unproductive, and fruit stung with the curculio.

Wilder ripened about the same time, reaching full maturity and beauty about August 15th. The quality is fine when not allowed to hang too long and become mealy. The pears grow to above medium size and take on such gorgeous coloring that passers by are compelled to stop and look in wonder.

owing to its dull green color, it would not sell for any more than other small pears, and brought only about 30 cents per twelve quart basket in the Ottawa market. If this pear could have the superb coloring of the Wilder, it would be a wonderful treasure.

The Tyson began ripening about the last week in August, and, if left hanging, would come in about with the Bartlett; but it is so much smaller and inferior to that variety that we gathered the Tyson while still green and shipped them forward so that they

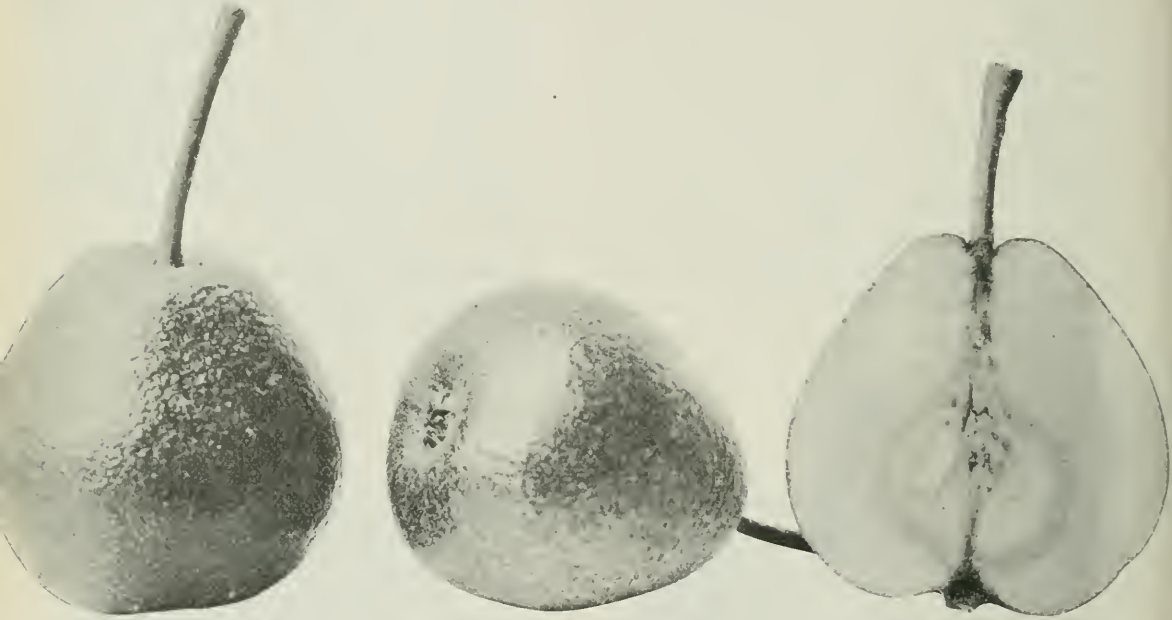


FIG. 2170. MANNINGS ELIZABETH.

Surely this would be a grand seller.

Manning's Elizabeth began to ripen on the 17th of August and continued in use, many still hanging, until the end of August. They were borne in great clusters and the tree showed great productiveness, but the fruit was too small to be valuable for the market. The quality was very good.

Rostiezer came in about the same time, and was unusually large, averaging $2\frac{1}{4}$ inches in transverse diameter. The quality is the very best for dessert purposes, but,

might not come into competition. The trees are wonderfully healthy and vigorous. Some of them are now fifty years old and have never shown the least indication of blight.

The Brandywine began ripening about August 23rd. The samples were above medium size for pears, and fairly attractive, with dull red cheek on a yellow ground.

Clapp's Favorite was harvested about August 20th. It had attained full size and color, but was not ripe. The samples were magnificent. No pear of its season equals



FIG. 2171. WEALTHYS PLANTED 10 X 10 FT. APART AT THE C. E. F.
AS AN EXPERIMENT.

it for market. The year previous we exported a large share of our Clapps and they sold at the best prices.

Doyenne Boussock bore a magnificent crop; one tree twenty years planted yielded twelve baskets of fine pears. This pear ripens throughout September, about the same season as Bartlett, but we usually harvest it in advance of that variety.

The Bartlett came in about the 1st of September and continued ripening until its season was over, about the 15th of September. It was subject to knots and scabs on clay soil poorly cultivated, but, where cultivated and manured, it gave a magnificent crop of very fine fruit. We put up several hundred cases for the Glasgow market and will report the result later on in the season.

Among the newer pears, we were much pleased with the Ansault (page 451) as a dessert pear. Too soft for distant shipment, it would find a place only in gentlemen's gardens. It is not very attractive in appearance, being a dull green, nearly covered with russet, but when cut it reveals the finest and most delicate texture of flesh which can be described only by the old term "buttery", while its rich, sweetly perfumed flavor is most agreeable to the taste. The samples were photographed about the 20th of September, and remained on our table until about the 7th of October when one of them was spoiled and the other in the last stage of ripeness.

CENTRAL EXPERIMENTAL FARM NOTES—XVIII.



ANOTHER season has come and gone and with it another year's experience has been gained with the many species and varieties of fruits and vegetables, and the trees, shrubs and herbaceous plants being tested at the Central Experimental Farm. This year has more fully convinced us of the value of some things and the inferiority of others.

The apple crop was light at the Farm this year, as it has been nearly everywhere, and though there was no scarcity of summer and autumn apples there is little winter fruit. The Wealthy apple does not appear to succeed as well in Western Ontario as it does here and in some parts of the province of Quebec. This variety is a wonderful bearer and it is surprising that the trees live after the great crop which they produce. The fruit in this part of Canada becomes highly colored, keeps in condition until early winter, and is of good quality. There is no apple of its season tested here that can compare with it as a commercial fruit.

The McIntosh Red apple grows in favor every year. It seems perfectly adapted to this part of Canada, the tree being very hardy and a vigorous grower, and the fruit highly colored and of excellent quality. Where the trees are properly sprayed there is little trouble with the black spot fungus, and though there is never a heavy crop the tree bears annually. The Salome is one of the few winter apples that has fruited well this year. This variety is a good keeper and if the fruit were not so irregular in shape would be one of the most desirable winter apples for this part of Canada, as it keeps well and is a very handsome fruit, but there is always a lack of uniformity about it which is very much against it. The Milwaukee is one of the most promising of the newer winter apples which have fruited here. This variety is a seedling of Duchess of Oldenburg, which it resembles somewhat, but is flatter. The quality also is not unlike the Duchess. Trees planted in 1895 began fruiting in 1899, and there has been a crop

every year since. The fruit keeps in a good cellar until the 1st of March.

The cherry crop was a failure, the flowers being killed by winter. There has not been a full crop of cherries here since 1898.

There were practically no European plums, but many of the American varieties yielded well. The demand for these plums at Ottawa is at present greater than the supply, and good prices are obtained for them. The number of varieties of American plums under test at the Experimental Farm is now very large and every year additions are made. After this year's experience the varieties considered the most satisfactory are the following, in their order of ripening:—Bixby, Cheney, New Ulm, Wolf, Silas Wilson, Stoddard, and Hawkeye. These varieties cover a period of nearly five weeks. Several seedling American plums have been originated here which are very promising, being of large size and of better quality than most of the named varieties which have fruited here.

Last winter raspberries suffered very much in this locality, as a result of which the crop this year was small. A seedling known as Herbert, which was originated several years ago by Mr. R. B. White, of Ottawa, proved much hardier than most of the other varieties tested and there was a good crop of it. It is hoped that this fine variety will soon be offered for sale as it should prove a most desirable acquisition to the kinds now on the market. It is of the largest size, bright red, moderately firm, of good quality and very productive, and its hardiness will make it especially valuable in the colder parts of the country.

The strawberry crop was fairly good here, though the season was much shorter than last year owing to dry weather. A season

like the past brought the bad points of Clyde into prominence. This variety promised a very heavy crop, but owing to the small amount of foliage and the hot weather the fruit was literally "cooked" and little of it was fit for market, while a large proportion of the crop never ripened. The Glen Mary, Buster, Bubach and Williams all did well and are among the best of the varieties tested. It is unfortunate that the Wm. Belt does not succeed better when grown in the ordinary way, as it is of the best quality, but it is not as good a berry as many of the older varieties. The St. Joseph, an over-bearing kind, much advertised in Europe, has not proved a profitable kind to grow here and while an odd berry may be found as late as October there were so few that it is not worth growing for the sake of getting them. Judging from this year, Rough Rider is not as good a berry as many of the older varieties, and the Senator Dunlap did not yield as well as many other kinds.

The potato crop was good here this year, though a light crop is reported in this vicinity. The long continued hot, dry weather checked the growth of the vines very much where proper cultivation was not given, but on the Farm they grew well.

The results of spraying with Bordeaux mixture to prevent blight were more noticeable than usual this year and the crop was much greater where the vines were sprayed than where they were not. The following four varieties produced the largest crop of marketable potatoes:—Burnaby Mammoth, Uncle Sam, Dreers's Standard, and Early White Prize.

W. T. MACOUN, Horticulturist
Central Experimental Farm,
Ottawa.



OUR HORTICULTURAL SOCIETIES AS LOCAL IMPROVEMENT ASSOCIATIONS.



FIG. 2172. A VINE-WREATHED LAMP POST.

WHILE attending the convention of the National League of Improvement Associations at Buffalo, in August last, we thought of our own excellent Horticultural Societies and could see no reason why in Canada any additional organization would be needed, if our societies are willing to enlarge their work a little. Here is a list of objects

which are before this League, all of which we believe should be the objects for which our societies are seeking increased interest and co-operation:—

- Arbor Day.
- Artistic home planting.
- Botanical gardens.
- Children's improvement associations.
- Cemetery improvement.
- Cleansing and beautifying public buildings.
- Care of vacant lots.
- Cycle paths.
- County park systems.
- Collection of natural objects.
- Educational excursions for school children.
- Factory planting.
- Flower and fruit mission.
- Floral exhibitions.
- Foot-paths for reaching scenic beauties.
- Fountains and wayside springs.
- Garbage crematories.
- Good roads and good streets.

- Home bee culture.
- Hand-books and guide-posts locating points of interest.
- Historic and scientific museums.
- Improvement of city back yards.
- Increased attractiveness of farm life.
- Lectures on nature and outdoor topics.
- Model children's gardens.
- Nature study.
- Neighborhood gardens for boys.
- Open-air band concerts.
- Parks for all the people.
- Proper care of streets and alleys.
- Private residence parks.
- Prize awards for home planting.
- People's play grounds.
- Public assembly and lecture halls.
- Proper patriotic celebrations.
- Public baths.
- Popular instruction in landscape gardening.
- Public libraries.
- Pleasing church exteriors and surroundings.
- Photography as promotive of improvement.
- Popular art collections.
- Preservation of native plants and animals.
- Preservation of historic buildings and localities.
- Preservation of groves and natural features.
- Removal of unsightly fences.
- Rural libraries and reading clubs.
- Removal of bill-boards and objectionable advertising.
- Railway station grounds.
- Rest rooms in towns and villages.
- Summer camps for boys and girls.
- Study of civic improvement.
- School gardens.
- Shelter houses for parks and cemeteries.
- School yard planting.

Sanitary and storm sewage systems.

Street, road and river-side planting.

Street and road sign-posts.

Traveling libraries.

Vacation schools.

Vacant lot cultivation.

Together with other local needs of home and community.

Miss Jessie M. Good, of Springfield, O., has written a pamphlet on

"THE HOW OF IMPROVEMENT WORK,"

from which we extract a few paragraphs. She says:—

If your town is bleak and unshaded, plant trees, but give a thought to what and how



FIG 2173. THE ROAD PASSING FAIR GROUNDS, BEFORE IT WAS IMPROVED.

you plant. Because you love elms you certainly show a selfish affection when you plant them twenty feet apart upon a paved street sixty feet wide, knowing, as you must if you love them, that the elm is one of the trees that needs great space and moisture for its full development. Few shade trees should be planted closer together than from twenty-five to thirty-five feet. Why not intersperse them with some ornamental flowering trees—red-buds, dogwoods, crab-apples, catalpas, etc.? Why always plant forest trees for city shade? Why not plant fruit trees? I see you smiling, but in Erie, Pennsylvania, I know that years ago Parade

street was shaded for many squares by cherry trees that were a perennial delight, beautiful in their neat, compact growth and glossy foliage, and a joy when in blossom and fruitage. But did not the boys steal the fruit, you ask? The loss was not material. Boys who have all the ripe cherries they want at home, will not steal cherries away from home. They will hunt for green apples.

If it is sidewalks you most need, create such a strong public sentiment in their favor that those reticent old taxpayers who always protest against everything but a reduction of taxes will not dare fight against the improvement. But do not think when you have laid new sidewalks and planted your trees that your work is finished. It is but begun.

What is the condition of your back yard and alley? Is the latter an impassable mire in winter and a weedy lane in summer, or is it a well-graded, rolled and drained passage-way? Is your back yard green with grass and gay with flowers, making it a beautiful and wholesome place in which your children may play? Or, is it a death-trap, adorned with a fragrant swill barrel, heaps of ashes and garbage, piles of old boards, an untidy fence, while the bare ground is soaked with greasy dishwater, making it a place abhorrent to your children as a playground, and as unsafe from a sanitary point of view as a sewer? If you have such a back yard, let me tell you the day is nearly over when educated people keep what some one has wittily called "Queen Anne fronts and Mary Ann backs." Can you wonder why Johnny and Willie prefer to play in the street instead of the yard? I think their preference for the street shows a proper instinct and good judgment.

Does your grocer and fruiterer expose the foods he expects you to eat to the dusty contagion of the street? If so, you should teach that you never offer such contaminated

foods to your family. If an organisation of influential housekeepers speaks clearly upon this point, glass-covered boxes will be quickly provided that will show the goods quite as well.

How about your dairy supply? In a certain town a shocking infant mortality was traced to the milk. A body of indignant women making a protest against an incompetent dairy inspector was told by the politician, of whom the inspector was a protege, that they were going outside their sphere when meddling in politics. He was quickly answered that "women's sphere was not only outside the home but inside the baby." A weekly or fortnightly visit by a committee from an improvement association would have a deal to do with wholesome dairy premises. No educated woman of this age dares to be indifferent as to the source of the food with which she supplies her family. Beauty and health are synonymous terms—you cannot have one without the other.

Have you parks and open squares as breathing places for the people? Have you public playgrounds for your children? This one matter of public playgrounds in all towns is of vital importance. When the influence upon the character and morals of children of healthful play under the care of a watchful, high-principled man or woman is fully understood, no money will be spared to provide such playgrounds, and a new profession, that of play professor, will be among the honorable and well-paid callings.

The possibilities of such playgrounds are almost unlimited. What mother would fear to send her boys to the public playground if she knew that awaiting them was a man who could teach or oversee them in their games and athletic sports, noting and repressing evil tendencies in speech and manner? On occasion such a man would take them on fishing and swimming trips and excursions through field and forest. The woman teacher has charge of the girls' plays

and games, and teaches to both sexes—without seeming to teach—botany and nature study and kindness to birds and beasts, until even boys will see a bird, or cat, and a stone in juxtaposition without desiring to pick up the one and throw it at the other. This is not a fevered dream of mine. In a modified way these playgrounds are being tried in various cities, with the happiest results.

Are there any provisions for public baths in your town? If there are none please observe on the following pages what Brookline, Massachusetts, offers its citizens. Interest the young men of your town in this matter.

Have you casinos where the social life of your town may find expression? Have you a public library? If not, and your town is too small to support one, there are ways of obtaining traveling library cases. If your state library has no provision for distributing to the people the books your taxes so expensively house, petition your legislature until these books reach the people who need and want them.

The disfigurement of streets and landscapes by bill-boards and advertisements is a nuisance that is attracting the attention of many of the best men, both at home and abroad.



FIG. 2174. THE SAME ROAD AFTER BEING IMPROVED BY THE LOCAL SOCIETY.

PAN-AMERICAN HORTICULTURE—V.

SIR,—Before this number of the Horticulturist will reach the hands of your subscribers, the Pan-American Exhibition will have passed the last milestone of its existence, and to a great extent will have become a memory. As a representative collection of the achievements of the Americas in Science, Art and the various industries, which have been here displayed, it will live forever in the thoughts and memories of those who have been privileged to enjoy its beauties. It will also, I am sure, have a very potent influence upon the minds and hearts of the many thousands who have visited the grounds and buildings during the past summer, in giving a strong impetus to the love of the beautiful and artistic, and, I believe, that the influence will come with greater force to no class of people than to those who are engaged in cultivating the soil in the neighboring republic and in this Canada of ours. Inasmuch as our Canadian people have visited the Exposition in vast numbers and have repeatedly done so, there is no doubt thoughts and ideas have been carried away in connection with the improvement of home surroundings in our rural sections, and a longing to reproduce in a modified way, around home and farm, some of the beautiful effects that have been seen and admired. This will result in more careful selection, more thorough cultivation, and a greater attention to the small details of landscape improvement and adornment, and thus we will see on every side steps taken in advance that will be of exceeding value to every section of our country.

I, however, Mr. Editor, started out not so much to give your readers a dissertation on the general result of the Exhibition as a whole, as to send you a few jottings having

reference to the Horticultural features, more particularly of our own exhibit. Ever since the meeting of the American Pomological Society, on the 12th and 13th of September last, the fruit exhibits have been at their best, and from day to day a magnificent collection of the fruits indigenous to the United States and Canada has been maintained. In this friendly competition, thanks to the hearty co-operation of so many fruit growers from all over the Province, I am glad to be able to say that we have had no particular cause to be ashamed of our display. As the awards in our Department for fruits at this writing have not been finally determined, it will be premature on my part to go into particulars; I might, however, say that so far, we have obtained one gold medal, three silver, three Wilder silver, four bronze and two awards of honorable mention upon our preliminary entries, and I trust that these awards are but a harbinger of what is to follow. In the brief space at my command it will not be possible for me to mention more than a very few of the principal exhibitors during the past month. In apples, Messrs. W. H. Dempsey, Trenton; Harry Dempsey, Rednorsville; R. L. Huggard, Whitby; Francis Peck, Albany; R. J. Graham, Belleville; Harold Jones, Maitland; Prof. Macoun, Central Experimental Farm, Ottawa; Wm. Rickard, Newcastle; Thomas C. Hagaman, Oakville; J. Pritchard, Harriston; C. L. Stephens, Orillia, and many others, have furnished as fine specimens as it would be possible to procure even in a season of full crops of this standard fruit. From the Queenston, St. Catharines, Fonthill, Niagara, Brantford, Grimsby and Essex districts, through many constant contributors, we have had an excellent supply of peaches from day to day, and I can

safely say that our peach and grape display has attracted a great deal of attention, and has elicited many exclamations of surprise and amazement. Supplies of assorted fruits have been coming in regularly from the Burlington Horticultural Society, sent in by nearly every member, through Mr. W. E. A. Peer, who was appointed collector. In grapes and pears, Messrs. Orr, Pettit, Pay, Stewart, Haynes, Griffiths, Secord, T. R. Merrit and yourself, Mr. Editor, are only a few out of many who have contributed largely in this respect. We have also had a full and constant supply of cut flowers in season from Messrs. Morris, Stone and Wellington, Fonthill, and our old friend, Roderick Cameron, of Queen Victoria Park, Niagara Falls, adding much to the beauty of our exhibit. In tropical fruits, Mr. Randall, of Niagara-on-the-Lake, has sent us white Genoa figs on several occasions, and our Florida and California neighbors have been astonished by the production in Canada of fine samples of *Philodendron* or *Monstera Deliciosa*, a most delicious tropical fruit.

A full list of the various exhibitors is being prepared, together with whatever awards will have been given, and will appear in due course. It will be my desire that every exhibitor shall receive a copy. As I have already trespassed on your space, I will leave the final summing up of the results until a later issue.

Buffalo, N. Y., W. H. BUNTING.
Oct. 18th, 1901.

PAN-AMERICAN NOTES.

Before these words reach the eye of the reader of the *Horticulturist* the Pan-American Exhibition will most likely have come to an end. The great buildings, majestic tower, and temples of all the arts, which have been the scenes of busy life and friendly rivalry for the past six months will have become desolate, and

the busy hands that were engaged twelve short months ago in rearing those majestic structures will be again employed in their destruction and defacement. But while defacements may go on, even to the complete obliteration of those temples of industrial manifestation the memories of competitive triumphs and national honors won will remain to many of us a proud and pleasing recollection. Especially will this latter be the case with the thousands of Canadians who visited the great Exposition and noted with proud satisfaction the honorable position their country held in all the competitive and industrial departments in which she entered. Say what you will of the average Britisher, he is very much of a sentimentalist as well as a shopkeeper, and when he tastes his roast beef and plum pudding and finds it a trifle better in quality, then his bucolic breast will swell with national pride quite as perceptibly as that of his more demonstrative neighbor the Frenchman.

In his patriotic sensibilities the Canadian is more acute than the old-land Britisher, and his national enthusiasm is keener and more manifest.

It was my privilege to be a visitor at the Pan-American, and also at the meeting of the American Pomological Society held at the Epworth hotel in Buffalo when the Wilder awards for the special fruit exhibits were announced. And when the name of our own province was announced as having won a silver medal for a general collection of fruits, another silver medal for a display of grapes, a bronze medal for an exhibit of plums, and still another for a general collection; and this in competition with the great fruit districts of the United States, it is needless to say that the Canadians present let the rest of the meeting know they were there.

Our own general fruit exhibit in the horticultural building I was especially proud of. At first sight it did not strike one as attrac-

tive as the Wisconsin display close beside it. But on closer examination our display had the far greater quality and value. While the Wisconsin exhibit was largely made up of such showy apples as McMahan's White, Wolf River, Alexander, Wealthy, Fallwater, and Maiden's Blush; the Northern Spy, Baldwin, Ben Davis, King, Russet, and several of the pippins, entered largely into the Canadian display. In pears, during my visit, there was no state exhibit better up than the Canadian; and this might likewise be said of grapes and plums. In peaches, while Ontario made a very creditable display, and one sufficient to create considerable wonderment among American and foreign visitors, Michigan, with her extra display of this luscious fruit, of course carried off the palm.

It was quite natural that Ontario surpassed all the States in apples of long keeping quality; and the cold storage exhibit, then in September, still sound and fresh, was a striking object lesson to the visitor in proof of this fact. I noticed that all the western States ran to showy apples such as I have named above, while New York State alone crowded Ontario closely in fruit of real solid quality.

I cannot leave this subject without a word of commendation to Mr. Bunting for his management of the Canadian fruit exhibit, and a word of congratulation as well for the success he had made in attracting attention to it. No Canadian fruit-grower could be otherwise than pleased with the manner in which the fruit interests of his country were presented at the great continental Exposition. And how can I close without a word for our old friend Mr. H. H. Groff? Truly his display of gladioli in the wing of the horticultural building was the admiration of everybody. Even a visitor from Bermuda remarked that he had not seen anything like it before in the world. "Where is Simcoe," one lady from the South asked, and when

told that it was up in Canada she exclaimed "What! did all this lot come from that country?" It is but a mild compliment to Mr. Groff to assure him that he scored a greater triumph in the expressions of admiration that his magnificent gladioli display drew from the thousands of visitors who stopped to look with delight upon it than in the thirteen prizes and medals he captured out of the total fifteen offered. Ten thousand spikes of gladioli in constant display for six weeks is a sight no other man could have given to the world save Mr. Groff.

Mitchell.

T. H. RACE.

AN ATTRACTIVE FRUIT DISPLAY.

It was naturally expected that Canada would make a good showing in live stock and dairy produce at Buffalo. Live stock and dairying are well established industries in this country, and even our American friends have begun to learn something of what Canada can do along this line.

But fruit production is a comparatively a new thing. It is only within the last quarter of a century that apples have been produced in any considerable quantity in this country, while peach-growing and vineyards, on a commercial basis, are a matter of yesterday. Still this Province alone has made an exhibit at Buffalo, in everything except the tropical fruits, which has equalled that made by the best of the States across the line. As Mr. Norris, master of the New York State Grange, said last week (and he kept well within the limits of truth in doing so), "Ontario does not take much of a back seat from any of them."

Mr. Norris' statement is well sustained by the preliminary list of Exposition awards published last week. This list shows that the Province obtains no less than nine awards on fruit—one gold medal, three silver medals, the same number of bronze medals, and two "honorable mentions."

These awards were divided as follows :

Gold medal—Display of wines, Ontario Department of Agriculture.

Silver Medals—Installation of exhibit, Department of Agriculture ; general display of domestic and canned fruits and vegetables, Ontario Department of Agriculture ; pickles and relishes, Shuttleworth & Harris, Brantford.

Bronze medals—Wines, Geo. Barnes, St. Catharines ; wines, E. Girardot Wine Co., Sandwich ; wines, J. S. Hamilton & Co., Brantford.

Honorable mention—Canned fruits and vegetables, L. M. Schenck & Co., St. Catharines ; Mineral Water, Spring Bank, A. J. Bain, St. Catharines.

AN ATTRACTIVE DISPLAY LAST WEEK.

The tables in the Ontario department of the Horticultural building were particularly attractive last week—laden as they were not only with still luscious looking grapes and peaches, but with the fruit of this year's later apples as well. Warden Rickard, of the United Counties of Durham and Northumberland, who showed early in the season the best last year's Spys seen during the whole Exposition, had on show some of this year's apples that were no discredit to the reputation already earned. While his 1901 Spys were not equal to those of last year, they were still remarkably good, and his specimens of Ben Davis, Greening, Baldwin, Fameuse and Alexander, were splendid specimens in size, color, and freedom from blemish.

W. H. Dempsey, of Trenton, had on the table some fine La Rues and McIntosh Reds, the former being particularly handsome.

Harold Jones, of Maitland, showed some of the Scarlet Pippins and Fameuse of the kind which have given him a Provincial reputation, and J. Pritchard, of Harriston, sent as his contribution some Alexanders almost equal to the one which recently made the centre of the face of a barrel.

The finest quinces seen in the building last week were those shown by J. Clement, of Brantford, and as proof that Ontario is nearer the tropics than the North Pole, fine almonds were shown by Robert Currie, Niagara, and perfectly developed peanuts were exhibited by J. Haven, of Louth township. The keeping quality of our fruit was illustrated by the fact that Wickson plums, which had been on the open table for weeks, were still firm.—*The Weekly Sun*.

NOVA SCOTIA AT THE PAN.

SIR,—It was with extreme pleasure that we welcomed the advent of the genial President of the Nova Scotia Horticultural Society, Mr. Bigelow, and his excellent wife, to the circle of exhibitors in our building.

Mr. Bigelow arrived about Oct. 1st with a very fine consignment of Nova Scotia fruit, including the celebrated Gravenstein, Tompkin's King and Ribston Pippin apples in quantity, and very fine samples of about 84 varieties of apples and 20 varieties of pears, also an excellent display of Nova Scotia potatoes. He has taken up the location occupied by North Dakota in the earlier part of the season, and has certainly staged an exhibit of very fine fruit in a most attractive manner. The casual visitor to the Horticultural Building will now find the fruit products of Canada displayed at either end of the building to which he may chance to go. Ontario occupying a large space in the south section and Nova Scotia being found at the extreme north side. Mr. Bigelow has displayed great taste in his arrangement of flags, having placed a portrait of our late beloved Queen Victoria with an English flag and another of the late President McKinley with an American flag upon a large Nova Scotia flag, and draped the entire group with royal mourning, expressing a fine sentiment and giving a most beautiful effect. Mr. A. C. Starr, who has sold his orchard of 26 acres of apples this summer for the sum of \$8,000.00 is one of

the principal exhibitors through Mr. Bigelow. There are in all 14 exhibits in the names of different individuals entered for awards, and if quality counts, as no doubt it does, I am sure Nova Scotia will obtain her share of awards. The far Eastern Province is to be congratulated upon having such a public spirited citizen as Mr. Bigelow, who has got together such a creditable display.

I fear, Mr. Editor, that I am again trespassing on your space at too great a length, but I felt as though your readers would be pleased to learn something about what our Nova Scotia friends were doing here.

WM. H. BUNTING.

Buffalo, Oct. 21, 1901.

REPORT OF COMMITTEE ON AWARD OF
WILDER MEDALS.

The committee on Wilder Medal awards begs to report that it has examined the fruit placed on exhibition in the Horticultural building and recommends that the following medals and awards be given.

The following Silver Medals were awarded:

Los Angeles Chamber of Commerce, Los Angeles, Cal. General display of fruits and nuts.

Ellwanger & Barry, Rochester, N.Y. Display of fruit, pears 131 plates, plums 50 plates, grapes 52 plates, apples 90 plates

M. Pettit, Winona, Ont., Canada. Collection of 131 varieties of grapes.

Albert Pay, St. Catharines, Ont., Canada. Display of fruit. Peaches 21 varieties, apples 3 varieties, quince 1 variety, grapes 32 varieties, plums 23 varieties, pears 26 varieties.

Kansas State Horticultural Society. Collection of fruit. Apples 140 plates, peaches 14 plates, pears 21 plates, plums 6 plates, grapes 31 plates.

Ontario Fruit Experiment Stations, L. Woolverton, secretary, Grimsby, Ont. Display of fruit. Apples 119 varieties, grapes 20 varieties, plums 22 varieties, pears 43 varieties.

Horticultural Department, Cornell University. Collections Hybrid plums, pears and grapes.

T. S. Hubbard Co., Fredonia, N.Y. Fifty varieties grapes.

Geo. S. Josselyn, Fredonia, N.Y. Sixty varieties grapes.

Missouri State Horticultural Society. Display of 900 plates fruit.

Wisconsin State Horticultural Society. General display of fruit.

Theodore Williams, Benson, Nebraska. Collection of Seedling and Hybrid plums, and as a recognition of valuable work done in cross-breeding plums.

Oregon State Fruit Exhibit, Display of fruit in charge of H. E. Dosch.

Washington State fruit exhibit, in charge of Chas. H. Koss. Display of fruit.

The following Bronze Medals were awarded:

C. C. Shaw, Milford, N.H. Collection of apples.
W. M. Orr, Fruitland, Ontario, Canada. Collection of fruit. Grapes 5 varieties, peaches 5 varieties, plums 20 varieties, pears 10 varieties.

Michigan Agricultural College. 28 varieties pears.

W. E. Rowe, Grand Rapids, Mich. An exhibit of commercial fruit of this day, Sept. 13th, 1901. Pears, Angouleme (Duchess), Bartlett; grapes, Worden, Delaware; peaches, Alberta, Engle Mammoth; plums, Wickson, Grand Duke; apples, Wealthy, Maiden Blush.

South Haven Sub-Station Michigan Agricultural College. Collection of fruit. Pears 14 plates, peaches 20 plates, grapes 4 plates, apples 9 plates, quince 1 plate.

Maine Pomological Society. Display of fruit.

Orlando Pineapple Association by C. E. Howard, Orlando, Florida. Exhibit of pineapples.

Luther Putman, Cambridge, Vt. Collection of 33 varieties Vermont apples.

The following received Honorable Mention:

Fred Pfeifer, Jacksonville, Florida. Carson Pomelo exhibit.

Exhibit by Los Angeles Chamber of Commerce: Southern California Fruit Exchange, Valencia Late Oranges. C. W. Leffingwell, Whittier, Cal., Eureka lemons. New Hope Fruit Farm, Santa Ana, Cal., Fall Pippin. A. P. Griffith, Azusa, Cal., Citron of Commerce. Ludwig & Mathews, Los Angeles, Cal., Hungarian prunes Riveis Bros., Los Angeles, Cal., Black Morocco grapes. Silas Wilson, Atlanta, Ia. Exhibit of McPike grapes.

W. E. Rowe, Michigan State Fruit Exhibit. Exhibit of commercial plums, Wickson, Washington, Pond Seedling, Duane Purple, Lombard.

Roland Morrill, Benton Harbor, Mich. Exhibit of Alberta peaches.

S. Copper, Delavan, N.Y. Photo Pan-American strawberry with potted plant bearing fruit.

G. H. Gibbons, Winter Haven, Florida. Exhibit of Hart Late orange.

W. B. K. Johnson, Allentown, Pa. Collection apples, pears, peaches and quinces.

In addition to the above the committee noted the following exhibits:

F. N. Benham, Diamondale, Mich. Wolverine apples, which at this time were not sufficiently mature to test.

G. E. Ryckman, Brocton, N.Y. Chautauqua climbing currant, an interesting form of a trailing currant bearing fruit of the size and appearance of red grape.

E. P. Beebe, Elizabeth, N.J. 2 plates sweet apples for exhibition only.

Delaware State Board of Agriculture, Dover, Del. Exhibited apples, pears and peaches.

Your committee wish to recommend that fruit which is placed on exhibition for Wilder Medals should be forwarded for that purpose and should not be allowed first to compete in other exhibitions which may chance to be open at the same time and place

Committee: F. M. Hexamer, N. F. Murray, E. S. Goff, W. J. Green, W. T. Macoun, John Craig.



FIG. 2175. A GLIMPSE OF THE COURT HOUSE, CAYUGA.

THE EVOLUTION OF A LOCAL HORTICULTURAL SOCIETY.

CAYUGA, although a very small town, has many natural attractions, a fertile soil, a picturesque landscape and is the county town of the County of Haldimand. For a long time the only public floral embellishments consisted in the wild flowers of the river islands, and the rank street growth of the sweet clover; people kept pigs and cattle pastured on the streets. Upon the engaging, however, of J. E. Skeele, as principal of the High School, it dated a new era. The school premises for the first time were really cleaned and tulip beds were set out. Numbers of the citizens began the systematic culture of flowers and a desire for improvement manifested itself. At this juncture Mr. Thos. Beall, your organizing director, called upon me. He arrived one day in December, 1900, about 6

p.m., and only stayed that evening, but his coming seemed providential. We were ready to do something, but did not



FIG. 2176. RT. REV. DEAN LAUSSIE, D. D., HIS HOME AND GARDEN.



FIG. 2177. RESIDENCE OF A. K. GOODMAN.

know what; his arrival was most opportune, but our hearts failed us at the idea of getting 50 members in Cayuga. However three of us, Mr. Skeelee, our president, Mr. Morson, manager of the Bank of Commerce, our treasurer, and the writer as secretary, started on the tramp—after hours. At first people laughed at us but we soon had 78 members and then everyone said “I told you so.” In the spring we were impatient to see the snow go, everybody cleaned up, bonfires were general, pigpens were abolished, the cattle shut up. The Cayuga Horticultural Society was on every tongue and lazy men apologized and said “If I’d a place of my own I’d go in for flowers too.” As the season opened street trees and evergreens were planted, many new gardens were made. The county council was waited upon and gave a grant of \$50 for 1901 for flowers. Governor Murphy joined forces with us and with great taste and skill directed our local florist, Slocum, to the end that gardens in our Court House park grounds of 12 acres, of great natural beauty, excited the admiration of everybody. The public, the grand jury, the county council and the visiting justices of the Supreme Court, all spoke well of the work and praised the exquisite taste of the guiding hand and the beneficial and wholesome results attained. The town council, too, gave us \$20 with which three

handsome beds were made in the town park; these were even watered and cared for voluntarily by good citizens. Our government grant was \$60. A handsome cedar hedge was donated to the High School grounds and many took advantage of the opportunity of buying choice stock at wholesale rates. Our public meeting held in the Court House was attended by an immense number; Mr. Wm. Bacon, of Orillia, the government lecturer, was simply astounded to see the life and snap exhibited by a year-old society, “the floral decorations, the orchestra and the intense interest and Mr. Bacon’s well-known ability made this meeting very attractive. But we have just commenced and next year is already bright with promise. Our County Council in most eulogistic terms granted us \$50 again for flowers in 1902. Our membership list is growing steadily and we look forward to a year of great improvement.

The general outside opinion is that our society has already done a great deal of good




FIG. 2178. ASTERS.

to Cayuga. I feel sure the organization of a local Horticultural Society would prove of equal benefit to any other place and there are many places where weeds, laziness and a lack of flowers seem to be the noticeable features. The four cuts are, 1. A glimpse of the Court House with Mr. Murphy and children. 2. The Rt. Rev. Dean Laussie

D. D., his home and garden. 3. My house showing the southern terrace just opposite the Court House. 4. A bunch of Asters picked from one of my beds that contained at one time 5000 asters in bloom. These photos were taken by J. W. Sweetman, son of the Bishop of Toronto.

Cayuga, Ont. A. K. GOODMAN.

OUR ANNUAL MEETING.

HE 42nd annual meeting of the Fruit Growers' Association of Ontario will be held in the City Council Chamber and the Grand Opera House, Cobourg, on Wednesday, Thursday and Friday, the 4th, 5th and 6th of December, 1901.

The day meetings will begin at 9 a. m., and the evening meetings at 7.45.

PROGRAMME.

TUESDAY EVENING.

Directors' meeting—As far as possible all business matters of the directorate will be disposed of at this meeting.

WEDNESDAY.

Morning—*Business and Legislation*; the fruit exhibit; appointment of committees; (1) nominations; (2) fruit exhibit; (3) resolutions; (4) correspondence.

Reports of standing committees—
New Fruits—Prof. Hutt, O. A. C., Guelph.
Codling Moth—Joseph Tweddle, Stoney Creek.
Industrial Fair—W. E. Wellington, Toronto.
Western Fair—J. S. Scarff, Woodstock.
Eastern Fair—R. B. Whyte, Ottawa.
American Pomological Society—G. C. Caston, T. H. Race and others.
Quebec Fruit Growers' Association—H. Jones, Maitland.

FRUIT PACKING, GRADING AND INSPECTION.

Afternoon—*Practical and Educational.*

Report of committee on Fruit packages—E. D. Smith, Winona.

Fruit packages for fancy fruit (with samples)—Wm. Wilson, London.

Apple packing, illustrated—San. Nesbitt, Brighton.

Address—Prof. H. E. Van Deman, ex U. S. Pomologist, Washington, D. C.

Evening—Music and recitations by local talent.

Address of Welcome—the Mayor of Cobourg.

Annual address by the President, W. M. Orr, Fruitland.

Address—Mr. C. C. James, Toronto, Deputy Minister of Agriculture.

"The fruit trade in England"—Prof. J. W. Robertson, Ottawa.

"General phases of maritime fruit growing."—Rev. Father Burke, Alberton, P.E.I.

THURSDAY.

Morning—*Business and Legislation.*

Report of nominating committee.

Report of directors and executive committee.

Report of secretary-treasurer.

Report of finance committee.

Report of Auditors.

Report of transportation committee—W. H. Bunting, St. Catharines.

"Freight on fruits"—H. W. Dawson,
Toronto.

"Organized effort for fruit exhibit at St. Louis"—H. Jones.

The Fruit Marks Act.

Report of inspectors—E. Lick, Oshawa,
Alex. McNeill, Walkerville, and others.

Afternoon—*Practical.*

"Our Affiliated Horticultural Societies."

Reports of representatives—"What we
have done and how we did it."

Reports of lecturers.

"Amateur rose growing"—John S. Jack-
son, Port Hope.

"Spraying"—J. E. Orr, Fruitland.

"Pruning"—W. N. Hutt, Southend.

Evening—Music and literary programme
by local talent.

Question drawer opened and answered.

Introduction of visitors and representa-
tives of sister societies.

Address—G. C. Creelman, Toronto.
"Horticultural Societies; their relation to
the home, the school and the province."

Address by the Hon. John Dryden, Min-
ister of Agriculture.

Illustrated address on the orchard—Prof.
Waugh, Horticulturist Vermont Experi-
ment Station, Burlington, Vt.

N.B.—*Headquarters will be at the Dunham House, Cobourg.*

FRIDAY.

Morning—*Reports of committees—*

Fruit exhibit, cold storage apples from
Buffalo, resolutions, etc.

Address by Prof. Macoun, Central Ex-
perimental Farm, Ottawa.

Afternoon—*Unfinished business—*

Our Experiment Stations.

Profitable varieties of grapes—M. Pettit,
Winona.

The best gooseberries—S. Spillett, Nantyr.

The new strawberries—Rev. E. B. Ste-
venson.

How to grow raspberries—A. M. Smith,
St. Catharines.

Our best commercial apples—W. H.
Dempsey, Trenton.

Cherries for Northern Ontario—G. C.
Caston, Craighurst.

How to produce fine apples—H. Jones,
Maitland.

Our export trade in fruit—E. D. Smith,
Winona.

Topics suggested for Question Drawer—

The expensive tree protector.

The cherry aphid.

The torch and trap lantern in the orchard.

Perennial flowers.

Date of our annual meeting.

OUR FRUIT INSPECTORS are at work, and although only seven in number, they are making their presence felt in all the provinces. Several times, for example the Toronto and Hamilton markets have been surprised by them, and, while no actual convictions have been made, a wholesome dread of the penalty which they have the power to inflict has resulted in more honesty of packing and better satisfaction for the fruit buyer. On Tuesday, Oct. 15th, we were favored with a call from Mr. W. A. McKinnon, chief of this department, and Mr. Alex. McNeill, one of the inspectors. They reported that the educa-

tional feature of their work seemed more important than the prosecution for fraud, at least for the first season. Consequently Mr. McNeill is holding demonstration meetings with farmers, at which he is showing them how to properly pack their own fruit, and thus, combining together they can save to themselves the profits of the speculator. The inspectors at work are: Alex. McNeill, Walkerville, Elmer Lick, of Oshawa, E. H. Wartman, of Kingston, E. J. Carey, of Cobourg, J. F. Sriver, of Montreal, George Vroom, of Middleton, N.S., and Richard Burke, of Charlottetown; P.E.I.

OCEAN COLD STORAGE NOT YET A SUCCESS.

BARTLETTS EITHER COOKED OR FROZEN.

FRUIT growers generally will never enter with confidence upon the export of tender fruits, such as Bartlett pears and peaches, until the cold storage service on shipboard is more satisfactory, or else until the Government will guarantee us against loss in transport. We are willing to risk the markets, but it is provoking to have our fruits either frozen or cooked, and no redress.

A few of us at Grimsby, anxious that the experiments so well undertaken should be continued, forwarded at our own risk, to Glasgow from Montreal on the 12th of September per Donaldson line 1,120 cases of Bartlett pears, green and hard, and in a condition in which we believe they would carry on deck in the open air in safety. Our surprise was great to have a report from Thos. Russell, Glasgow, the consignee, dated the 28th September, to say that the whole shipment landed in "*in bad condition and over ripe*," and had to be sold at from 2s. to 5s. a case, and a good many cases were "worthless"; and that some of the lots will barely cover the freight. This is rather discouraging to private enterprise, for 10 shillings is not unusual for our half cases of pears in Glasgow when they are carried at a proper temperature.

While our shipment was kept at too high a temperature on shipboard, both while lying at Montreal and for the first three days out, when it was *at last* got down to 40°, we noticed that the first experimental shipment of Bartletts by the U. S. government was injured by too low a temperature, and some of the fruit frozen.

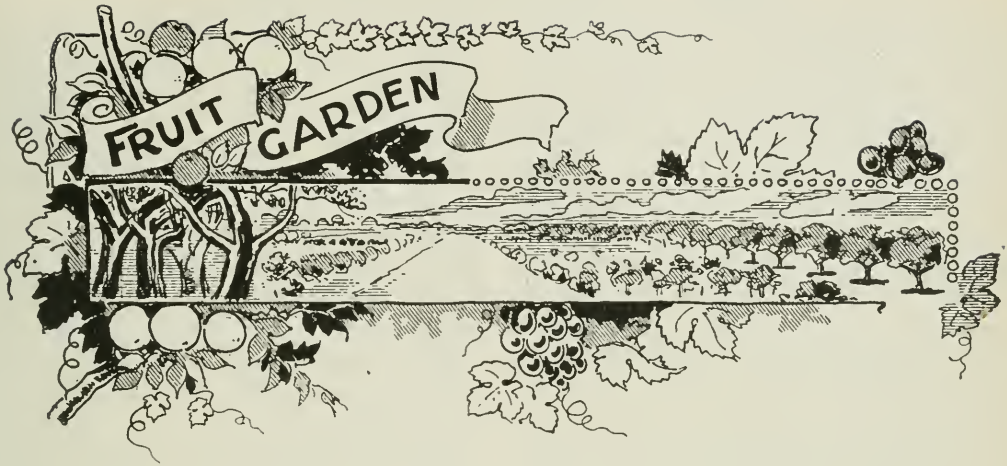
The following account is from the Fruitman's Guide of New York city :

The Guide's English mails this week brought it interesting information concerning the sale of the experimental shipment of American Bartletts sent over in September to London under the auspices of the United States Government. As told in the The Guide at the time the fruit was grown near Barker, Niagara Co., N. Y., and was shipped by F. M. Bradley, for himself and six others. It was picked on September 2nd, packed September 3rd, and placed in the refrigerator in New York on September 5th. It went by the Minneapolis, which sailed on September 7th, and was sold at Covent Garden by Garcia, Jacobs & Co. on September 18th, results in detail being as follows :

1	bbl. American Bartletts	.....	38s.
1	bbl. American Bartletts	.....	31s.
8	half-boxes American Bartletts	.....	4s.
15	" " " "	.....	6s.
120	" " " "	.....	3s. 3d.
20	" " " "	.....	3s. 4½d.
84	" " " "	.....	4s. 9d.
36	" " " "	.....	5s.
12	boxes American Bartletts	.....	9s. 3d.
25	boxes American Bartletts	.....	6s. 3d.

The two barrels brought an extraordinary high price, 25s. being a good price in the London market for this stock. Evidently the barrels contained fine fruit, which arrived in perfect condition, and the barrel which fetched 38s. or \$7.60 must have been remarkably fine indeed. But the half-boxes show a great slump, and prices were anything but good. Our correspondent informs us that this was due to the fact that the pears in the half-boxes arrived frozen, the chamber temperature on the voyage across having evidently been kept too low.

However, it is just to find out through the schooling of experience such points as this that the experiments are being made. The Government experts are making the shipments with this purpose well in view—to find out the exact temperatures best suited for the shipment of the different varieties of fruit. It is safe to say that profiting by experience, those in charge of the shipments will have no more Bartlett pears arriving frozen on the other side. Rome was not built in a day, and it will be some time yet before the experts get things down to such a fine point as to be able to gauge the proper temperature for various kinds of fruits with mathematical precision. But they are "getting there just the same," and the American exporter and the European receiver of fruits will yet arise to call the men responsible for this much needed display of activity on the part of our Government "blessed."



FALL TREATMENT OF PEAR BLIGHT.

IN those orchards where the blight has been carefully and persistently removed and destroyed most of the trees have been saved. In some instances the cutting was not severe enough to remove all the blight producing organisms, that is, the diseased branches were not cut far enough below the lowest discolored point on the bark to remove the organisms, and as a result the disease remains in the tree and continues its destructive work so long as soil and weather conditions are favorable.

At this season it will be observed that the blight is not spreading and the disease is not advancing even in the partially dead branches. It has been found however that the disease producing organisms, although inactive during the fall and winter, are not dead, that they are capable of living over the winter if the diseased branches have not been removed from the trees. As soon as the sap begins to flow in the spring these organisms again become active and it is from these so-called hold-over cases that the blight is spread. When the organisms become active in the spring they find their way

to the surface of the infested branches either through exuding of the sap or otherwise and are carried by the bees or wind to neighboring trees where they lodge and produce disease.

It is clear from these facts that have been determined by careful investigation that there is only one way in which to prevent an outbreak of this disease next season and that is by destroying all the organisms before the sap begins to flow in the spring. The only method by which this can be accomplished, so far as known at present, consists in cutting out and burning the affected branches. In many orchards where the blight was so destructive the past season it was found that little or no effect had been made to destroy this pest during the preceding season. While the blight was not so destructive generally in 1899, as in 1900, it was present in most orchards and in many isolated trees; hence where it was not cut out it accumulated and became more destructive during the past season.—*Small Fruit Grower.*

BEES AS BLIGHT DISTRIBUTORS.

I HAVE thoroughly worked out the question relative to bees carrying blight. The conclusion reached is that bees carry pear blight extensively, and, with other insects, are the principal or almost the only agency of distribution of the germs. The occurrence of the blight on the blossoms in great quantities and the great rapidity with which the disease spreads from flower to flower indicate a normal and very effective method of distribution. The germs were found growing freely in the nectar of the blossoms.

Bees were seen repeatedly visiting the infected flowers, and some were caught taking infected nectar, and by means of plant cultures the pear blight germs were isolated from their mouth parts. By covering parts of the trees with sacks of various kinds of material, including mosquito netting, and then artificially infecting certain flowers on the tree, the blight was observed to spread very freely over the uninfected and uncovered blossoms, but was entirely absent in the blossoms covered by mosquito netting.

Blossoms were infected and at once covered with sacks and the blight in such cases was retained in the infected blossoms. Pear blight germs died very soon after being dried up, and lived for only a brief period on exposure to weather conditions out of doors, hence they cannot live in dust and be blown around to any great extent by the wind. Pear blight virus, particularly that which occurs on the blossoms, is a very sticky substance, and is readily carried by insects, birds or other animals, but cannot be blown by the wind.

It may also be well to state that as a result of this serious charge against bees, I was led to carry on an extensive series of experiments in the pollination of pomaceous fruits, and as a result of these I found that bees are indispensable to the pollination and setting of most of our pomaceous fruits, hence they should not be destroyed, as some growers think. They simply carry the pear blight incidentally while performing an important and necessary function.—*American Agriculturist*.

FALL PLANTING TREES

ON the question of whether it is better to plant fruit trees in fall or spring Professor F. A. Waugh, of the Vermont Experiment Station, says that one time is just as good as another providing the soil is in good condition and the trees are all right.

There are some advantages in setting trees in the fall, the principal one being that there is commonly more time for it at that season. There is always a rush of work in the spring, but at this time of the year farm operations are less pressing. Sometimes also the trees can be had in better condition in the fall. Usually prices are slightly lower for nursery stock. Furthermore when fall planting is really successful the trees are apt

to do better than when spring planted. They become established to some extent during the winter, and are all ready to start with the first growing weather in spring.

The chief requirement of fall planting is good soil in a state of high cultivation. Raw, lumpy, soddy soil will not answer. Positions in which water stands will not do for fall planting. (In fact trees should never be set in such places.) Where the soil is not light and well drained it is liable to freeze and heave, thus doing much injury to young trees.

But if the soil is right, and the trees are right and the man is ready to plant, fall setting of fruit trees is nearly always advisable.

STORING CELERY FOR WINTER.

WHEN cold weather comes celery should be removed to the cellar. In case there is not room in the cellar let a space be cleared and levelled in the garden and boards set up about it. The space between the boards should be subdivided by other boards set two feet apart. The bunches should then be taken up with a spade, roots and all, and all the dirt allowed to remain that will cling to the roots. Set the plants close together in the space until they fill it compactly and snugly, then cover with boards and over that throw a pile of straw. Water occasionally, but not by sprinkling over the tops of the celery, as this will cause it to rot. Use a tin spout or iron pipe an inch in diameter. Set the lower end of the pipe among the roots, place a funnel into the other end and then pour the water into it. This gives abundant moisture to the roots and the tops are kept dry. When boxes of celery are exposed in the market for sale, it may be kept fresh and moist by laying wet gunny sack on the box. The plants absorb the water from the wet cloth and yet do not become wet enough to cause them to rot. It seems that very few dealers and grocers know of this simple plan to keep their celery attractive and crisp.

If the celery is taken into the cellar, build an inclosure as described for outdoors, deposit a layer of rich dirt within, set the plants out just as if they were outdoors and water occasionally as described above. Celery put away in this manner will last all winter and grow continually. It will be white and tender until late in spring, and even until early summer, and the last will be found to be sweet and crisp. A good plan in using celery for home consumption is to

break off a single stalk at a time. Thus the heart remains alive and new shoots will constantly appear through the winter. A space two yards square will be sufficient to supply a family with celery all winter if this plan is followed and care is used to prepare the plants for continued growth. These outshoots are the daintiest and crispest sort imaginable, and they will grow with remarkable rapidity.

In growing celery it is profitable to mulch between the rows with course barnyard manure. This is not so much for the purpose of securing the fertilizing material, as to secure a thick covering over the soil between the rows to prevent the escape of moisture. Try this method of mulching your celery rows, and do not be afraid of getting the manure too thick. Do not let it come in contact with the celery, but pack it in compactly all over the space between the rows.

Celery set out as late as the middle of August will grow to maturity before freezing weather. Frost does not injure celery, indeed it seems to enliven it and cause it to grow faster than before. It is suggested that unless the plants are unusually stocky when they are set out, they should be pinched off just above the heart. The leaves only should be taken off the young plants. This serves to concentrate the vigor of the plant to the roots and heart as well as causing the bunch to grow broader and thicker. Scores of gardeners have made fortunes cultivating celery for city markets, but methods involved in producing it on so large a scale have to do with special machinery and appliances provided for the purpose.—*American Agriculturist*.

PREPARATION OF GRAPE JUICE.

EACH year, as the grape season approaches, we are asked how to put up grape juice for family use. Several readers have given their methods, but it seems well to repeat former instructions. In proceeding, use only clean, well-ripened grapes. I prefer expressing the juice in an ordinary hand cider mill (same as making cider) by grinding the grapes. The advantage is you get the juice at once and that which is expressed by grinding is clear and retains so little foreign matter or pomace. It may, by careful straining through double thickness light flannel, be immediately bottled, while that obtained from pressing the skins, pulp, seeds, etc., will require, besides straining, a little time to precipitate a sediment resulting from pressing. I sometimes filter through a few inches of clean washed river or creek sand. The sooner, however, it can be bottled and corked the less fermentation and the more of the peculiar grape aroma may be retained. Whereas, if the grapes are crushed in a tub or barrel I find it difficult or impossible to express the juice until fermentation dissolves the pulp,

thereby losing much of the grape flavor, but the fermentation cuts no figure in the keeping qualities, as I sometimes, for variety, let some ferment to a certain flavor, when I heat and seal it with the assurance that when opened in the months, or years following, the same flavor will prevail. I use the ordinary wine and beer bottles—carefully wash and drain them, fill to within about three inches of the top. Set in ordinary wash boiler on the stove; put an inch of sand on the bottom or fit a thin board over the bottom to prevent the bottom of bottles overheating to break or give the juice a cooked flavor; fill the boiler with bottles as close as they will stand without crowding and fill the boiler with cold water within about four inches of the top of the bottles. Lay on the lid and start the fire. Bring the water slowly to a distinct simmer, but in no instance allow it to come to a boil, as this, too, will cook the juice. Have your corks steaming. I use a one-quart fruit can; fill half full of water and put in the corks, lay on the cap, set along the boiler to heat and steam while bottles are heating.—*Green's Fruit Grower.*

PEARS, says the Fruit Grower, have been a good crop in North Kent, England, this season. There is not, however, a very considerable area under this fruit, particularly of the large and heavy sorts. This seems to be an oversight in some respects, as the soil and climate are apparently suitable for the cultivation and successful ripening of such good kinds as Louise Bonne, Pitmas-ton Duchess, Williams and others. By far the largest number of trees consists of Hazels. Very large gatherings have been made of these small pears in places. Except when they are placed in a very exposed position, they stand well on the trees. As much as five and six bushels have been taken from individual trees, the gatherings from two trees in one instance working out at the total of $12\frac{1}{2}$ bushels. The price

now being realized is from 3s. to 3s. 6d. per bushel. Evidently a long dry season is suitable for this fruit. Williams, in some instances, have returned 8s. per bushel.

With the close of the apple gathering now just at hand, the tendency of the market has much improved. This probably is due to the fact that the fruits remaining on the trees after the severe gales were limited in quantity; in fact, only those trees which stand in exceptionally sheltered positions escaped with any appreciable quantity of fruit left on them, the bulk of the crop being marketed as windfalls. Good apples have realized 5s. per bushel. Drops are still at a low figure, and some growers have yet a stock of them in their store rooms which they are marketing a few bushels at a time.



WINTER PROTECTION OF OUT-DOOR PLANTS.

THIS is a subject that is often a source of anxiety to those who have a collection of plants in their garden that are not entirely hardy in character, and that are unable to resist the vicissitudes of winter weather successfully, unless some protection other than that provided by nature is given them.

Our anxiety for the welfare of the tender occupants of the garden is very often an inducement to bestow too much care and attention in this matter of artificial winter protection.

A mistake also that often occurs in this respect is that of covering up and protecting the plants too early in the winter, before the growth has been sufficiently hardened to enable it to resist even the partial exclusion of air that of necessity takes place when any artificial covering is given to plants. This early covering of plants as mentioned, results at least in a decided weakening of the vitality of the plant, besides rendering it more liable to attacks of mildew and other diseases during the following season.

Roses often suffer in this way from being too heavily mulched and protected before the wood has been even fairly well ripened.

Where an earth mulch is applied by banking up the soil around the stem of the plant, it has of necessity to be done before severe frosts set in. The time for this operation, however, can often be extended well into December, by applying a mulching of straw manure or some similar material on the soil around the plants, so as to keep the early severe frosts from penetrating the soil. This mulch can be removed when there is a probability of severe weather setting in, when the earthing up process can be attended to finally.

When artificial protection is given plants during the winter, more especially roses, tender climbers and shrubs, it is necessary to take into consideration two very important points, so as to secure the best results possible. These points are to arrange the material used, so that air is not entirely excluded from the growth; and due regard given as well, so that moisture from rain, melting snow, etc., will be prevented from penetrating the protective material used. Placing dry leaves around the growth and retaining these in position with brush wood until a barrel can be placed over them, is a good way to protect many of the dwarfier



FIG. 2179. CLEMATIS JACKMANII ON HOUSE OF MR. JAS. CRAIG, KINGSTON.

kinds of shrubs, roses, etc. The barrel should, before being placed over the plants, have several one-inch holes bored in the sides at irregular distances from the top varying from six to eight inches apart. No holes should be bored below the largest part of the barrel except a few on the sides and very near to the bottom of the barrel. By boring the holes in the manner mentioned very little moisture will find its way inside the barrel. The top or lid of the barrel must of course be removed, but the bottom should be left intact. When the barrel is turned bottom up over the inner protection of leaves before mentioned, not only will all moisture be excluded, but the holes bored in the sides will allow of a circulation of air sufficient to prevent the leaves from becoming heated, and still give protection sufficient for the well-being of the plant. Objection may be taken to barrels

being used for protective purposes on account of their unsightliness. This objection can be remedied by covering the barrels with branches of evergreens.

Another effective method of covering the kind of plants before mentioned is to secure some long straw, long sedge grass, or similar material, lay it out as straight as possible in small quantities, and then cover the trees or shrubs with about an inch or two in thickness of the material. Care must be taken, however, to commence laying on the covering from the bottom so that each successive layer overlays a few inches the layer below it. The top of this thatch or covering should be tied closely with twine, and the twine carried around the covering down to the ground so as to keep the successive layers in place.

Where a very slight protection is needed the matting used to cover tea chests, makes

an ideal protection for plants, as it wards off a great deal of moisture, and is also sufficiently open to admit air to the plant, whilst it effectually excludes the sun's rays, the latter being an element of danger to plants in winter, especially when it induces successive thawing out in the day-time, and as a natural sequence successive freezing at night. This latter condition of successive thawing and freezing by the heat of the sun in the day time and frost at night is one of great danger to plant life of any kind during the winter, and one that should be avoided if possible with all plants and shrubs of a tender nature. Protecting the plants however with a covering of some thick close material that effectually excludes the air, and at the same time absorbs and retains a large amount of moisture around and about the growth of the plant is a serious mistake. I have known large plants of the comparatively tender English Ivy kept in good condition out-of-doors for several successive seasons by a judicious use of long straw and the grass matting before mentioned. For the tender varieties of roses, clematis, small and recently planted altheas, Japanese spireas, etc., the covering mentioned is of great value as a winter protection. But where a thick close material has been used for this purpose the result as a rule has been most disastrous to the plants so protected. The branches of plants to be protected should first of all be tied up together rather loosely before being covered up.

In the case of low growing plants, such as gaillardias, campanulas, peonies, etc., and many other similar border plants that may require some protection, a much simpler method can be adopted than for shrubs and taller growing plants. In protecting these lower growing plants, one cannot do better than to follow as nearly as possible the condition found, where plants are growing in their native haunts, or in positions similar to that in which they are found when growing

naturally. How often perhaps have many of our readers been surprised as I have been, at finding may be only a single stray specimen of some choice tender plant looking fresh and bright in the spring time, that has had no covering except a few leaves or the protection of a covering of foliage of some other near-by plant; whilst perhaps a whole patch or row of plants of the same kind that were entirely covered over and protected with too great care, presented only a mass of rotten foliage and perhaps dead crowns and roots. Covering up the plants too early in the winter and smothering them with a close heavy covering of manure is too often the cause of failure in wintering over half-hardy border plants:

Partially covering the plants with trimmings of fruit trees or of currant or raspberry bushes first, and then shaking a light covering of dry leaves in and about the brush-wood, I have found to be a most simple and effectual covering for semi-hardy border plants. The covering can be increased by the addition of a little long strawy manure placed over the brush-wood so as to form a rough thatch to pitch of the moisture. A wide board supported an inch or two above the tops of the plants in addition to the coverings mentioned, is also of great value for winter protection.

Good surface and sub-soil drainage are also great factors in growing tender border perennials and plants successfully. Without good drainage even the most careful and skilful methods of protecting plants in winter will be found to be unsuccessful and at least comparatively worthless.

In short to be successful in giving winter protection to plants, similar to those mentioned, cover them as lightly as possible to be effective, so that the rays of the sun, and as much moisture as possible is excluded, whilst sufficient air is still given the plant to sustain life.

Hamilton.

W. HUNT.

HOW TO GROW HOUSE PLANTS SUCCESSFULLY.



AFTER a long experience with a large variety of plants I wish it might be possible for me to convince people who are thoroughly discouraged with trying to grow them, that if they will only follow a few simple rules they may enjoy perfectly healthy and beautiful specimens in their homes under almost all conditions.

Do not think for a moment that you can take any plant which you may have, or buy, and put it just where you most desire to have it for effect, without regard to what that particular plant needs. Some cannot thrive without a large amount of sun, while others require very little. I believe every variety needs direct light and a little sun for perfect health, and if they do not get it, death is sure to come sooner or later.

At different seasons of the year the same plants need to be changed from perhaps an eastern to a southern exposure, or vice versa. Begonias and ferns are especially happy in a south window until about February 1st, when the sun becomes so powerful that the curtain must be drawn from ten in the morning until about three in the afternoon or they will be seriously burned.

Every day give them plenty of fresh air, always open the windows and doors for a few moments, even in the coldest weather, but do not have the draught come directly across your plants. Try to follow nature as possible, remembering that she never makes mistakes in caring for her children.

Great care should be used in watering. I am sure hundreds of noble healthy specimens are ruined by continued daily watering. Always have the water luke warm for the reason that a large number of our house plants come from the tropics. Give them a very generous soaking, not all at once, but wait five minutes between waterings and you will be surprised to see how much some of the plants will take up. I always water

twice, and sometimes thrice, until the saucers are full, then give them a grand rest for three or four days, until the surface earth is dry to touch. My heart has ached so often when shown choice plants which were truly dying of consumption from daily drinks of ice cold water. You will be greatly pleased to find how clean your pots will keep when you find out the secret of correct watering.

Watch your plants and if they do not look quite right, just carefully turn the pot down, striking the rim against some object by a quick rap, holding the plant and earth in the other hand, and you may be greatly surprised at what you find. Often the writer has found worms and insects sucking the life of the plant day by day. Never allow the pots to stand in the sun, without being protected either by cardboard or by sinking them in a box of sand. Nature is never so unkind as to submit roots to a baking process.

Do not think that, because you purchased your plants at a florists, they must be all right, for many times I have found sad conditions, which in a few months would result in the ruin of the most healthy plant.

It is much cheaper in the end, when repotting in the fall, to buy of a florist a bushel of prepared loam, at fifty cents, than to use any common garden soil, for with such preparation you will have no use for tonics of any sort during the winter.

Do not forget to always give good drainage, even in a small four inch pot, using small pieces of crockery, stones or charcoal; the latter is most excellent, serving also as a dressing.

Many people will tell you that it is impossible to have healthy plants if your house is heated by a furnace, or lighted by gas, but I have found, after using both for many years, that it is not the fact. I believe if

your gas fixtures and furnace are perfectly constructed, as they should be for the good health of your family, your plants will not be troubled in the least by their use. Try to keep the temperature as even as possible, about 70 during the day and not lower than 50 or 60 at night.

We often hear it said that plants, espec-

ially a large number, are unhealthful in the home, but do not be at all worried, for physicans of both schools are not of that opinion.

Try, my friends, this coming winter, to grow plants as nature intended and you will be surprised and charmed by the results.

—*Ex.*

GREENHOUSE AND WINDOW.

CHRYSANTHEMUMS should now be in their full glory. The later varieties may still require some attention in the matter of disbudding. Possibly the black aphid may cause trouble yet, if so syringe the plants frequently with strong tobacco water, or a weak solution of kerosene. The latter can be made by mixing about a tablespoonful of kerosene in a pint of water, or in the same proportion if a larger quantity is needed, but the tobacco water is the safest and most effective remedy.

Syringe carnation plants and roses at least once every two days with clear water. Tepid water about 45° to 50° is safest to use.

Fuchsias will also require frequent syringing with clear water, especially on the underneath side of the foliage.

Freesias will require plenty of water. Early struck geranium cuttings should be potted into 2½ inch pots.

Give Genistas and Azaleas plenty of water at the roots. The Azaleas should be syringed daily.

Canna and Dahlia roots should be stored away in their winter quarters where the frost cannot touch them. Underneath the benches in the greenhouse, away from the hot water or steam pipes is the best place for Cannas in the winter. Dahlia roots can be stored in the same way, but a dry cellar with a temperature of about 45° will suit Dahlias the best. Place the roots in boxes and cover them with sand or earth.

Palms, Ficus, Dracenas (Cordylines), etc., should have their foliage sponged once every week or two. If they show signs of scale

on the foliage use a weak solution of whale oil soap and water, or soapy water, to wash them with.

Show and fancy pelargoniums and scented geraniums are very liable to attacks of green fly or aphid. Frequent fumigating with tobacco, or syringing with tobacco water, will rid the plants of these pests.

Cuttings of *Glechoma variegata*, *Lobelia*, *Vinca Japonica*, *O. Crassifolia*, and other varieties suitable for window boxes or hanging baskets should be taken. These are often left until it is too late to secure cuttings that will give good large plants to use in early summer.

The last batch of winter and spring flowering bulbs should be potted, and pots of these for successive flowering brought in for the window or conservatory, from the cellar or frames.

Gloxinia, tuberous begonia, and fancy *Caladium* bulbs should be kept quite dry and stored away in the pots, or the bulbs taken out, packed in charcoal or dry soil, and placed in a cool temperature not lower than 45°.

Easter lilies are very subject to aphid or green fly. Examine the tips of the growth frequently and use a little dry tobacco dust or tobacco water as a preventive or remedy for these pests, as they are hard to eradicate, if they once get possession of lilies and similar plants.

Water all plants early in the day, and retain as moist an atmosphere as possible where the plants are growing.

Hamilton.

W. HUNT.

HOYA CARNOSA (WAXPLANT).



FIG. 2180. HOYA CARNOSA IN GREENHOUSE.

THIS well known greenhouse climber is a native of far eastern lands, having been brought from Queensland, Australia, about a century ago. There are about fifty species of the Hoya,—all natives of eastern countries,—few of which however, with the exception of *Hoya carnosa* and the variegated type (*Hoya carnosa variegata*) have found much favor with floriculturists. The generic name “Hoya” was given this plant to do honor to the name of Thomas Hoy, who many years ago had charge of the beautiful gardens of the Duke of Northumberland at Sion House.

Although the *Hoya carnosa* cannot be considered an ideal house plant, it will, under favorable conditions and culture, often produce quite a number of its beautiful wax-like sweetly perfumed umbels of flowers.

The plant, as shown in the photo, is growing in a bushel pot, and has not been re-potted for four or five years. A compost of

equal parts of enriched loamy potting soil, leaf mould and sand, suits the Hoyas very well. Thoroughly good drainage is a very essential feature for the successful culture and subsequent flowering of this plant. To secure this, fully an inch of broken pots or similar material should be placed in the bottom of the pot when re-potting the plants. When once the plants are well established frequent re-potting is not necessary, once in every two or three years being sufficient if the drainage is perfect. A top dressing every spring composed of three parts of dry pulverized cow manure to one of loamy potting soil makes a good top dressing for these plants when they are not re-potted annually.

One feature in favor of the Hoya as compared with many other climbers is its freedom from the attacks of insect pests, scale and mealy bug being about the only pests that give any trouble in the culture of the Hoya. The mealy bug is the most troublesome, and is hard to eradicate, if it once gets possession of its closely packed umbels of flowers. Frequent syringing, or sponging of the leaves with a weak solution of whale oil soap and water will prevent the appearance of these pests.

The variegated type of this plant (*Hoya carnosa variegata*) makes a nice addition to a collection of window or greenhouse plants, its fleshy, silvery margined leaves, giving it an additional attraction as a window plant. Both the variegated and the plain type of the Hoya require about the same culture and treatment. To flower them successfully the plants must be treated liberally, so as to produce as much young growth as possible early in spring. This young growth will usually produce in July or August a wealth of bloom as seen in the photograph.

Hamilton.

W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

ANNUAL MEETING.—Notice the change in date: the Cobourg meeting will begin Wednesday, December 4th, and continue three days.

PROF. VAN DEMAN, ex-U. S. pomologist, will be with us at Cobourg and will contribute largely to the interest and success of our meeting.

SEEDLING PEARS.—Mr. E. C. Bevan, Newcastle, Ont. sends in four specimens of a very fine pear, which he says are seedlings. They are uncommonly large, and the flesh is fine and buttery.

APPLE BOXES.—The regulation size as used in New York shipments is in inches inside measure, $9\frac{3}{4}$ high, $10\frac{3}{4}$ wide and $20\frac{3}{4}$ long. Our own box is $10\frac{1}{2} \times 11\frac{1}{2} \times 23$ outside measure, which is essentially the same.

BETTER RESULTS.—The shipment of fall pears sent forward by the Grimsby growers on the steamer Kastalia has netted them much more satisfactory returns than did the Bartletts. The average net returns is 92 cents per half bushel case.

APPLE SCAB.—Professor T. J. Burrill, of the Department of Agriculture of the University of Illinois, has announced that the parasitic fungus, usually called apple-scab, does not winter as supposed on the twigs of the tree, and therefore cannot be killed by spraying before the buds open. This is deemed a very important matter in practical orchard management for success hinges upon its destruction and dependent on a knowledge of its life history. For best results the first application of the fungicide (usually Bordeaux mixture) should be made just after the leaf buds open.

MR. GEORGE C. BRADY of Detroit, a member of our Association, who is well known in American society, called at our office in October, and we gave him a carriage drive among our orchards. He was delighted with our country.

PROF. WAUGH, author of Plum Culture and other excellent works for fruit growers, has promised to be with us at Cobourg and give an address, illustrated with a stereopticon. Mr. Waugh is counted the life of the convention wherever he goes.

THE KIEFFER PEAR is quoted at 13s. to 15s. sterling for barrels, with half boxes at 3s. in the Liverpool market. Not a high price, indeed only about the price of good stock in ordinary seasons, but of course it is every cent that such a pear is worth, and perhaps a good deal more.

COLORED PLATES.—Our readers will be pleased to know that we are arranging to use an occasional colored plate as a frontispiece of this journal. These are very expensive, one plate costing about \$50 for each issue. The first one will appear in the number for January 1902, and will represent the Windsor cherry.

THE WELLINGTON.—A new seedling peach apparently of considerable merit, has sprung up in Toronto, where we would little expect such a tender fruit to originate. It is a free stone, of yellow flesh, somewhat resembling a Longhurst, but much larger in size. The tree has been fruiting for years in Toronto, and shows great hardiness, never having been killed back in the slightest degree.

A MONUMENT for the original Wealthy apple tree is proposed by Mr. Jacob W. Manning, of Massachusetts. This has been done for the Baldwin apple at Wilmington, Mass. A granite pillar has been erected

near the site of the original tree, and on its top an apple as large as a peck measure is carved. The Baldwin is named after Col. Baldwin, an eminent civil engineer, who discovered the seedling tree in the year 1790.

THE YORK IMPERIAL APPLE, according to a writer in the R.N.Y., varies greatly both in eating and keeping qualities according to the section in which it is grown. It is not good for any purpose, in fall or winter, but if well stored it is good for all purposes in spring. It will stand up longer and bear more handling than any of the finer varieties, and coming when all finer varieties are out of the market, it sells well.

FORMULA FOR OUTSIDE PAINT.—This proves very satisfactory after five years' application, is as bright as when first laid, and appears to stand the weather well. Take 1 gal. linseed oil, 10 lbs. dry zinc paint and 10 lbs. whiting and reduce to a paste; dissolve 1 lb. potash; reduce with skim milk thin enough to spread as freely as oil paint. Ground zinc may be used, but does not require so much oil. I was a practical house painter for more than twenty-five years, using French zinc almost entirely for outside work, and am surprised at the result of the above. I shall try it on my outbuildings. [G. E. Chadbourne.

PEAR BLIGHT AND BEES.—A committee of fruit-growers, Missouri, have reported against bees as spreading this disease of the pear tree as follows:—

“First.—The pear blight is not in the least abating, but it seems to be increasing. There is no pear orchard in the county free from the disease, and many orchards have the appearance of having been burned over.

“Second.—No remedy has been discovered that will check the disease.

“Third.—No change has been produced in the minds of your committeemen in relation to the original cause of the rapid spread of

the disease, that the bees are the principal agents in the spread in the flowering period of the pear trees.

"Fourth.—We believe the only remedy is the removal of the bees, to at least 5 miles from the fruit districts, otherwise the pear industry will soon be a thing of the past in this county.

"Fifth.—We, your committee, would ask the Board of Supervisors to give the fruit growers any aid in investigating the subject of pear blight or the removal of the same, for which we believe the bees are largely responsible, to do the same."

PRINCE EDWARD ISLAND, Mr. McKinnon says, is worthy of more attention from intending colonists than it has hitherto received. Only recently, it appears, has she awakened to her possibilities for the production of dairy products, oats, sheep, potatoes, apples, etc., and the province well deserves the appellation given it "The Million Acre Farm," or "The Garden of the Gulf." Mr. McNeill added, for both these gentlemen have just returned from a visit there, "I never saw strawberries anywhere equal to those I saw in Prince Edward Island, near Georgetown. They seem to have exactly the right combination of light soil and abundance of moisture for the best success.

EXPERIMENTAL SHIPMENTS of pears are still being continued from Grimsby, at the risk of the shippers, as the Dominion government has dropped the matter, without as yet achieving complete success. The steamer *Lakonia*, leaving Montreal Sept. 12, took 1120 cases of Bartletts; the *Marina* on the 19th, 560 cases of Bartletts, and the *Kastalia* of Oct. 3rd, cases of various kinds. These pears were green and hard on leaving Montreal, and the same stock kept in Grimsby cold storage until after the date of sale, were still firm; but advices from Glas-

gow just received (Oct. 7) state that the Bartletts forwarded by the *Lakonia* arrived in a very over-ripe condition. Evidently the cold storage on the steamships is still unreliable.

GOOD RESULTS OF FRUIT INSPECTION.—

The following circular, addressed by Mr. Eben James, of Toronto, to his foremen packers, and to apple dealers, shows that the results are proving the wisdom of the Act. He says:—

Please take notice the government has appointed inspectors at points of export and throughout Ontario.

The law holds the packer responsible for the quality of the contents of the barrels. There is nothing to be feared from it if common sense is used in packing and proper precaution taken in observing the following rules without deviation.

Foreman packers should handle every basket put in barrels, observing that the pressman knows his business, and by careful explanations to sorters work can be made easy and proper results insured.

BRANDING.

The grade of every barrel must be marked on it at the time of packing either by a brand or written legibly in pencil so that should apples not be branded until arriving at station the man branding cannot make a mistake, and will run no risk of branding No. 2 wrongly as No. 1.

The name of every boss packer must in all cases be written on every barrel in pencil.

Brand carefully and neatly; above all see that proper name of fruit is put on barrel; if in doubt put "Unknown", using best judgment.

GRADING.

The size for No. 1 must not be smaller than $2\frac{1}{2}$ inches unless Romanite, Russett, Winesap or Jonathan and kindred varieties which must not be less than $2\frac{1}{4}$ inches in diameter.

No. 2.—It is quite lawful to pack second grade, however pack no apples with a wormhole in the side. A wormhole in the blow, if the apple is of good shape, size and color, can be accepted as No. 2.

FOUR DISTINCT CLASSES OF APPLES WHICH ARE CULLS AND MAY NOT BE CLASSED AS SECONDS.

1. Wormy apples other than in the blow end.
2. A badly shaped or warped apple of undersize.
4. A badly scabbed apple (not the wart scab).
4. Small apples no matter how perfect. Under 2 inches for Romanite, Russett, Winesap, Jonathan, and kindred varieties, and under $2\frac{1}{4}$ inches of other standard varieties such as Spies, Greenings, etc.

In all cases packers must show common sense in facing seconds; this does not mean putting the worst on the face, but make the face appear a fair representation of the contents of the barrel.

Note thoroughly our instructions "How to pack apples for export." Pay attention to under or over pressing. Above all rack well.

Ask your principal for instructions as to price to be paid for seconds where only firsts have been purchased. It is not compulsory to pack a second grade but a season like this it may pay if a satisfactory price can be arranged between grower and purchaser.

Show your best judgment in all things.

DISPUTES.

In case of disputes with grower have a copy of "Fruit Packing Act" at all times and if he will not let you pick accordingly notify your principal.

The Apple Market.

Canadian growers who are fortunate enough to have a crop of apples are quite in fortune this season, and need not trouble to export them, for the buyers will take them at their doors at \$3.00 and \$4.00 a barrel according to The Guide.

W. N. White, who has just returned from a trip through the Canadian apple sections, reports things "on the jump" there. Ontario, he figures, will turn out from 200,000 to 250,000 barrels. By no means all of this crop will go to Great Britain, as many of the apples—particularly the Northern Spys—have been bought by American operators to go into cold store. In fact nearly all the crop is already bought up, the representatives of some Liverpool houses and such Canadian firms as Hart & Tuckwell, John Barry & Sons and the Peterson Bros. being particularly active. "Bidding is very active," said Mr. White, "and prices high. For fruit on the trees \$3.00 is an average price and I saw one orchard of Nonpareils sold for \$3.75. Nova Scotia, which will not exceed 250,000 barrels, is also a scene of great activity."

Mr. White predicts that America's total export of apples to Europe this season—outside of box apples from Oregon and California—will range between 550,000 and 600,000 barrels and will in no case, however high prices go on the other side, exceed the latter figure, so small is our exportable surplus this season. The demand from Europe should be very keen, as not only is England short of fruit, but so too are

Germany and Holland. The latter country is usually a large exporter of apples to England, but mail advices this week say that her crop is so short and her domestic market so high that she will have nothing to ship to England. Altogether it looks as if The Guide's prediction that before long "the fancy American apple would be at a record breaking premium in the great marts of London, Liverpool, Glasgow and Hamburg and so yet bring a chance this season for all hands to make some money in the apple export business," would come true in every particular.

"The remarkable shortage in apples continues," says the American Agriculturist, "the chief topic in the fruit trade, advices reaching the American Agriculturist every day show further intensification of the heavy losses. President Cupp, of the Mississippi Valley Apple-Growers' Association writes us under date of Oct. 1 that 'now, at time of picking, prospects are for only 20 per cent. of a crop, and poor at that.' One of the largest commercial orchards in Nebraska shows up not more than 4 per cent. of a crop, others in that state somewhat better. Conditions in Michigan and eastward are much the same. The western half of New York has been further damaged by heavy wind storms. The crop in Ontario is probably the smallest on record. General shortages are the rule in Pennsylvania and New England. Connecticut farmers are now getting \$4 per barrel for choice fruit.'"

Liverpool, Oct. 16th.

Messrs. Woodall cable—"Fair demand. Nova Scotians 16s. to 19s. 6d.; others 13s. to 19s. No Canadians selling to-day.

Messrs. Simons, Shuttleworth & Co., Liverpool, cable the apple market as follows: "Sound parcels of apples are in strong demand, and meet with a ready sale at our quotations. Receipts as a rule are landing in bad order. The following quotations are

for sound fruit: Blenheim Pippins 20s. and Cranberry Pippins, Baldwins, Ben Davis 18s. to 20s.; Kings, 24s. to 27s.; Spys, Golden Russets, 16s. to 18s.; Snows (sweat spotted), 10s. to 13s.; Bellflowers, 12s. to 15s.; Talman Sweets, 13s. to 16s. Only choicest parcels made top figures. Wasty fruit rules from 3s. to 4s. less than the lowest quotations for sound fruit.

Messrs. Simons, Shuttleworth & Co. Liverpool, cable today that there is no change of moment to report in prices. The market retains a strong tone under light supplies, and an active market is anticipated for good apples.

Messrs Simons, Jacobs Co., Glasgow, cable their market as follows:— Kings, 22/ to 24/, Cranberry Pippins, 19/ to 21/, 20 oz. Pippins, 18/ to 20/, Gravensteins, Spitz, Seeks, Canada Reds, 16/ to 18/, Colverts, 15/ to 17/, Ribstons, 14/ to 16/. Lower grades and conditions ruled from 2/ to 3/ below the above quotations for sound fruit.

Mr. Thos. Dennis, who has travelled through the west to the Pacific Coast reported to the Fruit Trade Journal as follows:—

"We have now ten cars of California apples between the Coast and London. I believe that more apples from the Coast will go to London this season than ever before. Newtowns of course are shipped almost exclusively, and these are pretty well in the hands of a few large operators.

"Big prices are ruling in the West, so big that we must make good figures on the other side in order to induce consignments. But in view of the fact that the Canadian crop, according to the latest reports, is much shorter than previously calculated, I can see no reason why holders of Pacific Coast and Western apples should doubt that our market can return good profits on their investment.

"It may be a matter of interest for shippers to know that of the first cargo of Nova Scotia fruit consigned to London, we had consigned to our care about 1,100 barrels, of which the No. 1 fruit realized 18s to 20s, a figure which left a considerable margin for the grower.

"I consider prospects on our side very favorable, and have no hesitation in confirming this opinion, as expressed in our recent circular. Our country is certainly dependent upon the United States and Canada for apples this year.

"Our house is selling in London to-day a car of

California White Pippins, and I am now awaiting cable advices of the result "

The cable which Mr. Dennis received late yesterday afternoon gave great news of this sale. The apples averaged 9s. 6d per box, or \$2.40 in United States money, which is equal to \$1.40 net to the local growers. This, it will be seen, is a most satisfactory result for the California growers.

The American Agriculturist, commenting on the apple situation in the United States, says that a general shortage is practically everywhere apparent, and the average yield must be far less than an average. A Western New York operator tells the Agriculturist that prices in his section are \$2.50 to \$3 per barrel and upwards. Country Gentleman reports that Coombs & Co. of Kansas City have refused \$50,000 for the crop of their 1,800-acre apple orchard. The crop is figured at 32,000 barrels, and the growers believe that they have \$100,000 worth of apples on the trees. They are, therefore, not selling their crop, but are buying from others to add to it.

The Agriculturist, in speaking of the general apple situation, says that Germany has very few good eating apples, Italy a very short crop, France hardly any, and England only about one third. Speaking about market prospects in Europe, the Agriculturist says there is a good market in Germany for Baldwins and York Imperials at \$4 80. W. F. Freeman, representing European houses, is quoted as saying the United Kingdom alone can take 2,000,000 barrels, provided packing and quality are right, and it is reported that Belgium and the north of Europe generally also offer good markets for American apples.

In the United States, the Agriculturist adds, the demand for choice hand-picked apples continues good and prices at leading markets rule strong. Highly colored fruits attracts most attention as is almost always the case. In Missouri and Kansas some contracts were being made last week on the basis of \$1.50 to \$2 per barrel, but in Albion, N. Y., fine winter apples were selling at \$3.25 to \$3.75 per barrel, just as they come from the trees. At New York choice varieties continued firm, with Alexander \$3 to \$4 per barrel, Jonathan \$3 to \$4, King \$3 to \$3.50, Greening \$2.50 to \$3, and Gravenstein \$3 to \$3.50. Pears were \$2 to \$4.50 per barrel. Choice to fancy evaporated apples were 8 $\frac{3}{4}$ to 9 $\frac{1}{2}$ c and common to prime 5 to 8 $\frac{1}{2}$ c. Dried were 4 $\frac{1}{2}$ to 5 $\frac{1}{2}$ c.

FLOWERS AND FERNS IN THEIR HAUNTS, by Mabel Osgoode Wright, author of Birdcraft, Citizen Birds, etc., with illustrations from photographs, New York, McMillan & Co., 66 Fifth ave., 1901. This is the most delightful book imaginable, not only from a literary and scientific view point, but also from that of the nature lover, or even the ordinary garden amateur. The illustrations are unique, artistic and wholly original in the make up, and the text itself is such delightful reading that when you begin reading it is as if you were reading a sprightly novel, and you cannot soon put down the book. No one will regret investing \$1.50 in a book of such excellence.

QUESTION DRAWER.

(111)

1254. SIR.—Will you kindly inform from whom I may obtain a small Grape Press? I have been unable to see any "ads" in the Horticulturist anent such an article, yours truly,
Bridgeburg Ont.

O. F. WILKINS.

Would dealers please respond.

The Three in One Apple.

1255. SIR.—In reply to your letter I would say that I have been in the fruit business for fifty years, and in this case, instead of grafting to procure the apple (Thompson's Seedling) I took two buds with some bark and a little wood. I split each bud in two and took half of each bud, and united them to make one complete bud. I then raised the bark of a third tree and placed the bud in. I was careful to see that the bud grew as one. Hence this new apple, which I claim is a perfect three in one (Duchess, Kentish Fillbasket and McIntosh Red).

Uxbridge.

ALEXANDER THOMPSON.

We have never heard of varieties mixing in such a way. One or other bud would produce the apple, or else one half the apple would be one variety and one the other; they would not hybridise in such a manner.

The apple is Kentish Fillbasket.

Growing Sweet Potatoes.

1256. SIR.—My next door neighbor has laid in a stock of sweet potatoes with a view to plant and grow a crop next year, in place of the other kinds. And he being a member of the Kincardine Horticultural Society urges me to request you to get some one to tell him in the Canadian Horticulturist, how to proceed from beginning to the end. Will you oblige him?

JOSEPH BARKER.

The sweet potatoes are usually started in a hot bed, covered with a few inches of soil, when the buds will soon start and root, throwing up shoots. These are removed when they are about 8 inches long and planted out. The larger potatoes will need to be split lengthwise, and laid flatwise down in the bed. In Ontario it would be early enough to start the beds about the middle of April, and the plants would be ready for setting from the first to the middle of June.

Any soil but a heavy one, will do, even poor light sand, if judiciously manured.

The Keiffer.

1257. SIR.—Knowing that you have had considerable experience in the line of pears have concluded to write you in regard to the idea of planting 1500 Keiffer trees upon ground that I have tested with this pear. Would you be kind enough to let me know if you think the transaction would prove profitable.

Leamington.

W. L. CLARK.

The Keiffer pear tree is a prodigious bearer, unequaled in this respect by any variety in existence; on favorable soil, with proper treatment no pear equals it in beauty during the month of October; and for distant shipments it will stand up a long time without cold storage. If the quality were even fair, its other points of excellence would make it the most profitable of all commercial varieties, but the quality is "poor," and often even "very poor," so that no one will purchase it a second time for his table. Those, who first planted this pear, have already made some money out of it, but every year its value declines. Last year we purchased 500 baskets at from 15 to 25 cents, and in many places they were sold at 10 cents a basket.

They are really of little use except for the canning factory, and we would advise no man to plant 1500 trees of them.

Boxes or Barrels.

1258. SIR.—In the annual report of the Fruit Growers' Association of Ontario, I notice an article written by you re shipping choice fruit in bushel boxes to England.

I have since been trying to find out how the fruit so packed carried as regards bruising, etc., and from what I can gather on the subject the complaint is that the apples bruise worse. Could you inform me how these boxes are made of what material and whether they have a partition or not. Do you use excelsior and paper? I have some very choice Blenheims which I propose sending in boxes. Would you advise sending No. 1 and No. 1 extras, or only extras? Our next boat sails on

the 9th October, so if you could reply by return post you would greatly oblige.

Wolfville, N. S.

J. D. SHERWOOD.

Our experience is that apples packed in boxes carry quite as free from bruising as when packed in barrels; indeed when the barrel head is pressed home with a screw press, we often find that every apple in the barrel is bruised. But whether we pack in box or barrel there should always be a cushion used at each end to act as a pad and prevent direct pressure. A paper cushion has been invented for barrels, and for boxes we find excelsior or wood shavings a capital cushion for top and bottom. All this takes time and trouble from start to finish if we would make money out of our produce. The boxes are made at a box factory of $\frac{3}{4}$ inch ends and half inch sides, and need no partition, unless thinner sides are used.

Your Blenheims should pay you well if carefully put up in bushel boxes a season like this.

The Tent Caterpillar.

1259. SIR,—The Order-in-Council of 25th April last, pursuant to the provisions of "The Noxious Insects Act" (63 Vic. G. 47) mentions the "Expansive Tree Protector" as one of the bands which may be used for destroying the codling moth. I have been instructed by our directors to ascertain from you where this protector can be purchased and price and what is your opinion of it as compared to the other devices.

Our directors also express surprise that the above Order-in-Council makes no provision for the destruction of the tent caterpillar, which in our opinion is more destructive and uncontrollable than the codling moth, inasmuch as a man may keep his own orchard free from the former yet have it infected from his neighbor's which is uncared for, while on the other hand the female codling moth, being unable to travel, can only injure the orchard in which she happens to be, so that, if a man keeps his orchard free from them, it makes no difference to him what his neighbour does.

As a society we have during the past summer taken active measures for the destruction of the tent caterpillar, but feel that our efforts are very much in vain when we have no legal enactments to back us up and compel people to so keep their orchards that their neighbors will not suffer pecuniary loss from their laziness.

I would also like to know how poison ivy can be destroyed otherwise than by pulling it up and

if it is infectious at all seasons of the year or only at times.

GORDON J. SMITH,
Sec'y Paris Horticultural Society.

Mr. W. E. Wellington, Toronto, is president of the company introducing this tree protector, and will give our correspondent full information.

Can any one give any other method of destroying poison ivy except by digging it out by the roots?

Summer Pruning the Peach.

1260. SIR,—Enclosed you should find \$1 for my subscription to the Horticulturist. I appreciate it very much and find many helpful ideas in it. I have, however, failed to find in it what I want to know about summer pruning. Last spring I set out 500 peach trees, near Boston, on a worn out sandy farm. The trees were a long time on the way from the nursery and arrived in full bloom. The ground had been ploughed and 500 pounds muriate of potash and 250 pounds phosphoric acid harrowed in per acre. The trees were pruned to a switch two feet high. They made a good start—only ten died. I kept the ground clean by a weeder. In August I visited them and found a great many sprouts or suckers and a luxuriant growth in most of the trees. I immediately began to prune. I cut out weak suckers, the weakest of two or more shoots, leaving the stronger, all branches that were liable to cross or make a too thick head and the tops of all switches that had died, making clean cut surfaces. In other words I cut off fully twice as much as I left. It attracted a great deal of attention because I removed so much at that time of year and almost everyone who passed told me I was simply killing the trees. I shall be very thankful if you can find time to tell me your opinion of such radical summer surgery. The middle of August I sowed cow horn turnips and dwarf Essex rape to be ploughed under about the middle of November. The trees have continued to make a good growth as have the rape and turnips. What I fear is that the pruning will so weaken the trees that they will winter kill. Your opinions will be thankfully received and fully appreciated.

You will be pleased to know that I again took first prize for cranberries at the Halifax Exhibition. They were raised in Nova Scotia.

Very truly yours,

ELI E. JOSSLYN, M. D., Philadelphia, U. S.

Light pruning of fruit trees may be done at any time of the year; old Peter Pruning Knife used to say the best time was when the knife was sharp. Heavy and radical pruning is better done when the wood growth is in a dormant condition, or else the growth of the tree is liable to be too much checked.

The leaves of a tree, being its lungs, are active in the summer supplying the carbon necessary to the building up of the tissues, and the work is scarcely completed in August. A little later the vigor of the leaves is absorbed into the wood, and being of no further service, they gradually fall. Then such pruning is safer. Possibly, however, these trees, being of a vigorous habit, may overcome the severe treatment

given them and show little evil resultant.

Fruits for Name.

Mr. W. Jeffers Diamond, Belleville. The apple is Wealthy; the pear probably Tyson.

Mr. W. J. Clarke, (postoffice not given.) The pear marked B. is Vicar, a winter pear; that marked D. is too ripe for identification.

Open Letters.



FIG. 2181. A FOUR YEAR OLD SEEDLING PEACH GROWN BY MR. D. SARE, ROSE VILLA, LONDON, ONT.

Rainbow Peach.

DEAR SIR,—I am sending by this mail three photographs of peach grown by me. Our president, Mr. John Balkwill, advised me that when writing you with regard to the same I was not only to make photographs, but was to give you a history of the tree, so as you could give it a place in your valuable journal. My wife and I bought some peaches when at Mackinac Island in August, 1897. My wife put two or three of the stones in her trunk and on our return home I planted the same; the following spring they grew, one of them more

vigorous than the others. I gave this one particular attention as to pruning, etc., and have been rewarded this spring by seeing my tree well covered with bloom. The tree set about one hundred peaches, which were thinned out to about thirty, and I harvested about twenty very fine peaches, four of them weighing one pound six ounces and a half and each measured in diameter as near as possible three and a half inches; the rest of the peaches were all very fine but not quite so large as these. The fruit is very fleshy, luscious, and has a very small stone; the color is a golden yellow inside with pink markings, finer peaches we have never

eaten. Is this not a remarkable growth for a seedling to have such fine fruit considering I paid no attention to fertilizing? I called them the rainbow peaches because their colors were so magnificent and beautifully blended, from a straw color to a purple. You will see that I have sent you three photographs that I made. The first one is out of focus, after making it I cut the peach in half before developing the plate, so I made another negative placing the peach together again, and thus the mark you see in the photograph. As you will see by the photo of divided peach, it is quite freestone. Can you give me the name of the peach? I have never seen one like it before. The height of the tree is eleven feet. If meritorious kindly give space in your valuable journal and oblige,

London South.

DAVID SARE.

Benefit of Irrigation.

SIR,—I am reaping the benefit of last year's irrigation. I have sold a car load of apples, while in many of the orchards here there is only one or two barrels. Even in one corner of mine, which is too high to be watered, there are very few apples, while just below the same varieties are loaded.

Vandeleur.

J. J. GRAHAM.

Value of Our Reports.

SIR,—Would you kindly inform me as to the best way in which I can procure the bound reports of the Ontario Fruit Growers' Association. I am a Canadian, and among my other books I had a copy of a report of your Association, and living here in the centre of the Ohio Fruit Belt, has proved of great interest and use to myself and neighbors, and have been requested to write you to see if I could secure other copies, and if possible a set of them. I myself am a florist, and when in Canada worked with Messrs. Manton Bros., Eglinton, W. W. Gammage, of London, and A. H. Ewing, of Berlin. There are quite a number of fruit growers and men interested in horticulture gather in our potting shed and discuss horticulture, and your reports will do a great deal of good. Any trouble or expense you may go to I shall gladly pay. Trusting you will be able to lend me your assistance in the effort to enlighten and help along the fruit grower and horticulturist, and thanking you in advance, I am, Sir,

Yours very truly,

HARRY McNAUGHTON.

Farmers' Institutes.

SIR,—The valuable character of the work done by the Farmers' Institutes in raising the standard of agriculture, and encouraging improved methods of farming is generally recognized. The report of Superintendent Creelman for last year has just been issued by the Provincial Department of Agriculture, and contains a great deal of valuable matter, embodying the latest conclusions of specialists in every department of farm work. It comprises, in addition to a record of the progress of the movement, a number of addresses and papers

read at Institute meetings, with explanatory diagrams and illustrations.

Among the changes made in the system, with excellent results so far, is the transference of the lecture work before the Horticultural Societies heretofore carried on by the Ontario Fruit Growers' Association, to the Department of Farmers' Institutes. A number of the local bodies will in future hold their annual meetings at the nearest Fruit Experiment Station, where they will have the benefit of practical instruction in grafting, spraying, etc.

The subject of poultry has received much attention. Special poultry meetings have been held at which leading poultry specialists gave demonstrations as to the best methods of killing and dressing poultry in accordance with the requirements of the market. Among the speakers at these gatherings were W. R. Graham, Prof. A. G. Gilbert, J. E. Meyer and G. R. Cottrell, well-known as poultry experts.

A notable feature of the year is the striking increase in the number of Women's Institutes, of which there are now 32 in operation, some of them having a membership of over one hundred.

As in previous years excursions have been run to the Agricultural College, giving many thousand farmers an opportunity to become familiar with the most modern process of scientific agriculture.

Action was also taken to promote the attendance at the Provincial Winter Fair, with the result that 1518 members, representing 24 Institutes, were in attendance. A special program was provided for Institute workers, and addresses delivered by a large number of prominent agriculturists and instructors.

Seed Fairs have been established in connection with four Institutes, viz., East York, South Wellington, West Wellington, and South Gray. These are held annually in March, and the farmers bring their best samples of grain for sale or exchange.

A leading topic at Institute meetings was that of cold storage, regarding which a good deal of valuable information has been furnished. During the meeting of the Experimental Union the delegates visited the cold storage plant at the Agricultural College and received an insight into the process of refrigeration.

An important step in the interest of the work was taken by the appointment of Superintendent Creelman to the position of assistant secretary and editor of the Association of Canadian Fairs and Exhibitions, which will give additional opportunity for advancing the movement.

Very substantial progress was made during the year covered by the report. Later information gives the total membership of the Farmers' Institutes in June last as 20,389, as compared with 18,058 for the previous year. The banner local Institute is that of Halton with a membership of 743.

China can be mended with water glass and powdered asbestos. Mix the asbestos with the water glass until like a thick cream. Cover the broken edges with this and press together, fastening firmly. The article should stand several days to allow the cement to harden.—November Ladies' Home Journal.

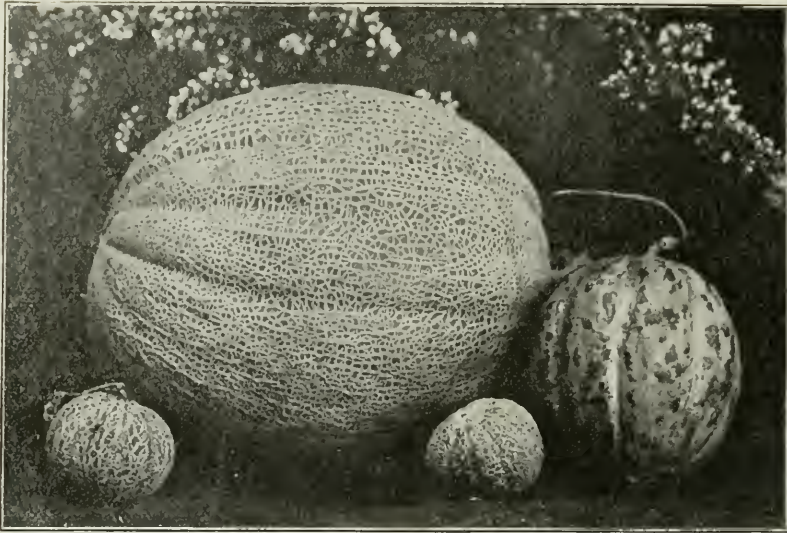


FIG. 2182. MUSK MELON.

Our Affiliated Societies.

TORONTO JUNCTION.—An interesting meeting of the Toronto Junction Horticultural Society was held on Friday evening, the 20th inst., in the High School, upon which occasion Mr. J. B. Spurr gave a paper on "Melons," practically illustrated by about forty specimens, embracing several different varieties. In the collection were watermelons with red seeds, black seeds and white seeds, red flesh, pink flesh and yellow flesh, golden rind, black rind, and rind with dark and light stripes, also musk-melons and cantaloupes in great variety, some netted and others with smooth skin, some red flesh, others with green flesh; oval melons, round melons, melons with ribs, melons without ribs, button melons and long melons like huge bananas. Mr. F. C. Colbeck, president of the society, occupied the chair, and around the long table were a number of interested listeners. Mr. Spurr's lecture dealt first with the early history of the melon, and traced the development of the netted musk melon from the rough and warty exterior of the cantaloupe, the first form of melon introduced into Europe, so named from the Castle of Cantaloupe in southern Italy, in the gardens around which the melons were first grown from seed introduced from Armenia. The lecturer had with him melons grown from seed which had been imported from Syria, Germany, England, the Transvaal, California and many American and Canadian localities. The largest watermelon grown was the Australian watermelon, which matured in the latter part of August and weighed $23\frac{3}{4}$ lbs. Only one hill of this variety was planted, none of the fruits were thinned out and the vine matured nine large fruits. The Australian melon is a red seeded variety with

deep red flesh and was pronounced the best flavored by those who were present. It is not claimed for it that it grows to a large size.

The Cuban Queen, which sometimes grows to a weight of 90 lbs., did not go more than 22 lbs. This watermelon is late in maturing and not especially adapted to the Canadian climate, although of excellent quality where sufficient heat is at command to mature it properly.

Another large watermelon did not succeed better than some of the common watermelons grown from seed purchased in the stores in the previous summer. About 22 lbs. was as large as this melon grew. Ice Cream, Dixie, Fair Oaks hybrid, Golden Rind and a white seeded variety from Syria were also grown, also Green and Gold, a very sweet melon, rather under-size, with bright yellow flesh and yellow seeds.

Among musk melons few of great size were exhibited. All the large Montreal Market, Pride of Alaska and Perfection melons had been stolen out of the garden a short time previously. Of these the Montreal Market would probably have been the largest; but the Perfection melon, seed of which was imported from the Transvaal, might have equalled it. The Perfection melon is illustrated in the photogravure accompanying this article and is the large netted melon so conspicuous in the picture. This melon tipped the scales at $17\frac{3}{4}$ lbs. To the right is a cantaloupe, Cantaloupe Von Trevana, to illustrate the difference between a cantaloupe and a melon, and on the table are two mature melons of the Jenny Lind variety to contrast with the large netted one. In the background is a spray of the wild aster, *Aster Multiflora*, which

brightens our autumnal landscape by its delicate sprays of little starry flowers. In High Park, near Toronto, during the latter part of September, this flower mingles with many other varieties of asters, and the little bye-paths appear to be hemmed in by natural hedges of it, like spirea in the springtime.

A feature of the lecture was that portion of it which dealt with the physiology of the vine, the nitrates, and the effect of watering and liquid fertilizers upon the flavor of the fruit. Mr. Spurr's argument in short was, that melons planted in a sunny location transpired through the leaves to a greater extent than those shaded; that the function of the leaf was to extract carbon from the air and deposit it in the stem; that the greater transportation caused a greater deposit of carbon and the more carbon in the stem, the more material there would be for the fruits to draw upon when nearing maturity. To water the vines to excess when ripening was to dilute the carbon in the stem, encourage new growth of the vine and lessen the quality of the fruit in point of flavor.

Some of the musk melon varieties exhibited and sampled were: The Melrose, Exquisite, Read's Scarlet, Nectar of Angels, Golden Eagle, The Carmes, Hackensack, Banana melon, 23 $\frac{3}{4}$ inch in length by 14 inches in circumference; Osage, Nettle Nutmeg, a green flesh melon from Syria, very unique; Cantaloupe Von Trevana, Jenny Lind and Perfection.

DESERONTO.—The fifth annual flower show of the Deseronto Horticultural Society was held in Union Hall, on Wednesday, Oct. 2nd, and it was a huge success. The judge, J. D. Collip, of Belleville, expressed unstinted admiration of the magnificent display and said it was doubtful if any of the towns

or cities for many miles around Deseronto could equal it. The hall, which has been repainted and decorated, made a good setting for the magnificent display of plants, flowers, fruit and vegetables, which were arranged with exquisitely good taste and effectiveness. The illumination in the evening added greatly to the beauty of the exhibition. The music of the Deseronto Citizens Band and the good things provided at the ice cream stand, which was under the able management of the charming president, contributed largely to the enjoyment of the evening. The fine bank of ferns which faced the main entrance was much admired and the collection of palms to the left contained some splendid specimens of rare and beautiful plants. The two collections of greenhouse plants were worthy of careful study and they received it. The arrangement of the plants in both collections showed that the gardeners were skillful and artistic florists.

SIMCOE.—The annual exhibit of flowers and vegetables took place in the Town Hall on Thursday, October 3rd. A beautiful display of potted plants and flowers were shown by the ladies of the society and others. The ladies seem to take more interest in the exhibit than the men. The vegetables and fruit were not so good. Mr. Groff, of Simcoe, came down in the evening. No one is better known than the genial President of the Simcoe Horticultural Society. That gentleman gave an excellent address on the Buffalo Exposition, chiefly in connection with horticultural and floricultural exhibits there. Le Lovering contributed largely to that exhibition, and won many prizes.

The hall was crowded, and a very pleasant and instructive evening was spent.



FIG. 2183. A HORTICULTURAL AND FARMERS' INSTITUTE MEETING AT SHERRINGTON'S FRUIT STATION, AT WALKERTON.

OUR BOOK TABLE.

APPLE CULTURE, and distinct lists of apples suitable for Ontario and Quebec, with descriptions of varieties, by W. T. Macoun, horticulturist, Central Experimental Farm, Ottawa.

This is one of the most practical and generally popular of the bulletins sent out by the Experimental Farms, and since it may be had by simply writing a post card to Prof. Macoun, surely no apple grower in Ontario will lose the opportunity. The pamphlet consists of 75 pages, and deals with Apple Culture, the Nursery, the Orchard, Varieties, Pollination, Pruning, Cover Crops, Renovating Orchards, Packing, Marketing, etc, etc.

FRUIT CULTURE AND FORESTRY is the subject matter of Prof. Macoun's evidence before the Select Standing Committee on Agriculture for 1901, and is certainly of much value to fruit men. The system of questions and answers adopted, brings out a large number of interesting particulars regarding the various fruits.

KINDERGARTEN OF LANDSCAPE GARDENING.—“What is a Kindergarten?” is written as the first part of a series “Park and Pavement.” It is the forerunner of a new departure in landscape gardening where the association of plants with plants, and plants with mankind will receive the foremost consideration. Under Kindergarten I compass a spot as Froebel would have selected and equipped in extending his indoor kindergarten.

The book contains nothing borrowed from cover to cover, and is as valuable for the teacher as for the house builder, for the student of child character as for the philanthropist.

This book is by George Hansen, landscape architect, Berkeley, California, and may be purchased for 75 cents from this office.

EXPORT OF CHEESE AND APPLES.—Evidence of J. W. Robertson, Commissioner of Agriculture and Dairying before a select standing Committee on Agricultural, 1901.

This pamphlet contains much information relating to the apple trade in England, and the best methods of storing, handling, and exporting apples.

REPORT OF THE DIRECTOR, Wm. Saunders L. L. D., of the Central Experimental Farm Ottawa.

This is Dr. Saunders' fourteenth annual report, and shows the result of very much careful experimental work with such farm crops as wheat, oats, barley, peas, potatoes, etc.

It concludes with a most interesting account of the Doctor's visit to Great Britain and France.

THE MACMILLAN COMPANY, who were the fortunate publishers of *Elizabeth and her German Garden*, will issue another anonymous work shortly. This time of American out-door life that bids fair, so say those who have read it, to rival Elizabeth's book. *The Garden of a Commuter's Wife—The record of a garden that began in Autumn*, will appear in time for the holiday season. It is now in press.

Windsor Salt

Purest and Best for Table and Dairy
No adulteration. Never cakes.

Seton-Thompson and the Bluejay.

“The author of ‘Wild Animals I Have Known’ has a gleeful way of wrecking conventionality,” writes Myra Emmons, who describes a day in the woods with Ernest Seton-Thompson, in *The Ladies' Home Journal* for September, “with some unexpected, boyish, utterly frank, natural and human word, look or rank. When we had finished luncheon on Ab's Rock he went to see how the painters were progressing on his new house.

“‘Those window frames must be a light peacock blue on the outside,’ he instructed them. The head painter demurred. He could not mix such a color.

“‘If I mix it you can copy it, can't you?’ asked the naturalist.

“‘Oh, yes.’

“‘Then bring your colors.’

“In a few minutes he was blending yellow, blue and green in a masterly way and trying the effect on a piece of board. Suddenly he looked up, laughed and went on painting.

“‘Did you hear the bluejay?’ he asked. ‘As I hit the right shade he said, ‘Bl-loo! Bl-loo! That's it! That's it!’”

The Trumpet Creeper

The finest creeping vine for porch or screen, with its fine large velvety shaped flowers, too little known in Canada.

Fine Plants sent postpaid for 25 cents each, or 6 for \$1.00, express prepaid; extra large at 50 cents, prepaid.

Address,

P. BLANCHARD,
GRIMSBY.

How Sankey Composes His Hymns.

As he sings, so Mr. Sankey composes the tunes for his hymns inspired by the feeling of the moment. Often he will stop suddenly in the midst of reading or talking to jot down on the ever-ready music-paper some bit of melody that comes to him. These jottings he gathers together and develops at his leisure, sometimes fitting them to poems preserved in his scrapbook, sometimes getting Fannie Crosby or another hymn-writer to write words especially for his music. He once said: “Good words will soon attract a good tune.” He believes in melody always over harmony as a power to move people.—November Ladies' Home Journal.

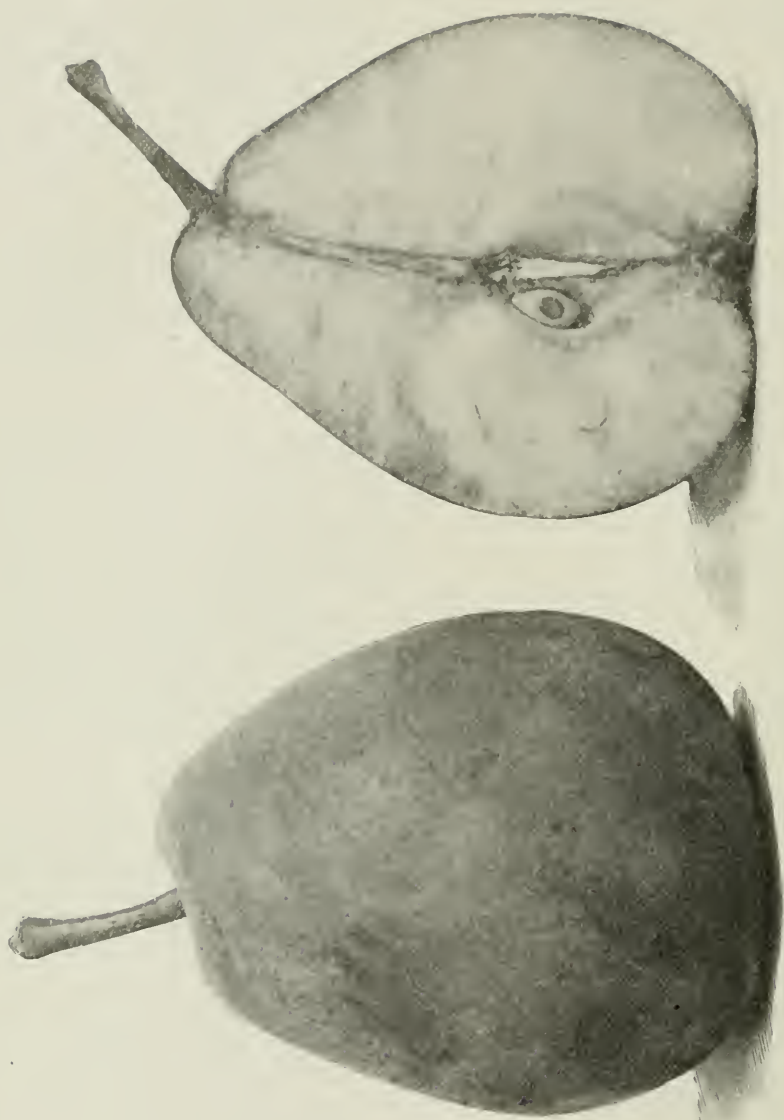


FIG. 2184. BEURRE HARDY.

THE CANADIAN HORTICULTURIST

Vol 24 1901 No 12

* * DECEMBER * *

BEURRE HARDY.

A good variety for the month of October, both for home use and market. The fruit is uniform in size, and the skin is covered with a bright clear russet.

ORIGIN: Boulogna, France; dedicated to M. Hardy, director of the gardens of Luxembourg, Paris.

TREE: fairly vigorous and productive, and forms a fine symmetrical form, especially when grown on the quince.

FRUIT: average size, 2 inches long by $2\frac{1}{2}$ inches broad; form, obovate, obtuse, pyriform, of smooth,

regular outline; skin yellowish green, with numerous russet dots and covered with light brown russet, especially at the ends; stem, about an inch in length, stout, with a fold at the base, and inserted obliquely in a small depression; calyx large, open, in a shallow basin; flesh, white, fine grained, buttery, juicy, with rich aromatic flavor.

SEASON: October.

QUALITY: dessert, very good; cooking, good.

VALUE: home market, good; not exported as yet from Ontario, but exported with success from California to Great Britain.

COMMERCIAL PEAR GROWING.

DURING the last twenty-five years a complete revolution has come over commercial pear growing. In the year 1869 Mr. P. T. Quinn, Newark, N. J., published a book entitled "Pear Culture for Profit," which the writer read in 1871, and was thereby induced to plant freely of all varieties, with anticipations of a wonderful bonanza.

In speaking of the profits he said: "The subjoined list of the prices per barrel for which pears were sold in the New York market in 1866, '67, '68, I obtained from a responsible fruit merchant, who kindly placed his sales books within reach; thus enabling me to get accurate data on this important

point. These figures also show the comparative market value of the leading varieties of pears for the last three years. It will be observed that the prices for 1868 averaged higher than the two preceding years. This was, in a measure, owing to a partial failure, both of the peach and pear crops, last season in the eastern states. Where there are three prices per barrel, opposite one variety, such as \$10 to \$16 and \$25, the first two apply to the main crop, and the third to choice fruit of extra size, or else to a portion held back, until the chief supply was out of the market.

"In looking over the sales of pears in the New York market, I find the prices for

summer varieties are affected by the peach crop, ranging lower when peaches are abundant, than they do if peaches are scarce and high. This of course will not influence fall pears, and there is consequently less fluctuation in the prices of the latter varieties.

KINDS.	1866			1867			1868		
	PER BBL.	PER BBL.	PER BBL.	PER BBL.	PER BBL.	PER BBL.	PER BBL.	PER BBL.	
Summer Belle.....	6	8		5	9		8	12	
Bartlett.....	10	16	25	12	18	30	18	25	45
Duchess d'Angouleme.....	12	18		14	20	25	15	20	25
Beurre Bosc.....	14	18		15	20		18	20	30
Beurre Clairgeau..	16	20		18	20	25	20	25	30
Beurre Diel.....	22	16		14	16	20	16	18	20
Flemish Beauty....	10	14		12	16		14	16	20
Louise Bonne de Jersey.....	12	14	20	14	16	20	14	18	20
Virgalieu.....	12	18	25	14	18	25	14	20	30
Seckel.....	14	16	25	16	18	30	16	20	40
Lawrence.....	14	18		16	22				
Pound.....	6	10		8	10		10	12	20
Vicar of Winkfield.	8	14		10	14	18	10	16	20

"This list fully demonstrates to the fruit grower this important fact, that the varieties most extensively cultivated have steadily advanced in price. In 1858 we sold Duchess for \$1.50 per basket, or \$7.50 per barrel. Last year we sold them at \$6 per basket, or \$30 per barrel. In 1867 the same quality of fruit sold readily at \$20 per barrel. That year the crop was an average one, except in a few localities.

"When a young orchard comes into bearing—say five years from the time of planting—the trees will produce from \$50 to \$75 per acre. The trees at this stage require strict attention; some may be inclined to overbear, others to make too much wood. From the former, a part of the fruit set should be removed before it attains the size of a walnut. If too much fruit is permitted to remain on young trees, it will take several years of careful management to repay the damage done. When they are making too much wood, and they are not inclined to produce fruit, a judicious method of summer pruning should be instituted to change the habits of the tree.

"When the trees are ten years old the receipts should not be less than \$400 per acre, and there will be a steady increase in the returns, under proper management, until the trees have been planted fifteen or sixteen years, when the receipts will be at least from \$600 to \$800 per acre, and in many cases much larger. When choice pears command from \$20 to \$30 per barrel, as they have for the past three or four years, and this with a brisk market, it affords encouragement enough to induce horticulturists to make every effort to produce the best specimens of the varieties that the market demands."

Could anything be more misleading to an amateur or young fruit grower? And yet this book is still offered for sale as a book of instruction for pear growers! At the same time, anyone who is experienced knows that nowadays Bartletts do not bring an average of over \$4 per barrel, and very often only \$2; and that Seckels, which are quoted as high as \$40 a barrel, can hardly find buyers in Canada, owing to their small size.

Several of the varieties named in the list we would now condemn entirely as not worth the space they occupy in the orchard; for example, Summer Belle, Virgalieu, Pound and Vicar.

The day is past when a pear will sell just because it is a pear, and, instead, the day has come when buyers want only the largest and finest pear of its season. These, if packed as they should be to certain grades and sizes, will sell in any market, whether home or foreign, and sometimes a hungry market will pay large prices. For example, last year Duchess brought \$2.50 per half bushel case in Glasgow, which in Canada would not bring over 50 cents. This year they will not bring more than half that money in England, while our own home markets will pay \$1, and the grower will get more money out of the latter than the former market.

The Bartlett will always be our best sum-


mer pear ; no pear can take its place while it is in the market, but we doubt the wisdom of planting it for export. We have tried several shipments of it every year for five years past, and failure has resulted more often than success. Under ordinary conditions failure is certain ; but, if a low temperature can be guaranteed from start to finish, success is probable or almost certain. Last September, for example, we forwarded 1120 cases of Bartletts to Glasgow for our shipping company, and the loss, considering our markets here, was nearly \$1 a case, and all without government guarantee. The

trouble seems to have been a defective link in the cold storage chain.

But when we forwarded firmer varieties, such as Duchess, Anjou, Louise, Bosc or Clairgeau, success and satisfactory returns usually followed. Such varieties as these, therefore, should form the principal part of all large commercial orchards.

A neighbor, Mr. D. J. McKinnon, has shown his confidence in commercial pear growing by planting out 9000 trees of such varieties, and he is maintaining them at a large expense of cultivation, with an assurance that he is making a safe investment.

MARKETING PEARS.

 THE methods used in marketing pears vary so greatly in different parts of the country that it would be impossible to describe them all in detail here. The season of the year, whether summer or winter, the distance from market, the purpose for which the fruit is intended, as well as many other conditions peculiar to the markets of different cities, all have their effect in determining the methods used by the successful pear grower. The California grower packs his pears, mostly wrapped in paper, in neatly constructed boxes, shipping them in carload lots to New York, Boston, or other eastern cities, or perhaps to London. The fruit is sorted and packed directly after it is picked from the trees, and is expected to ripen in transit and open up in prime condition for eating 3,000 miles or more from the orchard. The grower of the Le Conte and Kieffer pear in the Gulf States also packs his fruit in wholesale methods, using barrels or boxes, and ships it in car lots or sometimes even in train lots, to northern cities. On the other hand, the

Eastern gardener may ripen up a few bushels in his house and deliver them direct to his retail or wholesale customers. Large quantities of pears are consumed by the canneries, both on the Pacific Coast and in the Eastern States. The large crop of Kieffers, which is now getting to be such an important factor in the pear market of Eastern cities during the autumn months, is very largely taken up by the canneries, especially in Baltimore, and the trade in canned Kieffer pears is very rapidly increasing. For the canning trade the pears are almost always shipped in baskets of the type of the Maryland and Delaware peach basket, and the baskets are generally returned to the grower to be used over and over again. The price is often as low as 15 to 20 cents a half-bushel basket, and 25 to 30 cents is considered a good price. At this price Kieffer pear growing is immensely profitable. This can be readily understood when we realize that the yield is often more than 1,000 baskets per acre.—*Year Book of Department of Agriculture.*



FIG. 2185 APPROACH TO THE DIRECTOR'S HOUSE, CENTRAL EXPERIMENTAL FARM, OTTAWA.
ALL THE TREES AND SHRUBS HAVE BEEN PLANTED SINCE 1889.

CENTRAL EXPERIMENTAL FARM NOTES—XIX.

THE weather during the past month was, on the whole, fine and mild and very favorable for fall work.

It became considerably colder, however, on November 10th, and on the 14th, there were four inches of snow fell. On the same day last year snow fell and remained.

At this time of the year plants have to be mulched to protect them during the winter, and while in some seasons when snow comes early and remains, there may not be much injury if this is neglected, the best practice is to mulch annually. At the Experimental Farm the bulbs, herbaceous perennials, grapes and strawberries are protected in this way. The bulbs and perennials are covered with a light dressing of long man-

ure; the strawberries, with a light coat of oat straw; and the grape vines are bent down and covered with soil. When this precaution is taken there is very rarely much injury from winter. The mulch or straw and manure prevents, to a large extent, the thawing and freezing of the ground, which often does so much damage to herbaceous plants.

Comparatively little is known of the Arboretum and Botanic Garden at the Central Experimental Farm, except by those who have visited Ottawa and seen it. When the farm was purchased, in 1886, sixty-five acres were selected for this purpose, and planting was begun in the autumn of 1889. Most of the land is high, and a fine view is obtained of the city of Ottawa,

on the north and east, while to the south there is a pleasing view across country with glimpses of the Rideau river in the distance. The Arboretum is bounded on one side by the Rideau canal, which at this point has marshy banks which take away much of the sameness which the canal would otherwise have, and also afford a splendid opportunity for experiments with aquatics, though little has yet been done in this direction.

Twelve years ago, when the first planting was made, comparatively little was known of the hardiness of a large number of trees, shrubs and herbaceous plants, as the number of species and varieties found in gardens was limited, but now more than 3100 kinds of trees and shrubs, and over 1300 perennials have been tested and notes taken on all of them. The number of individual specimens of trees and shrubs living in the Arboretum at the present time is more than 4200. This large collection has been obtained from many sources. From donations of seeds from Botanic gardens throughout the world a large number of species and varieties have been grown, the Royal Gardens, Kew, supplying many of them. The catalogues of nurserymen in America, Europe and Asia have been searched to increase the collection until it is now difficult to obtain additional species of many genera.

The trees, shrubs and herbaceous plants are increasing in interest every season as they get older and are better established, and throughout the year there is always something to instruct the visitor.

Descriptive lists of hardy trees, shrubs and herbaceous perennials which have been found the most ornamental have been published, and have proven very useful to persons desiring to plant their grounds. A catalogue has also been published of all the trees and shrubs tested in the Arboretum up to the year 1899, and notes given as to

their hardiness, but in this list no descriptions are given.

To one who had seen the Experimental Farm in 1887, and who had not visited it again until 1901, the change in what are known as the ornamental grounds must seem wonderful. The planning of these grounds has, since the Experimental Farms were established, been under the charge of Dr. Wm. Saunders. By his energy, a large proportion of the planting was done during the first few years of the Farm's existence and as a result the effects are much better than they would have been had the main planting covered a longer period of time. The road from the main entrance of the Farm to the office building which, when the work was begun had nothing along its margins to vary the landscape, save the fields of grain, is now at all seasons of the year brightened by the clumps of trees and shrubs which are grouped and scattered along its borders. The margins of the roads leading to the other buildings are also planted in like manner, while intervening areas are broken by lawns, flower borders, and flower beds. Some parts of the lawns now look quite park like where such trees as pine, spruce, birch, elm, maple, larch and other quick growing sorts have been distributed singly. Many of these are now more than twenty-five feet in height, and are excellent samples of the rapidity with which such trees grow when properly cared for.

Whoever doubts the possibility of making a complete change in the home surroundings by the planting of trees and shrubs, while one is young enough to enjoy the effects produced by them, should visit the Experimental Farm and see what has been accomplished in fourteen years.

W. T. MACOUN,

Horticulturist,
Central Experimental Farm.

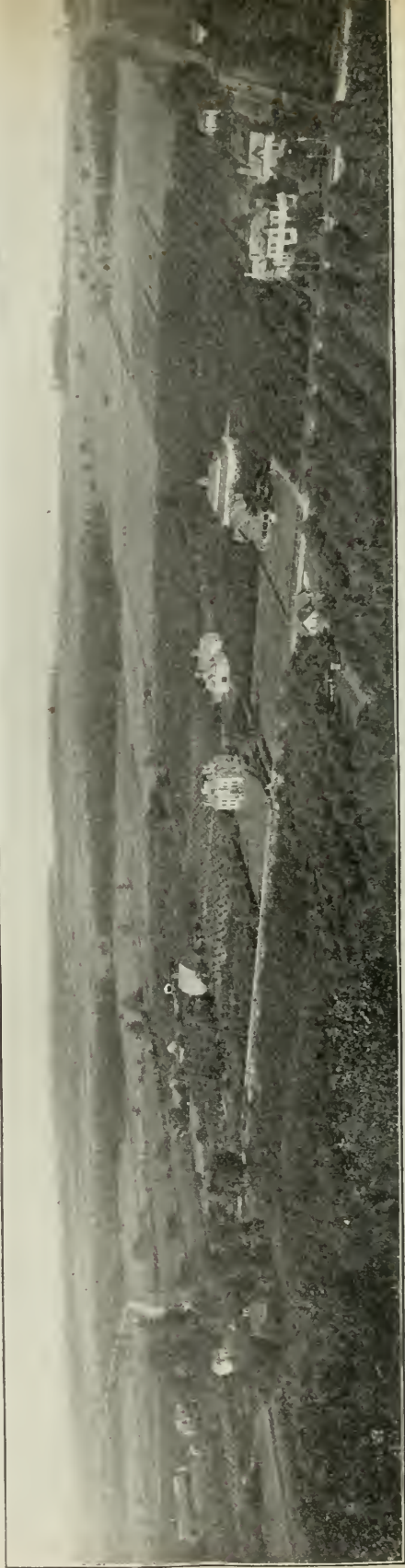
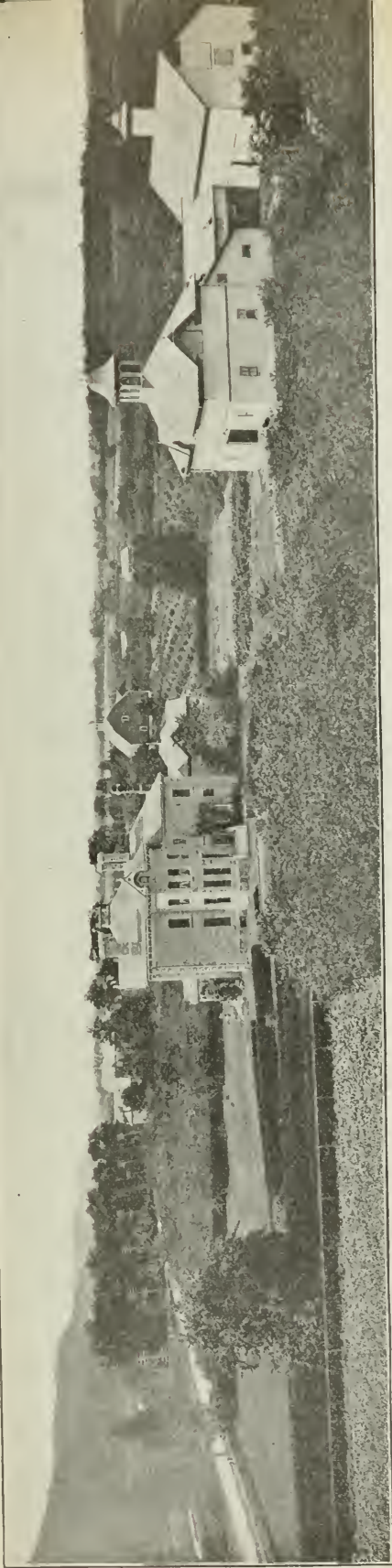


FIG. 2486-7. VIEWS NEAR FRUITLAND.

VISIT TO FRUITLAND.

THE small district now known as Fruitland, comprising but a small portion of the mountain valley between Hamilton and Grimsby is well named. The name should be applied to the whole section from Hamilton to the Niagara river and it would be well applied and full of significance. It would be no reflection on the ancient land of Canaan to say that it was neither more fair nor fruitful than the fruitland of Ontario, stretching between the cities of Hamilton and St. Catharines, and including all the Niagara district. And in its tillage this picturesque and fruitful domain is as yet but few stages beyond its primitive beginnings in the husbandry of the vineyard, the orchard and the peach grove. What its future possibilities are he would be a bold prophet who would attempt to predict. That future depends largely upon human agency and the energy and enterprise of the favored population whose lot may be cast within its pleasant and advantageous environments.

In my recent visit to this fair and fruitful district I found much to gratify the occasional visitor. And only the occasional visitor can note at first sight how rapid has been the progress in some localities and on some farms; yet observe with equal readiness that the laggard is still a dweller in the land of such advantages. It would be safe to say, however, that the unfortunate son of unthrift still to be seen here and there is not a reader of the Horticulturist, and has not yet felt the impulses of the progress and the civilization about him. With the natural wealth of soil beneath his feet and all the favorable conditions surrounding him, the laggard will have to move on, or the wave of progress, and the competition it brings with it, will some day strike him and he will either have to mount it or smother out, and give way to the man with an idea and the energy to turn it into thrift.

But these observations are only speculative and too abstract for the practical character of the Horticulturist, so I will get down to more matter-of-fact things. The greatest changes that I noticed in my recent visit to Fruitland, in the way of increased production, were in the lines of pear and plum culture. The most pleasing sight that I saw was a Kieffer pear orchard of 800 trees on the farm of Mr. Murray Pettit. These trees were about six years old, were handsomely loaded, and if the quality of the pear is at all commensurate with the bearing qualities and handsome appearance of the orchard the Kieffer has a promising future as a fortune-maker for its grower. Mr. Pettit was intending to ship the product of this orchard to the British market in cold storage, and since my visit I believe has done so. The method of cultivation followed by Mr. Pettit was to keep some green crop constantly growing and turning it under. The ground was scrupulously clean and ready for a fall seeding during my visit.

On one of the mountain ledges on Mr. W. M. Orr's farm I saw another orchard of Kieffers two years younger than Mr. Pettit's, which presented a very attractive sight. The trees being younger were not so heavily laden, and stood more erect, bearing their fruit more in the centre, and as a natural consequence the pears were somewhat larger in size. It was from this orchard that the finest Kieffers seen at the Pan-American were picked. On a ledge still higher up the mountain side Mr. Orr has a young peach orchard planted, which will give on account of itself in a couple of years more. This farm I think is one of the most attractive in the Fruitland district owing to its many mountain-side ledges on each of which Mr. Orr has a large plum orchard in full bearing, besides his several pear orchards. Whatever went off this farm to the Pan-American, and whatever goes off it to market, whether it

be peaches, grapes or plums from the natural level, or pears and plums from the higher levels, everything in sample and quality is first-class. Mr. Orr is a believer in thorough cultivation, and in giving all there is in the soil to the fruit crop. He also follows a thorough system of spraying.

What attracted my attention much on this visit, as on previous ones, was the barrenness of the apple orchards. And I wonder why so many progressive fruit-growers still encumber their valuable grounds with apple trees that I have not seen a paying crop upon in ten years. On a farm so generally fruitful, and so well cultivated as is Mr. M. Pettit's, I observed an orchard of thrifty Baldwin and Greening trees with no fruit on them. Up in this county of Perth we can grow more Baldwins on six trees than I have ever seen on Mr. Pettit's whole six acres. And what is true of Mr. Pettit's apple orchard is true of every orchard I saw from Grimsby to Hamilton. The trees seem to have so entwined themselves about the hearts, and grown into the memories of their owners that the latter cannot bring their

resolution into sufficient obedience to divine injunction to hew them down and cast them into the fire. Mr. Pettit, like many of his neighbors, is wasting much valuable ground in sparing those unprofitable apple trees.

I found considerable interest in looking through Mr. Pettit's experimental plot of grape vines, which he keeps in fine order. But the pleasure increases as one takes a ramble through his extensive Mountain Valley vineyard from which he gathered a clean and heavy crop this year.

I regretted very much not being able, for lack of time, to get down as far as Maplehurst farm, the home of our editor and secretary. I noticed much fine fruit from his premises at the Pan-American, and understood at the time of my visit to Fruitland that he was engaged in preparing an experimental shipment of pears to the old country market. I also noted in passing the improvements about his attractive home, which is now a spot of beauty and a delight to the eye of the passer-by and must be a joy unspeakable to the heart of the indweller.

T. H. RACE.

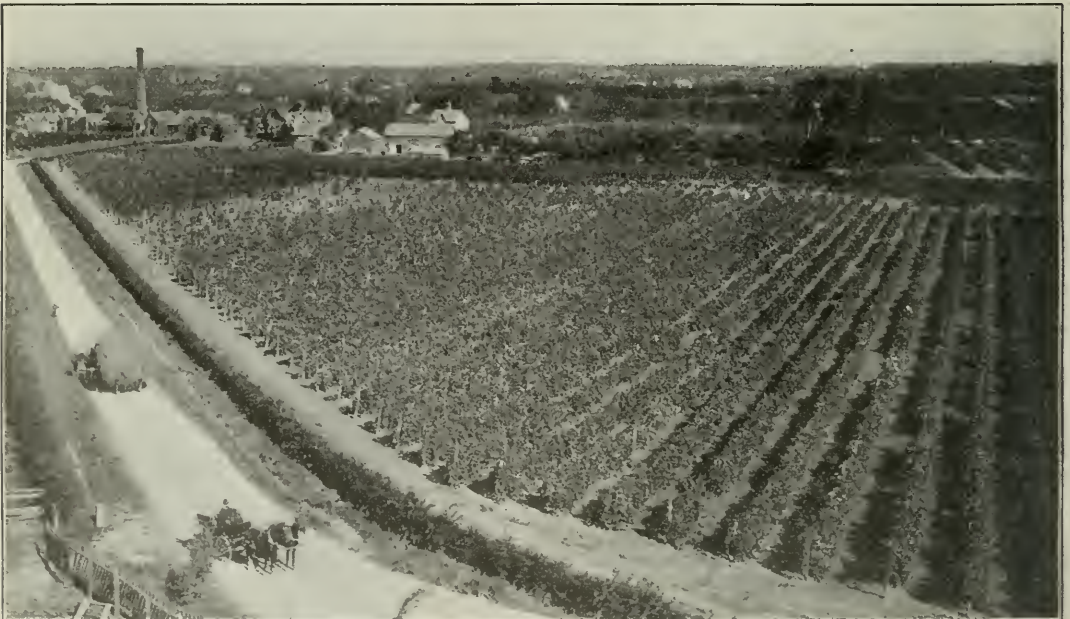


FIG. 2188. A VINEYARD AT STONEY CREEK, NEAR FRUITLAND.

PAN-AMERICAN HORTICULTURE—VI.

NINETEEN GOLD MEDALS FOR ONTARIO.

SIR:—I have put up four cases of apples from our exhibit at the Pan American for exhibition at your Cobourg meeting. They consist of a large number of varieties, some new and some old, but good samples. I have also secured a few York Imperial and Newton Pippins from Virginia. I have a list of the number and specimens of each variety, in each case and will come down and help you sort them out and place them on the tables. We will also have some year old apples from cold storage sent down.

The awards were officially passed to-night and I enclose you a copy.

St. Catharines.

ROBT. THOMPSON.

The following is the

LIST OF AWARDS.

GOLD MEDALS.

Province of Ontario, display of apples of 1900, June 7.

Province of Ontario, display of apples of 1900, October 12.

Province of Ontario, display of eight cases different varieties of apples as put up for export and held until August 17th in storage, opened up 97 per cent, good.

Province of Ontario, display of 163 varieties of apples of 1901.

Province of Ontario, display of 33 varieties of Strawberries of 1901.

Province of Ontario, display of 76 varieties of plums of 1901.

Province of Ontario, display of 71 varieties of peaches of 1901.

Province of Ontario, display of 68 varieties of pears of 1901.

Province of Ontario, display of out-door grapes, 117 varieties.

Province of Ontario, display of house-grown grapes.

Province of Ontario, general display of fruits of superior quality and excellence.

Brennan & Son, Grimsby, display of peaches.

Dempsey, W. H. Trenton, display of apples

Orr & Son, Fruitland, fruits of superior excellence.

Pay, A., St. Catharines, display of fruits of superior excellence.

Railton, A., Fonthill, display of fruits of superior excellence.

Stewart, F. G., Homer, display of grapes of superior excellence.

Titterington, James, St. Catharines, display of fruits of superior excellence.

Woolverton, L., Grimsby, continuous display of fruits.

SILVER MEDALS.

Armstrong, Wm., Queenston.

Boyt, Geo., St. Catharines, for Asparagus.

Beattie, Thos., St. Catharines.

Bunting, Gordon, St. Catharines.

Burlington Horticultural Society.

Central Experimental Farm, Ottawa.

Collinson, S. & W. H., St. Davids.

Dempsey, H., Rednersville.

Freel Bros., Niagara.

Griffis, Alfred, St. Catharines.

Graham, R. J., Belleville.

Huggard, R. L., Whitby.

Merritt, T. R., St. Catharines.

Pay, A., St. Catharines, for asparagus.

Peck, Francis, Albany.

Purdy, C. F., St. Catharines.

Pettit, M., Winona.

Peer, Geo. N., Burlington.

Rickard, Wm., Newcastle.

Read, M. A., Port Dalhousie.

Read, M. A., Port Dalhousie, seedling grape, Lincoln.

Secord, C. E., St. Catharines.

Shepherd & Son, Queenston.

Stephens, C. L., Orillia.

Smith, A. M., St. Catharines.

Tweedle, Jos., Fruitland.

Thompson, Robert & Son, St. Catharines.

Ontario Experimental Stations.

Province in Ontario—Fruits in solution

BRONZE MEDALS.

Adams, E. P., Queenston.

Bradley, H. C., Queenston.

Bartlett, John, Oshawa.

Currie, Robert, Niagara.

Culp, S. M., Beamsville.

Cockburn, J. P., Gravenhurst.

Chaplin, W. H., Newcastle.

Dunn, Joseph, St. Davids.

Fallis, R., Harriston.

Fisher, C. E., Queenston.

Graham, R. J., Belleville.

Horning, Geo., Burlington.

Hagaman, T. C., Oakville.

Hambley, J. E., Cedar Springs.

Hilborn, W. W., Leamington.

Hopkins, W. V., Burlington.

Honsberger, C. M., Jordan.

Jackson, W. K., Niagara.

Kivell, T. H., Bridgeburg.

Leckie, J. A., Clarkson.

Law, Geo., Niagara Falls.

Lowrey, Chas., Queenston.

McGregor, J., Whitby.

Morden, E., Niagara Falls.

Morris, Stone & Wellington, Fonthill.

McLaren, J., St. Catharines.

Oysier & Son, Bloomfield.

Pearl, Edwin, Burlington.

Pearl, A. W., Burlington.

Patterson, J. A., St. Catharines.

Randall, J. D. W., Niagara.

Scott, John, St. Catharines.

Sexton, John, St. Catharines.

Shepherd, R. W., Que. Como.

Vanduzer & Griffith, Grimsby.
 Caston, Geo. C., Craighurst, fruits in solution.
 Hutt, Prof., O. A. C., Guelph, fruits in solution.
 Woolverton, L., Grimsby, fruits in solution.
 For Horticultural Literature, (Province of Ontario) Ontario Fruit Growers' Association.

HONORABLE MENTIONS.

Allan, W. J., Homer.
 Amburst, H. J., Pelham.
 Arnold, E. & Son, Queenston.
 Anderson, Dr. H. L., Niagara.
 Ashbaugh, C. D., Mohawk.
 Andrews, Rev., Beamsville.
 Adams, E. E., Leamington.
 Brown Bros., Fruitland.
 Brown, H. J. & Son, Niagara.
 Bruner, John, Rathbun.
 Bruner, Thos., Kingsville.
 Bell, Jas., Whitby.
 Backus, M., Chatham.
 Black, Geo., St. David's.
 Bennet, G. H., Walkerville.
 Biggar, G. C., Niagara Falls.
 Bromley, J. E., St. Catharines.
 Bufton, C., Niagara.
 Clement, John, Brantford.
 Campbell, Chas., Queenston.
 Coatsworth, G. M., Kingsville.
 Collins, H. E., St. Catharines.
 Cameron, R., Niagara Falls South.
 Carty, James, St. Catharines.
 Craize, Jas., Niagara.
 Dunn, L., St. Catharines.
 Ellis Bros., Stamford.
 Ellis, Wm., St. Davids.
 Freeman, W. H., St. Catharines.
 Freeman, J. S., Freeman.
 Freshwater, A., Grimsby.
 Fisher, J. O., Virgil.
 Fisher, W. F. W., Burlington.
 Fisher, Geo. E., Freeman.
 Grobb, J. C., St. Catharines.
 Ghent, T., Burlington.
 Griffis, A., St. Catharines.
 Havens, J., St. Catharines.
 Haynes, A., St. Catharines.
 Haynes, L., St. Catharines.
 Hague, Jas., St. Catharines.
 Hendershot, W. M., St. David's.
 Hunsberry, W. A., Jordan.
 Hurd, H. H., Burlington.
 Hunter, Charles, Niagara.
 Hiscott, Major Jas., Virgil.
 Jones, Harold, Maitland.
 Johnson, Geo., St. David's.
 Kane, W. J., Niagara.
 Lampman, Joseph, St. Catharines.
 Lawlor, B. A., Whitby.
 McIntyre, E. J., Niagara.
 McCalla, W. C., St. Catharines.
 Mitchell, J. G., Clarksburg.
 Myerscough, Thos., Caledonia.
 Myles, A., St. Catharines.
 O'Malley, D., St. Catharines.
 Parnall, S. E., St. Catharines.
 Parnall, Jas., St. Catharines.
 Painter, Richard, Jordan.
 Pritchard, J. J. Harriston.

Pattison, F. G. H., Grimsby.
 Prest, Percival, Stamford.
 Pendergast, John & Son, St. David's.
 Pettit, A. H., Grimsby.
 Pettit, A. C., Southend.
 Pettit, C. C., Fruitland.
 Pettit, C., Niagara Falls.
 Ramsay, Allen, Niagara.
 Robertson, Geo. A., St. Catharines.
 Robinson, Jos., Niagara.
 Springer, D. W., Pt. Nelson.
 Slingerland, M., Niagara.
 Symington, James, Port Dover.
 Shepley, Isidore, Kingsville.
 Sandham, James, Queenston.
 Stephenson, E. B., Jordan.
 Stewart, Alex., St. Catharines.
 Smith, E. D., Winona.
 Shearer, Sam, Niagara.
 Vrooman, W. H., Queenston.
 Wilkins, O. F., Bridgeburg.
 Woodruff, H. C., St. David's.
 Warner, W. A., Trenton.
 Watt, Dr. T. H., Niagara.
 Wyld, Mr., Hamilton.
 White, C. E., St. Catharines.

The following table shows in detail the number of awards in each State in gold, silver, bronze, and honorable mentions, together with a table showing the total number of awards in each class.

	Gold Med.	Silver Med.	Bronze Med.	Hon. Ment.	Total.
New York.....	42	47	103	173	363
Ontario.....	19	33	35	85	166
Oregon.....	12	11	40	14	77
Washington.....	12	11	16	17	56
Illinois.....	12	5	20	14	51
Michigan.....	5	10	18	26	59
Florida.....	7	5	5	..	17
California.....	6	3	6	8	23
Missouri.....	8	2	82	6	98
Wisconsin.....	3	4	17	14	38
Nebraska.....	3	2	2	3	10
Delaware.....	3	5	19	13	40
Connecticut.....	3	2	14	8	27
Idaho.....	3	2	8	11	24
Maine.....	2	1	12	3	18
Virginia.....	2	3	22	11	38
New Mexico.....	..	2	3	5	10
Minnesota.....	1	1	6	8	16
New Jersey.....	1	1	13	7	22
Nova Scotia.....	1	1	3	3	8
Kansas.....	..	1	1	1	3
Arizona.....	..	1	1	2	4
Mexico.....	1	1	3	5	10
Ohio.....	..	..	1	1	2
Pennsylvania.....	..	1	..	1	2
Chill.....	..	1	2	1	4
Quebec.....	..	..	1	..	1
N. Hampshire.....	..	..	1	..	1
North Dakota.....	..	..	..	5	5
Iowa.....	..	..	1	..	1
Indiana.....	..	..	1	..	1
Dist of Columbia.....	..	..	..	1	1
Jamaica.....	..	1	..	..	1
Peru.....	..	..	1	..	1
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	146	157	457	446	1,206

Total entries in all States—	3,661.
Total awards in all classes.....	1,206
Total gold medals given.....	146
Total silver medals given.....	157
Total bronze medals given.....	457
Total honorable mention.....	446

COMPARISON WITH GROUPS OF STATES.

The following gives, in tabular form, a comparison of Ontario winnings as compared with the combined winnings of three American States.

The following gives a similar comparison with three American States.

	Gold.	Silver.	Bronze.	Hon. Mention.
Illinois.....	12	5	20	14
Michigan.....	5	10	18	26
Missouri.....	8	2	82	6
Total.....	25	17	120	46
Ontario.....	19	33	35	85

Another comparison with six good States:

	Gold.	Silver.	Bronze.	Hon. Mention.
Florida.....	7	5	5	..
Delaware.....	3	5	19	13
Maine.....	2	1	12	3
Wisconsin.....	3	4	17	14
Nebraska.....	3	2	2	3
New Jersey.....	1	1	13	7
Total.....	19	18	68	40
Ontario.....	19	33	35	85

THE WINDUP OF THE FRUIT EXHIBIT.

Mr. W. L. Smith of the Sun writes of the grand display by Ontario at the close of the exposition as follows:—

The Ontario fruit exhibit at Buffalo is being wound up in a blaze of glory. So abundant are the supplies now going forward as a result of voluntary effort on the part of the contributors, that Superintendent Bunting was last week obliged to arrange for an overflow exhibit, and this is now tastefully displayed about one of the pillars in the principal aisle of the Horticultural building.

The two most striking features in the principal display made by the Province last week were in the form of two great mounds of apples, one located at each end of one of Mr. Bunting's tables. One of these mounds was made of Fameuse (Snow) apples, and the other was composed of Spys—the former having been contributed by R. W. Sheppard, Montreal, and the latter by Warden Rickard of Durham and Northumberland, and W. H. Dempsey of Trenton. These mounds caught the eye of everyone who came near, and the artistic arrangement and fine quality of the fruit were greatly admired. Mr. Sheppard it may be noted in passing, for years sent the late Queen Victoria an annual present of Canadian apples, and this year he has continued the present to King Edward. In commercial matters he makes a specialty of boxes of carefully selected fruit for the Army and Navy Stores in London—selling these boxes at a

guinea when ordinary packed apples are selling at about \$4 the barrel.

Among the other contributions to the display last week, deserving of special mention, were: Some excellent Ben Davis, Baldwins, and Spys sent in by W. H. Chaplin, Newcastle; some beautiful Pewaukees contributed by Geo. L. Bolster, Orillia; Kentish Fillbaskets, forwarded by R. L. Huggard, Whitby (one of these seemed almost large enough to fill a basket itself); some large, well colored, and perfectly formed Kings sent by James McGregor, Whitby; fine specimens of Ben Davis and Baldwins from the orchard of James Bell, Whitby; some St. Lawrence sent in by Harry Dempsey, rivalled the blush of a maiden, and Wolf Rivers that were worthy mates of Mr. Huggard's Fillbaskets; while J. E. Hambly of Cedar Springs contributed the finest quinces seen in any part of the Horticultural building last week.

Besides all this stock, a lot of the cold storage apples were still on exhibition, some of last year's Ben Davis, after an exposure out of cold storage for a month, being still as bright and attractive in appearance as this year's fruit.

Finally, there were shown a collection of sweet potatoes grown by James Titterington, St. Catharines. These sweet potatoes, with the peanuts previously referred to, prove that Ontario, besides producing the finest of Northern apples, can equal the Southern States in at least some products of a semi-tropical nature.

With the help of those fruit-growers who came to his assistance from different parts of the Province, Superintendent Bunting was able to put up a display which puts Ontario ahead of any State which exhibited at Buffalo with the single exception of New York. New York obtained 42 gold, 47 silver, and 103 bronze medals, and 173 honorable mentions, or a total of 365, as compared with 19 gold, 33 silver, and 35 bronze medals, and 85 honorable mentions for Ontario.

While Ontario obtained 19 gold medals, no State, outside of New York, secured more than 12 of this class: while we obtained 33 silver medals, the best of the others, outside of New York, secured 11; in bronze medals we got 35, only three States getting a higher number. In honorable mention we were led by but one State, viz., New York.

This can be put in an even more striking form. Ontario took 19 gold medals, as compared with 25 taken by the three States of Illinois, Michigan, and Missouri. In silver medals we took 33 to 17 of the same class of medals by these three States. In bronze we had 35 to 120, and in honorable mention 85 to 46. Moreover the three States named were on the grounds all the time, and occupied four times as much space as Ontario, while each one spent many times as much money on their exhibit and help as Ontario spent.

The next comparison is with six good States—Florida, Delaware, Maine, Wisconsin, Nebraska, and New Jersey. All told, these captured exactly the same number of gold medals as Ontario alone secured. In silver medals we outnumbered their combined winnings by nearly two to one. In bronze medals we won more than half the number won by the six, and in honorable mentions we won double the number that they did.

THE EVOLUTION OF A LOCAL HORTICULTURAL SOCIETY—II.



FIG. 2189. ST. JOHN'S CHURCH.



FIG. 2190. ON THE GRAND RIVER.

CAYUGA is agreeably situated on the Grand River in the centre of its County, and although it is not of very much importance commercially, still it is backed by a thickly populated agricultural district of much vigor and wealth. La Salle was first struck with the beauty of the Grand River and in our own time Goldwin Smith placed the picturesque beauty of the Grand River as first of its kind in Ontario, that of the Blue Mountains and the Thousand Islands second and third respec-



FIG. 2191. THE CITY HALL

tively. Cayuga nestles in pastoral loveliness in the midst of the only hills of a flat country that extends many miles in length.

The aim of our Society is, in some measure, to restore to Cayuga its ancient heritage of beauty, to make it clean and wholesome in the hope that as it grows in time, architecturally, bespeak the mental health, power, pleasure and elevation that order and thought produce.

Of course we look for and seek help from



FIG. 2192. RESIDENCE OF H. MUSSEN.

every one on all sides ; it is stated that at our station, now enveloped in darkness at night and mud in the daytime, the local superintendent is thinking of uniting with us and making a park in the station grounds, planting trees, adding gardens and placing out recreation benches.

At our Court House the good work is proceeding, the southern entrance to the grounds is just being re-modelled, pointing to additional handsome drives, new flower beds, cement walks, while an ornamental hedge has been added. The Anglican Stone Church, the crowning life work of the Rev. John Francis, B. D., ere he retired to a well earned superannuation, stands on large grounds adjoining the Court House park. Our society has caused these grounds to be terraced and fittingly laid out in magnificent proportions, in keeping with the beauty of the building.

The town park has been levelled in part, sodded, while double tennis courts have been added on each side of the band stand.

Privately, too, our local enthusiasts have

all contributed their quota to the good work. There are still many difficulties to overcome. Dirt triumphs in many streets, many people still love to make a barn yard of the road in front of their dwellings. In many quarters paint is unknown, but our work is telling, and if we accomplish but a part of what we hope for each year, the reign of filth, disorder, smells and bad roads, will give way to order and beauty, so that some day Cayuga, when the inevitable trolley line from the outside world seeks her, will not be found wanting.

Cayuga, Ont.

A. K. GOODMAN.



FIG. 2193. A LOCAL HORTICULTURIST.

THE BRILLIANT GRAPE, a cross between Niagara and Delaware, is reported by the Rural New Yorker, as susceptible to rot.

At Maplehurst it has not yet shown this tendency.

CANADIAN APPLES AT THE EXHIBITION. A NEW SUPPLY FOR GLASGOW.

GATTONSIDE HOUSE,

Melrose, Oct. 6, 1901.

SIR,—One of the advantages conferred upon the public by your International Exhibition is that it has shown us what other countries might send us if only proper communications with them were opened. Thus, whilst strolling round the Canadian Section last July, I came upon tables containing the most magnificent display of apples I ever witnessed. Entering into conversation with the gentleman in charge, he kindly explained to me the different varieties, and also allowed me to taste several, which I found to be excellent. The varieties he particularly recommended as first-rate eating apples were Alexander, Gloria Mundi, Holland pippin, Wealthy, Fameuse, Ben Davis, Mann, Spitzenburgh and Blenheim Orange. I was surprised to find that out of 50 varieties exhibited by Canada at your Exhibition, only three are as yet known in Britain. I was also struck by the fact that these apples were in excellent condition for eating in July, whilst Scottish fruiterers' supplies of American and Canadian apples finished in May.

Having a very influential friend in Toronto I wrote to him of my visit to your Exhibition, and of my discovering there 47 splendid varieties of Canadian apples as yet unimported into Britain. I gently chid him for keeping all the best Canadian apples to himself, and summoned him, as a loyal son of the empire, to give us at least, fair trade in apples, and to induce Canada to send us every variety of apple grown in the Dominion. I also pointed out that our supply of Canadian and American apples closed in May, whereas I was eating capital Canadian apples in Glasgow Exhibition in July.

My friend took my criticism so much to heart, and has so great a love both for his Scotland and for Canada, that he placed himself, without delay, in communication with one of the leading officials connected with the apple-growing industry in Canada: and I have now the pleasure of transcribing pro bono publico the letter which that official wrote to my friend in Toronto:—

“Ontario, September 20, 1901.—Dear Sir,—I have your letter of the 18th inst., inquiring why those magnificent Canadian apples are not placed for sale in Glasgow. I think I may reply that the probability is that these apples will in a short time be regularly shipped from here to Glasgow. Last year was the first season when our cold storage accommodation on shipboard was of such satisfactory character that we were able to send forward our best fruits in safety to the old country. By the ordinary methods of carriage, our fruits were frequently ruined before they arrived in the old country, and of course, could not be held any time afterwards. Last year I took advantage of the improved arrangements, and put up for the Dominion Government nearly 200 cases of apples for Glasgow Exhibition. These were held in Montreal in cold storage until the month of May, after which they were forwarded in cold storage compartments to Glasgow, and brought upon the tables from time to time as they were required. I am informed by the commissioner in charge that he could have sold large quantities of these apples in July and August at high prices to the Glasgow people. I have no doubt that an excellent trade will soon be developed in this direction.”—I am, &c.—
Ralph Richardson, in Glasgow Herald.

A NOVA SCOTIA FRUIT HOUSE.

THE following description of a Nova Scotia apple storage house is furnished me by my friend, Prof. F. C. Sears, director of the horticultural school at Wolfville. He says that apple warehouses are each year becoming more common in the great apple district of Nova Scotia, the Annapolis valley. They are built either by large speculators who deal extensively in apples, by English commission firms for the accommodation of their patrons, or by co-operative associations of the growers themselves, and are used either for the permanent storage of fruit or for temporary storing of apples as they are brought from the farm, and until they can be forwarded by rail to Halifax, and there loaded on steamers for England. Fig. 2194 shows one of several which were built in 1899. It is 85 feet long by 20 feet wide, and has a capacity of about 4000 bbls., with loading accommodations for three cars at one time along the side.

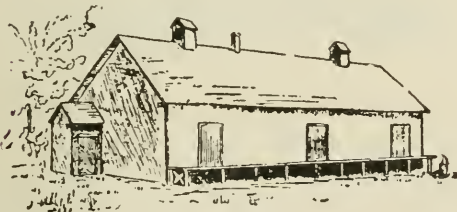


FIG. 2194. PERSPECTIVE OF NOVA SCOTIA HOUSE.

The building rests on a stone and brick cellar wall 8 feet deep, and the superstructure has walls 10 feet high. The walls are covered, on the outside of the studding, with two courses of inch boards, with building paper between, and this again is covered with paper, with shingles on the outside. Inside, the walls are first lathed and plastered with selenite and lime mortar. Then inch strapping is nailed against the studding,

and the whole is covered with 1-in tongued and grooved spruce sheathing. The ceiling is covered with the same kind of sheathing, with building paper laid lengthwise of the joists between them and the sheathing. The upper floor is also laid double, with paper between, thus protecting the body of the building from frost from above.

The window and door frames are made with double casings buried in the covering in such a manner as to preclude the possibility of draft or frost, as seen in Fig. 2195. The windows have double sashes, and are provided with storm shutters for protection against heat as well as cold. The doors are also double, one swinging outward and the other inward, and fitting closely into beveled jambs. These doors are built on 2-in pine frames, with 1-in tongue and grooved sheathing on each side of frame, and paper between.

There are three hatchways in the lower floor, provided with gratings, or tight hatches if required. The ventilators extend from the ceiling to the roof, and are provided with slides to close when necessary. The cellar has also double windows and 4-in ventilator tubes in the sides. Both the cellar and the main floor of the building are proof against frost in the coldest weather, and altogether this warehouse is admirably adapted to the purpose for which it was built, and has proved invaluable to shippers.

*From advance sheets of Prof. F. A. Waugh's book on "Fruit Harvesting, Storing, Marketing."

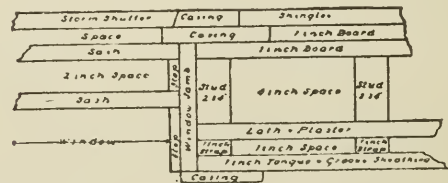


FIG. 2195. SECTION THROUGH WALL AND WINDOW.

REMOVING TREES—"GRUBBING" THE BEST AND CHEAPEST WAY—HOW TO DO IT.

SOME years ago an effective contrivance was patented for pulling small trees by horse-power. We think the machine is not now manufactured, and in any case the common method of "grubbing" is found to be cheapest and most satisfactory, says the Country Gentleman. The accompanying diagrams will help to explain the method most commonly in vogue. The writer has grubbed many acres of land similar to that described by the method herein-after recommended, and therefore is able to speak about it intelligently.

Provide a good heavy yoke of oxen—horses or mules can be used, but they are not entirely satisfactory. Two log chains seven to ten feet each, a driver and a grubber will be required. If the tree is somewhat large, the grubber cuts off one or more of the roots.

The oxen are started and the operator readily sees where the roots rise on the opposite side. While they are under strain one quick, well directed blow with the sharp end of the grubbing hoe will sever the root.

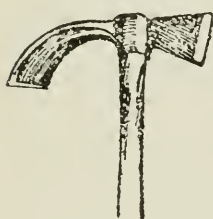


FIG. 2195.

The smaller roots will be dragged out. If the tree should be tap-rooted, a little earth may have to be removed, and as the tree is on a strain it is severed by means of an axe or the hoe.

The oxen should be driven at a sharp angle with the outer border of the wood. As one tree is removed another is hooked, and so on until the end of the wood is reached, when a reverse operation takes place. This is to obviate the necessity of backing the oxen and of removing the tree after it is pulled to a distance sufficient to allow the tree to be pulled down at right



FIG. 2196.

angles to the border of the wood.

It is readily seen that if the oxen are driven in a direction nearly parallel with the border of the wood but a narrow place will have to be kept clear.

The grubbing hoe should be made of the best of steel, well tempered, and be kept sharp by grinding once a day.

THE WIND AS A DISTRIBUTOR OF POLLEN.

IT HAS been said that anything can be proved by statistics. The proof seems conclusive, for figures cannot be disputed. In a similar way, all sorts of things are proved by experiments. The trouble is

not with the experiments, but with the conclusions drawn from them.

The above reflections were caused by reading an account of some experiments recently made by an eminent eastern horti-

culturist, Prof. Waugh. The purpose of one experiment was to demonstrate the necessity of cross-fertilization in the pollination of apples. Clusters of buds were covered with paper sacks, which were not removed until the blooms had fallen. Out of 2,586 blossoms covered all failed to set fruit except three. Prof. Waugh regards this as conclusive proof that a blossom must be fertilized with the pollen from a blossom of another variety before it will bear fruit.

But were there not other things to prevent the covered blossoms from setting fruit besides lack of pollen from another variety? Doubtless the partial exclusion of light, heat and air by the paper bags had something to do with it. Possibly more blossoms would have been fertilized had the pollen from other trees of the same variety been permitted to touch them. No two trees are exactly alike and cross-fertilization between two trees of the same variety may produce better results than where a single tree is compelled to fertilize itself, as where the blossoms are covered with paper sacks.

These suggestions are offered as affording a possible explanation of the result of the experiment. Prof. Waugh would have us believe that the experiment proves that self-fertilization is practically impossible with apple trees and therefore it is unsafe to plant large blocks of one variety. The fact that

large blocks of one variety are planted and bear heavy crops of fruit proves that this is a wrong conclusion. However we believe it is better to mix varieties, though not absolutely necessary.

Another experiment was made for the purpose of ascertaining to what extent pollen is carried from one tree to another by the wind. Small slips of glass such as are used in microscopes were coated with vaseline and lampblack and placed near the plum trees during the blooming season and left in position twenty-four hours. One slip was placed north of the tree, the wind being in the north, and did not catch any pollen. Of course not. How could the wind carry pollen against itself? Another slip was placed east of one tree and west of another and did not catch any pollen. Wind should not be expected to carry pollen at right angles to its course. Another slip was placed south of a tree in line with the wind and another in the midst of several trees. One slip caught seven pollen grains and pollen masses and the other twenty-five. This certainly proves that the wind is an important carrier and distributor of pollen: yet Prof. Waugh says that it proves that the wind is very inefficient and plays no consequential part in the pollination of fruits.—*O. H. Burnhill in 20th Century Farmer.*

COMING EVENTS.

Entomological Society of Ontario at London, November 13 and 14; secretary, W. E. Saunders, London.

Ontario Fruit Growers' Association at Cobourg, December 4 to 6; secretary, L. Woolverton, Grimsby.

Ontario Agricultural and Experimental Union, at Guelph, December 9 and 10; secretary, C. A. Zavitz, Guelph.

Ontario Provincial Winter Fair, at Guelph, December 10 to 13; secretary, A. P. Westervelt, Toronto.

Western Ontario Poultry Show at Guelph, December 10 to 13; secretary, A. P. Westervelt.

Eastern Ontario Dairy Association at Whitby, January 8 to 10; secretary, R. G. Murphy, Elgin.

Western Ontario Association (place not fixed), January 14 and 15; secretary, George Hatley, Brantford.

Eastern Ontario Poultry Show, Ottawa, Feb. 12; secretary, A. P. Westervelt, Toronto.

Eastern Ontario Auction Sale of Pure-bred Stock at Ottawa, February 12th; secretary, A. P. Westervelt.

Maritime Winter Fair at Amherst, N.S., Dec. 17 to 19; secretary, W. W. Hubbard, Halifax, N.S.

Ontario Beekeepers' Association at Woodstock, December 3 to 5; secretary, W. Couse, Streetsville.

HOW FAR NORTH CAN THE APPLE BE GROWN.

IN the spring of the year 1855 a Mr. Hubbard, I think his name was, had a nursery near the town of Guelph. In a conversation with him he made the statement to me that he was so satisfied that the County of Wellington was not and never would be adapted for growing apples, that he had concluded to sell off his stock for what it would bring and go out of the business.

Now we can say that Mr. Hubbard was mistaken, for the apple grows all right in the County of Wellington, and much further north.

About the year 1865, Peter Henderson, of New York, in an address I think at Rochester in answer to the question, said certainly not beyond the limit of where the beech is grown. Now at this date we know Peter Henderson was wrong; we are here in St. Joseph's Island beyond the limit of the beech, and still we find the apple growing, I may say to perfection, or as near as insect pests, rust, etc. will let it.

Several years later a member of the Cabinet, in the town of Fergus, in course of his speech made the following assertion, that Owen Sound was the extreme point north where a man could live and draw his substance from the soil. Some one of the audience called out, "Won't Peaches grow up there?" "No," was the reply, "if you can grow potatoes it will be as much as you can do." Now we know that if he was right about the peaches he was wrong about everything else.

The first and greatest mistake I have made, and I may say we have all made, was getting it into our heads that we were too far north to grow fruit, and if we bought a

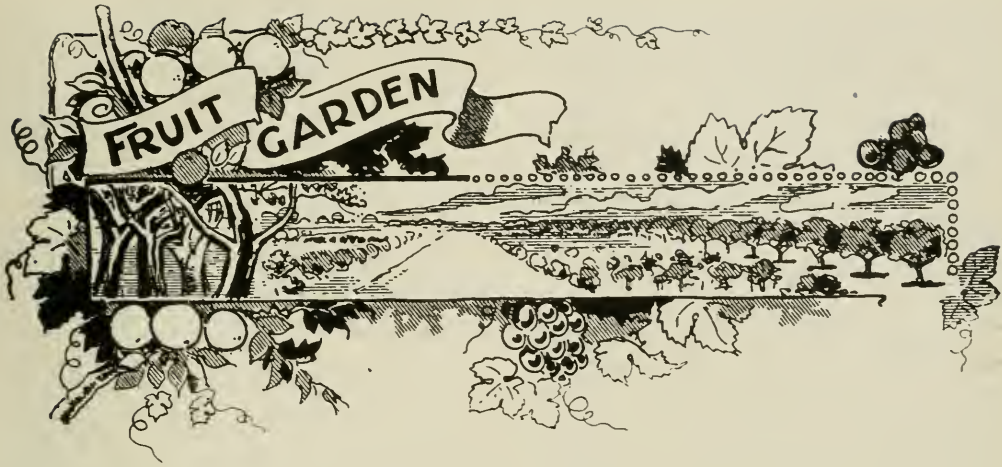
dozen apple trees it was to get the fruit tree agent out of our home, for we never expected them to grow; we might dig a hole and put them in but that was the last of them.

Now in 1901 we know a good deal better than that; we know that they will grow if properly taken care of, and that the percentage of failure is as low as in what is usually supposed to be more favoured districts.

A very few years ago if any one had asked me if, as a commercial venture, it would be wise to plant a few acres of apples, I would undoubtedly have said no, I did think we could grow a few for our own use of some very hardy varieties but nothing more; but more interest began to be manifested in fruit culture, and this year when you people in eastern Ontario are lamenting your short crop of apples and holding them up for a big price, we have a splendid crop, and of course we are taking advantage of your scarcity and raising the price. I knew of two instances where outsiders have come in and bought out the whole crop.

Now we are by no means at the outside of the fruit belt here yet, for near Green Lake, about latitude 46 may be seen or was a year or two ago, two aged apple trees of an inferior variety presumably seedlings; and beyond the height of land on the slope toward James Bay, wild currants and strawberries may be found, while I have been told at Batchawing Bay on the north shore of Lake Superior about latitude 47, apples have been planted a few years ago, and so far have lived through the winters and made satisfactory growth.

Richard's Landing. CHAS. YOUNG.
St. Joseph's Island.



FIRST LESSON IN FRUIT GROWING—I.

IN the general round of his work, the fruit-grower has to deal largely with trees, vines, bushes or plants. That he may at all times care for and manage these intelligently, he must know something of their structure, and of the functions which the different parts of the tree or plant have to perform.

Roughly speaking, we may say that a growing tree is made up of roots, trunk, branches, buds and leaves, and that under certain conditions it produces flowers and fruit; but for our purpose it is necessary to study these parts more closely that we may notice the various forms which they present, and if possible learn the objects which they fulfill in the economy of tree growth.

THE ROOT.

Where the root joins the trunk, just at or about the surface of the ground, is what is known as the *collar*. This is not a fixed point, as its position may be raised in young trees by banking earth about the trunk, new roots being formed above the older collar.

The first root formed is the *tap root*, which usually goes straight downwards from the collar. In some trees, particularly the nut

bearing trees, such as the walnut, hickory and oak, the tap root becomes very large and strong. In fruit and ornamental trees, which are taken up and transplanted when quite young, this downward growth of tap root is checked, and development of lateral roots takes place.

The *lateral roots* may be said to be branches from the tap root. They grow more or less horizontally, and usually spread a good deal farther in the ground than the branches of the tree spread in the air above them.

The tap and lateral roots are the largest roots, but associated with them is usually a greater number of smaller thread-like roots known as *rootlets* or *root fibres*. In some kinds of trees they are much more freely produced than in others. They are most abundant in trees having a thick, branchy top. The quince and peach has usually lots of fibrous roots, while in the apple and pear the laterals are more or less bare of root fibres. The more frequently a tree is transplanted, the more fibrous its roots become.

To complete the root system, there is still another class of roots known as *root-hairs*. These are very delicate, hair-like roots, so small that they can hardly be seen without

the aid of a magnifying glass. They are so delicate that they are easily destroyed by bruising or by slight exposure to the sun or wind. In the ordinary practice of transplanting, the greater part of the root-hairs are broken off and destroyed, but if the soil conditions are favorable they are rapidly reproduced.

THE FUNCTIONS OF ROOTS.

One of the self-evident functions of roots is to anchor or support the tree in the ground. To this end the development of the roots of a tree correspond very closely with that of the top above ground. If the top is low and spreading, the roots will be shallow and spreading. If the top is high, exposing it to strong winds, the roots naturally grow deeper to anchor it more firmly in the soil.

Another function of the roots is to dissolve inorganic elements in the soil, making them available as plant food. This solvent power of the roots is due to the acid juice contained in the root-hairs, which acts chemically upon the mineral plant food in the soil, gradually dissolving it so that it may enter into the growth of the tree.

In addition to rendering plant food available, the roots absorb soil moisture containing this plant food in solution. The absorption of soil moisture takes place mostly in the root-hairs and small rootlets; the older roots, covered with a hard thick bark absorb very little, if any at all.

From this brief study of the nature and

functions of roots, it will be seen that while the older and larger roots may be most important in anchoring the tree in the soil, yet the newer and smaller roots and root-hairs, which are usually most remote from the trunk, are most attractive in nourishing the tree.

PRACTICAL CONCLUSIONS.

In this connection a few practical points may be emphasized, which should be remembered in the management of trees singly or in orchards :

1. In transplanting young trees, the better the root system is preserved uninjured, and the more favorable the soil conditions for growth, the more readily the root-hairs are reproduced, and the roots establish themselves in their new position.

2. In watering newly planted, or even established trees, if the water is to be of any use, it must be applied so that it will reach the smallest roots.

3. Whenever a fertilizer of any kind is applied for the benefit of the tree, it should not be banked around the tree trunk as is often done, but should be spread evenly over the ground out as far as the roots extend. The rain water passing through the soil will gradually wash it down to where the root-hairs can get at it.

4. As water is the vehicle by which all plant food is taken in by the roots, it is important that the soil be so managed as to conserve soil moisture sufficient to supply the needs of the tree.

O. A. C., Guelph. PROF. A. H. HUTT.

A FINE RECORD.—Mr. W. A. McKinnon, Chief of the Fruit Division, Department of Agriculture, reports as follows :

"The 'Marina,' on her last trip, carried a lot of Bartlett and other pears, and they were reported landed in good condition. The thermograph re-

cord shows that the fruit was carried at an average temperature of 39 degrees, with a variation of not more than two degrees during eleven days' run. Mr. Robt. Logan, Chief Engineer of the 'Marina,' deserves the gratitude of the fruit trade for this performance, which also reflects great credit on the Donaldson Line."

DWARF PEARS.

DEAR SIR,—Would an acre of dwarf trees bear as much fruit as an acre of standard trees? (I understand that dwarf trees should be planted ten feet (10) apart, and standard, about thirty five (35) feet, and is the fruit of the dwarf tree, equal to standard in size and quality? An answer through your journal, (If you have such data at hand) would oblige.

“AN AMATEUR.”

For the first twenty or thirty years probably the most fruit per acre would be produced by the dwarf trees, because they begin bearing so early; but afterward the advantage would annually become greater in favor of the standards.

In quality, the fruit grown on dwarfs is frequently larger and finer than when grown as standards; some varieties indeed being scarcely worth growing except as dwarfs, as for example the Duchess and the Anjou. In size the fruit grown on the dwarf trees is much the larger of the two—the checking of the wood growth having that effect in the case of the dwarf.

In planting a dwarf pear orchard it is wise to set the trees a little deeper than one would standards, because the quince root grows slower than the pear top, which may in time break off, unless set deep enough to throw out roots of its own.

Pruning is most important, for prolong-

ing the tip of the dwarf pear, for if allowed to grow tall and spreading, it will be early blown over by the winds, and the fruit will not grow to as large a size as if kept down to the pyramidal form.

To bring this about, the trees should be pruned to a single stem the first year, and this must be cut back at the end of the season or before growth begins the following spring, in order to develop strong laterals. How low to cut back depends upon the vigor of the stalk and can only be learned by experience, but it is necessary to get strong lateral branches about 10 or 12 inches from the ground. From year to year the pyramidal form should be kept in mind, shortening the leader and all side branches to an imaginary line, drawn from the outmost base to the top of the leader. After about eight years growth, the dwarf tree should have attained as large a size as is desirable, and therefore should be cut back, severely enough to continue it in about the same shape and form, the further pruning being directed to the shortening and thinning out of the fruit spurs.

With such attention as this, a dwarf pear orchard, if of the proper varieties, will prove an object of especial pride to the owner.

CROWN GRAFTING.

SOME time since our friend Parker, of Nova Scotia, criticised the method of renewing an orchard, which we described, because it is so simple that any farmer, without special tools, or even grafting wax, can succeed in its performance. We did not advise it as the best way, but simply as a method which might serve in many cases where skill was lacking to do cleft grafting. The following extract from *Garden and Field*, of Melbourne, Australia, is in the same line, and shows we are not alone in this advice:

“Reworking old trees can be done in nearly as many ways as kissing a girl. The latter has nothing to do with the subject, but a reference to so serious a matter will indicate how much in earnest I am when I say to every fruit grower, cut down and rework every tree which is not of a first-class sort, or which does not pay to grow, and do it soon by crown grafting. Now, I am quite competent to advise on this matter, for I have read all about it like the experts do, and if that be not enough to establish my authority to an unbelieving world, I may say I have taught it just as a passionate parson has self-control; and if that be not enough, like George Washington, I must say aloud, I have done it myself. Joking aside, I have never had a failure on either stone or pip trees, and I have done the work from the beginning of August on the almond, to the end of October on the apricot. I think it is best to cut old trees off

clearly a foot from the ground, and smooth off the surface. Then insert back or crown grafts 1 in. apart all round. Tie a tight band of binder twine several thicknesses round, and apply grafting wax all round and over. If the operation be done as the tree is beginning to show leaf and the scions are dormant, nearly all will take, and the stem being protected from the sun by a bit of canvas, the bark will heal over the edges. The object of putting in so many grafts is to keep the bark lively all round, and to provide as many active growing buds as possible in place of the former tree top. I am sure that if a big tree has to be cut down this is the best way to reduce the shock as much as possible. The following diagram after Balat, shows how the crown graft is put in. It will be seen that the wood is in no way damaged. The graft, Fig. 1234, is shown with a shoulder; but I do not trouble about cutting one, and merely cut the scion with a long sloping cut, $1\frac{1}{2}$ inches long. The bark in Fig. 1234, as shown, is lifted too much.

Fig. 3, shows the grafts inserted and the stem bandaged. It will be noted that the bark has been displaced but very little.

The following is the method to be adopted. The tree is to be first cut down, say a foot above the place intended for the grafting. When ready to graft, a clean saw cut is made at the right place, and the surface smoothed with a sharp knife or spokeshave, especially all round the sap wood and bark.

To prepare for the scions a vertical slit is made through the bark about an inch in length, then

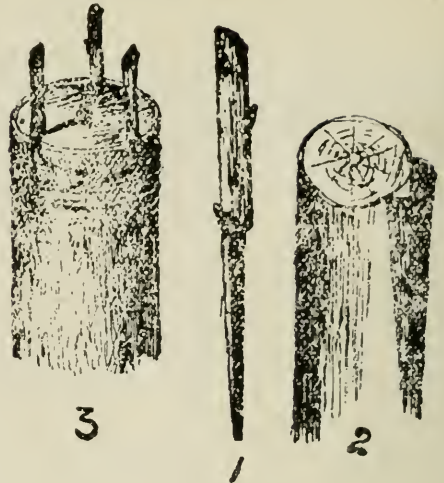


FIG. 2134.

with the handle of a budding knife or a piece of hard wood sharpened to wedge shape and smoothed, the bark is lifted from the sap wood enough to allow of the scion being inserted.

The scion having been prepared as shown, it is carefully slipped down in the place prepared for it, bound round, waxed, labelled, and the work is done."

FRUITS FOR THIRST.

CHEMICAL analysis would assign practically no nutritive value to the juicy fruits, for they consist of little more than a cellulose envelope containing a solution of sugar, the amount varying from 17 per cent., as with grapes, to about 1.4 per cent., as with lemons. The amount of water in fruit is considerable. In water-melons it is no less than 95 per cent., in grapes 80 per cent., in oranges 86 per cent., in lemons 90 per cent., in peaches 88 per cent., in apples 82 per cent., in pears 85 per cent., in plums 80 per cent., in nectarines 83 per cent., and in strawberries 90 per cent., not a fruit in the whole category con-

taining less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important role in the diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed, and fruit would appear to be endowed with a subtle inimitable flavor which is ample inducement to imbibe fluid in this most wholesome form.

Moreover, the juice of fresh-cut fruit is perfectly free from microbes, is as sterile as freshly clean drawn milk, and the fruit acids tend to inhibit the power of those disease-producing bacteria which flourish in neutral or alkaline media.

DETECTING SAN JOSE SCALE ON FRUIT.

WHEN only a few insects are present on a tree the San Jose scale is not easily detected. If there is fruit on the tree, particularly apple and pear, the pest may be often seen long distances. On some varieties, especially light colored fruits, the characteristic purplish rings with the scales in the center are very conspicuous. The marking varies somewhat, but is not liable to be overlooked. On pear and apple it is very pronounced and fruit on badly infested trees is often mottled. The scale attaches itself to any part of the fruit; but is more abundant on the calyx end. At times there is a depression where the scale is attached, making the fruit very irregular if badly infested. The accompanying outline shows the scale markings on an apple recently received.

It is a peculiar fact that the scale seeks the fruit where there are only a few insects on a tree. When picking fruit, trees from which suspicious specimens are taken should be marked. They can be sprayed later and watched. I have known many cases where the scale has been first detected in an orchard on the fruit. The same characteristic purple

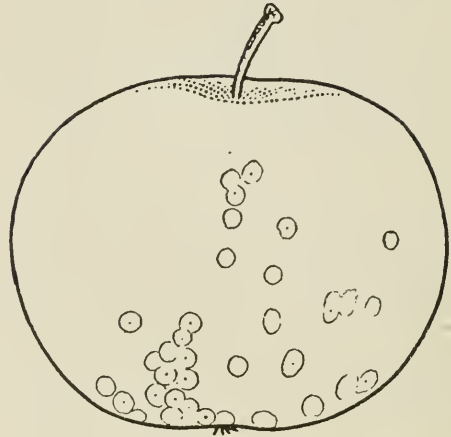


FIG. 2198.

spot is seen upon the bark of many young trees, and upon the newer growth of older trees. Some apples and pears are often attacked by a fungous disease, producing a circular reddish or purple marking similar to the scale spot. Care should be taken not to mistake this for scale. The presence of the scale in the center of the circle can be easily detected with a small pocket lens. It is safe to be alert and on guard all the time. —*Rural New Yorker*.

PRUNING THE CHERRY.

Could you give us in an early number a short article on pruning the cherry; there seems to be a great difference of opinion. Some advise heavy cutting out the centre of the tree top when young, others again say never put a knife in the top of a cherry.

Richard's Lancing.

CHAS. YOUNG.

The cherry tree is more susceptible of injury by injudicious cutting than most fruit trees. Large wounds do not readily heal; instead they often cause decay into the heart and early loss of vigor to the whole tree. Bark wounds even will cause the oozing of the gum, and often the death of the bark,

leaving the wood exposed to the action of the borers and weather.

Judicious pruning, however, of the cherry tree is just as important as with any other tree.

THE SWEET CHERRY CLASS

does not require much pruning; where the tendency is to throw up a long leader without many laterals it should be cut back to induce their growth, and these laterals will need similar treatment. The ideal form of the tree should be kept

in mind, and pruning directed so as to encourage it. These sweet cherry trees are naturally pyramidal in form, and this habit must of course be encouraged. Farther than this, the only pruning required will be the removal of branches that cross, and those that are dead.

THE SOUR CHERRY CLASS

on the other hand, form round bushy heads, and during the first three or four years the pruning should be directed toward securing this form. At time of planting the three or four top branches should be shortened to within four or five buds of their base, and four or five shoots encouraged to form the frame-work of the head. These must again be shortened the next year, and such secondary branches allowed to grow as will fill up the spaces and give symmetry. In three or four years a permanent form will have been secured, and it will only be necessary to remove superfluous growth from year to year.

The late Patrick Barry gave the following directions for

PRUNING.—Probably one of the best tests as to a good knowledge of practical gardening lies in the manner in which the pruning knife is handled, for the deplorable effects of a lack of this knowledge are seen everywhere. The chief success in fruit-culture comes from the knowledge and the practice of judicious pruning. One has but to look at an ordinary vineyard, and the result of some good gardener's growth of grapes under glass, to see the wide difference between ignorance and knowledge. The good grape-grower under glass will use the pruning-knife so judiciously that the plants will be healthy and productive for a hundred years, bearing fruit as freely and as vigorously from near the roots as at the top of the vine. The grower on the garden trellis, or

PRUNING THE CHERRY AS A PYRAMID.

The leader or stem is cut back to within six, eight or ten buds of the branches. Those having no branches are cut back to within six or eight buds of the stock, and this is the first pruning.

When the shoots have grown a couple of inches in length, such as are intended for permanent branches are chosen, and the others are pinched in the same manner as recommended for pears and apples. Such as acquire more vigor than is consistent with their position, must be checked. It frequently happens that, unless the leader has been cut back close, only three or four shoots will be produced at the extremity, leaving a vacant space below. This can be remedied in most cases by pinching the shoots around the leader when they have grown about an inch. In some cases it may be necessary even to check the leader to force the lower buds into growth. This is a point of considerable importance in conducting a pyramid, and should never be lost sight of.

on the side of a barn or building, finds his vines no good at the end of a few years. The variety he pronounces no good, and he rushes after every new kind to correct the results of his own folly.

One may travel through the length and breadth of the land and not find a case of sound pruning, and, at the same time, notice the weakness and decay in orchards everywhere,—all due to ignorance of pruning. There will be seen many cases where the owners understood this much: that pruning was a necessary part of a good gardening education—but not knowing anything of causes and results, they have rather hastened than arrested the destruction of their trees.—*Meehan's Monthly.*

TREATMENT OF THE STRAWBERRY FIELD AFTER PLOWING AND BEFORE RE-SETTING.

THERE are various methods of treating an old strawberry bed to get the soil in good condition for resetting it to strawberries, which requires not less than two years. When the strawberry bed becomes unprofitable it is plowed up, as soon as the crop is harvested. The straw is not burnt off unless it is so heavy as to hinder plowing. We usually mulch two-year-old beds also. The land is again plowed in the fall and seeded to wheat or oats the following spring. After the grain is harvested we apply manure at the rate of fifty loads to the acre. The land is then plowed immediately after the manure is spread. The next year corn is planted, without plowing. We go over twice with the cultivator and finish with the harrow. The ground is then in good condition for a crop of corn. In the fall when the corn is cleared off the ground, which we do as early as possible, we again plow, this time quite deep.

During winter we haul about eight loads

of soft wood ashes to the acre, which is put all in one pile on this land, and covered with to keep from leaching. Only soft wood ashes are obtainable here, but any amount of it can be had at two neighboring creameries and one flouring mill. The object of hauling the ashes in winter, is because time is too valuable in spring when the ashes are to be used. The ashes are easily distributed over the field with one horse and a road scraper and afterwards spread with a shovel.

In the spring before planting time, the ashes are spread and the land gone over with the riding cultivator until it perfectly free from weeds.

Of course the corn stubble is now on the surface and must be removed, but it takes one man with a hand rake only half a day to clear one acre. After this is done, the land should be gone over once with the harrow. The land is then ready for marking and resetting of the strawberry field. — *Report Minn. Horticultural Society.*

APPLE STOREHOUSE.

MY house for storing fruit is one that was on the premises and not built for the purpose. But I find it quite convenient. It is a stone building 26x34 feet, with good walls 2 feet thick, well laid in mortar. To make it so I could hold fruit through the winter, I lined it inside with matched lumber, making an air space of about 10 inches between the wall and lining. It is a two-story house. I protect from cold by putting straw on upper floor about 4 feet thick when settled. It kept the fruit well. I make a fire in it only three or four times through the winter, on account of extreme cold.

I could, with but little expense, make it good for cold storage by putting 8 or 10 12-inch galvanized iron pipes through the upper floor, letting them down 3 or 4 feet, and filling from above with crushed ice and cheap fertilizer salt. I have used it as it is, opening the doors nights to cool off and keeping it closed during the day, except when putting in more fruit. I pick and put in barrels in the orchard and store them open. In rainy weather I can sort and pack for market or cold storage, near market, by Nov. 15. I have seldom kept a crop over.—*H. Hill in American Agriculturist.*

USE OF CRUDE PETROLEUM IN ORCHARDS.

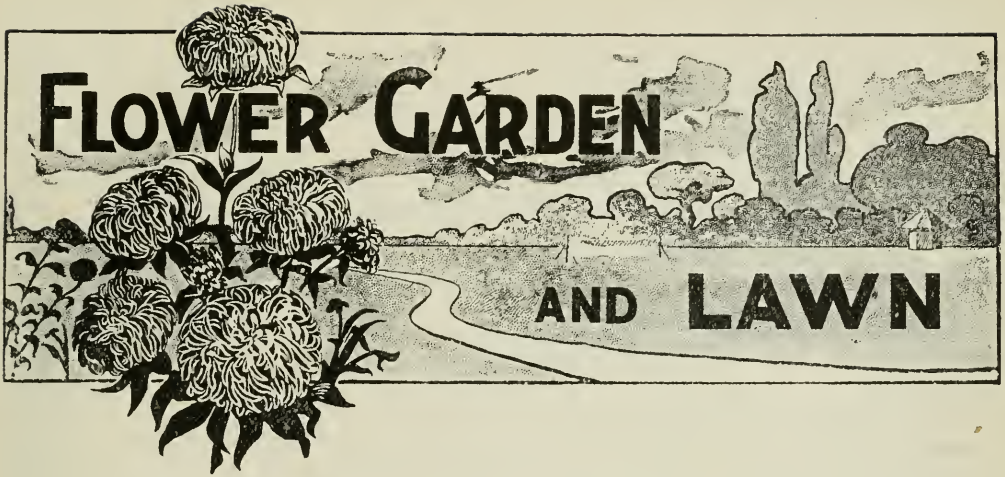
THE varying and sometimes disastrous results obtained from the use of refined petroleum on growing trees, as an insecticide, and especially against the San Jose scale, have led to the suspicion that the crude product might be less variable and drastic in its effects. But so far as it has been used it would appear that we yet have much to learn, before we can with safety, recommend the application of the crude product to the different varieties of fruit trees. That it is efficient in destroying the San Jose scale if it is brought in contact with this insect seems now quite probable. But the hundreds of dead trees that mark the areas where it has been indiscriminately used, point very clearly to the fact that great caution is necessary, and no one is, as yet, able to say just where safety comes and danger begins. Then too, when no permanent injury is apparent, as in the case of the seedling apples on the ground of the Ohio Agricultural Experiment Station, who can say that this unnatural retardation may not, after the first application, prove to

be a menace to the life or general vigor of the tree? It is well known that in nature these retardations sometimes occur, but nature seldom, if ever, covers the bark of a tree or shrub, and then only in part, with vegetable growths like lichens, and even these are known to be detrimental, a smooth, clean bark being always desirable. In the use of refined petroleum, one of the most perplexing phenomenon observed was the fact that, equally careful applications made by the same person, with the same grade of oil, would give almost opposite results. Hence recommendation of the refined product for general use has in many cases resulted disastrously and brought no little disrepute to the entomological fraternity of this country. The most that can now be said for the refined product is that a ten or twenty per cent mixture with water constitutes a fairly successful summer wash and destroys the young scale, thereby checking the increase and spread until applications of whale oil soap mixtures can be made.—
Prof. F. M. Webster, Ohio Experiment Station.

OUR COBOURG MEETING.

WHEN we go to press we are more and more assured of a large and enthusiastic gathering. A large collection of Pan-American apples will be shown on the fruit table, many of them harvested in 1900. An interesting feature of the meet-

ing will be the announcement of the names of those Canadians who were fortunate enough to win medals and diplomas for fruit at the Pan, and each one will receive a beautiful banneret, in proof of the honor conferred.



SEASONABLE HINTS FOR GREENHOUSE, GARDEN AND WINDOW.

GREENHOUSE.—Keep the temperature from ten to fifteen degrees lower at night than in the day time. The temperature, however, should never be allowed to go below 45° or above 65° at night, whilst in the day time a temperature of from 60° to 75° will suit a mixed collection of plants very well. Plants require rest at night, a slightly lower temperature assists materially in this respect. Over-anxiety to keep out the frost at night is often the cause of a higher temperature being maintained at night than in the day time. This is injurious to plant life, as it induces a weak, spindled growth, that invites disease as well as a bountiful crop of insect pests.

When potting plants press the soil firmly around the roots of the plant without injuring them. Allowing the soil to remain quite loose around the roots is not conducive to quick root action and subsequent healthy top growth.

A moist atmosphere, induced by frequently sprinkling the floor of the greenhouse as well as syringing the foliage of the plants early

in the day on fine sunny days, will prevent the ravages of red spider. Sprinkle the floors at least once a day regularly, and syringe once or twice a week.

Carnations, roses and fuchsias, are particularly liable to attacks of the minute but destructive little red spider. A moist atmosphere does not suit the red spider.

Water all newly potted plants once thoroughly, and withhold water until the soil shows signs of becoming dry again. If the plants wilt a little, shade them from the sun for a few days, and perhaps syringe the foliage, but do not keep the soil in the pots soddened with water, thinking it will revive the plants. Too much water given to newly potted plants before root action has well started, will often destroy them.

THE GARDEN.—Mould up the tender varieties of out-door roses before severe frost sets in. The earth should be thrown up around them so as to cover six or eight inches of the stem, and the mound patted firmly around so that it assumes a conical shape to pitch off any moisture from around the plant. A further covering of long

strawy manure later on will also be of benefit, especially if there is no snow to protect the plants.

Newly planted bulbs should have a mulching of strawy manure applied before hard frost sets in. In fact all newly planted trees or shrubs, as well as bulbs and perennial border plants, will be benefited by some light protective material if they are at all tender.

Lilies of all kinds planted out of doors should have a good mulching of manure in winter, more especially the Japanese varieties. *L. candidum* and *L. tigrinum* are hardier, and as a rule require little or no protection. A mulching however will benefit them, as it acts as a fertilizer as well as a protective material.

THE WINDOW.—Retain as moist an atmosphere as possible around and about the plants, and careful intelligent watering at the roots, are the principal features of window-garden work during the winter to attain success.

The following varieties of plants are amongst those that require only a very limited quantity of water during the winter, viz. : cactus of all kinds, agaves, aloes, hydrangeas and oleanders. Rex begonias require only occasional watering during the winter, and should never be syringed overhead, as the spiny rough construction of the surface of their leaves retains the moisture to such an extent as to rot and destroy the leaves. All summer-flowering begonias require comparative rest during winter. A limited supply of water induces partial rest in plant life. Callas, cyperus, cinerarias, cyclamen, genistas, and all growing plants must never be allowed to become dry at the roots at this season.

Holland and all spring flowering bulbs require plenty of water, after the bulbs have made a good supply of roots. Newly potted bulbs require to be watered thoroughly once when first potted. If given the proper conditions to make root in, viz. : a cool, moist, dark situation, they seldom

require water until top growth commences and the bulbs have secured a good supply roots. Securing a good supply of roots before top growth commences is very necessary, if you wish the bulbs to produce the best flowers possible. After the top growth has well started bulbs should not be allowed to become dry at the roots.

Give liquid manure very sparingly to plants during the depth of winter. In February or early in March a little fertilizer may be given them to advantage.

Freesias require a fair supply of water, and must not be allowed to become dry when once top growth has well started.

Watch out closely for attacks of insect pests. A little weak tobacco water, or an application of some of the prepared insecticides sold by seedsmen, should be given plants every week or two during the winter. Give the application in a weaker form than is usually recommended. Weak applications, frequently applied, before the insects appear, will be far more beneficial as preventatives than heavy doses will be as a curer if left until the plants are infested with insects before it is applied.

Hamilton.

W. HUNT.



FIG. 2200. ARUNDO DONEX, GROWN IN QUEEN VICTORIA, NIAGARA FALLS PARK.

(See page 518.)



FIG. 2199. A GROUP OF TROPICAL PLANTS IN QUEEN VICTORIA, NIAGARA FALLS PARK, DURING THE SUMMER OF 1901.

THE EULALIAS.

IN a late number of your journal you proposed securing for your members *Rudbeckia purpurea*. I tried to grow it at the Falls and failed. I blamed it to the plant being rather tender; if so here, then it would not give satisfaction in other parts of the province. How do others find it? It may be that the excessive moisture here does not suit it.

In place of *Rudbeckia purpurea*, I would recommend some of the *Eulalias*, of which there is a number of varieties, and I am sure all that went to the Pan American this summer could not fail to take notice of the beautiful bed of them there. In my estimation it was the best bed on the grounds, and it contained *Eulalia zebrina*; *Eulalia Japonica*; *E. Japodica variegata*, and *E.*

geacillinia; *Gynerium argenteum* or Pampas grass of South America; also *Arundo donex*, of which there is a variegated variety. (See Fig. 2200.) I inclose you a photograph of the green one if worthy of notice. The above bed was bordered by the beautiful *Pennisetum ruppelianum*, which is grown from seeds in the early spring, although they can be kept in a greenhouse and divided by the roots in the spring. There are other similar plants that could be added to this collection, such as the Bamboos—the common, the golden and the variegated—and even the sugar cane and many others. Again what is more beautiful than a few individual plants of the above standing or planted here and there on any lawn?

Niagara Falls.

R. CAMERON,

HERBACEOUS PLANT NOTES.

THE fall planting of perennials should be attended to as soon as possible; delay until colder weather sets in is not advisable, because the plants may not then have time to form new roots and establish themselves firmly in their new quarters before hard frost stops their growth. Many of the hardiest and coarser growers may occasionally come out all right when planted late, but with the more delicate dwarf species we should always be most careful. When plants have not taken a firm foothold in the soil the frost will lift them, exposing the crowns and often a part of the roots. Mulching and shading the beds will act as a preventative against this evil and it is advisable to apply this mulch to all fall-planted stock, even to the early plantings.

Dividing into very small pieces should never be practised in fall. Rare things are better left alone until spring, when they may be divided into single eyes if necessary, with much more safety. All plants which form soft, thick, fleshy roots are more liable to decay over winter when mutilated by division; therefore, it is better to wait with this operation until next April or May.

Grasses like eulalias and erianthus, do not usually take kindly to transplanting during the fall months; neither do the hybrid pyrethrums, especially when the clumps are to be divided. When plants have been specially prepared for fall planting, by dividing in spring or early summer, it is quite a different case. We then have small clumps, which in most instances can be taken up with a ball. Their roots are not mutilated by division and they quickly take a firm hold in the soil. With such young

and vigorous material we run no risk of failure and are enabled to produce a fine show in a bed, the border or a rockery in the coming season.

Primroses, auriculas, campanulas, aubrietias, veronicas, helianthemums, aquilegias, silenes, lychnises, iberises, alyssums, hepaticas, lobelias, omphalodes, polemoniums, rudbeckias or arabises and a host of other things may be used to advantage for planting in beds by themselves or intermixed. Some of them can remain in their places for a number of years undisturbed; others, if so desired, may be removed after flowering to make room for other plants.

For refilling these vacancies we need not necessarily rely on bedding stock of other potted plants. Many of our later blooming hardy plants will bear removal after growth is considerably advanced if we are a little careful with them. I have successfully moved heleniums, phloxes, helianthus, boltonias, cedronellas, lythrums, asters, rudbeckias, veronicas and others in July and August, while in full, vigorous growth. Two or three very liberal waterings assisted materially in the speedy recovery of the plants; the soft tips invariably stood erect by the next morning and remained in that position without any further attendance.

Of course all these plants were dug up carefully with a ball of earth, otherwise they surely would have suffered more or less, and where the plants have to be a long while out of the ground or transported to a distant point it is out of the question to refill beds in this manner, but in most places where perennials are grown in quantity such stock for this purpose is nearly always available.—*American Florist.*



FIG. 2200

SOME ATTRACTIVE CACTI—II.

IN the October issue, a few of the different families of Cacti were mentioned, with a very short description of some of the most attractive members in each, and in this article some other branches of the species will be taken up. First, there is the small family of Anhaloniums, consisting of some five varieties. Foremost among these is *A. fissuratum*, the "Living Rock." This great curiosity has more of the appearance of a finely carved piece of stone than of a living plant, the shell having a hard surface, and the bright, purplish flowers come as a surprise from such an unlikely looking quarter. This is an extremely curious and wonderful plant, and lives where sometimes no rain falls for two years. It will stand any amount of drought, but too much water, while the plant is dormant, will soon cause it to rot. It generally blooms soon after being started growing, when imported from its native soil, and given favor-

able conditions. Besides this one there is a smaller species, and much rarer, *A. Sulcatum*, which is a quite persistent bloomer, having pretty purple flowers. *A. Prismaticum*, grows larger than either of the others, and is of a different formation, the parts which stand for leaves being hard and smooth, tapering to a small point. The flowers are also very much larger and finer, being about two-and-a-half inches across, of a white shade. This is highly prized by all collectors, it being scarce even in its natural home. Two other varieties, *A. Lewini*, and *A. Williamsii*, are called "dumpling cactus," from their appearance. They are round, and composed of a fleshy substance, having a long turnip like root. They bloom very freely, the flowers being of a light rose color.

A family of Cacti, among which are some well-known and commonly grown sorts, as well as a very large number of beautiful



FIG. 2201. CEREI GROWN BY MR. CALLANDER.

sorts which are very seldom seen, is the *Cereus*, in its greatly varied style. This species comprises forms that differ very much in style of growth, from the slender *C. flagelliformis*, which grows in hanging baskets, and is called the "Rat-tail," to the immense *C. giganteus*, the giant of the Cactus family, which reaches the height of forty to fifty feet. There are so many attractive *Cerei*, that in a short general description, it is hard to tell which to describe. The best known, perhaps, next to the Rat-tail, is the *C. grandiflorus*, or Queen of Night. This is a slender climber, the young growth of which is quite handsome, but it is the flowers of this, and all the other climbing varieties, that are their special feature. These are indeed grand, and form a

notable attraction wherever seen. Some of them are nearly a foot across, and very fragrant. Nearly all are white, though one or two are said to be pink. In Alston's greenhouses, Winnipeg, there is a large plant which blooms regularly, and a notice put in the paper that a flower is expected to open that night will bring hundreds of visitors to see it. There is a noted plant in California, which grows all over one side of the house of Mrs. Shepherd, Ventura-by-the-Sea. It is *C. triangularis*, and annually bears great numbers of enormous and beautiful flowers. Some of the stouter stems of these climbers being of very fast growth, are used for grafting other slower growers on, and this makes a very interesting study. Some very curious effects can be produced by this process, and the different varieties readily lend themselves to the work, and quickly unite and commence a rapid growth on the new stock. The favorite trial with amateurs is to take a well rooted and growing stock of *C. Colubrinus* two feet high or more, and graft on it two or three small pieces of the Rat-tail cactus. It is surprising how quickly this will form a head of long drooping stems, which also flower very freely when grafted. A fine specimen of this is shown in the front



FIG. 2202. ANHALONIUM.

of the group of tall cerei shown in the photo.

Another successful graft is to use a good strong stock of *Pereskia*, and on it graft an *Epiphyllum* or "Crab Cactus." This also, soon makes a fine specimen, and flowers better than on its own roots. Globular varieties grafted on a stright stem of *Cereus* are also very odd, and make a tremendous growth. It is in this way also that the Monstrosities are increased, as a smals piece will unite and soon made a large plant that is very valuable. A branching stem is often grafted with several different varieties, and the effect of these all growing on the same root is most peculiar. Indeed, grafting is the most interesting part of a Cacti collector's care of his plants, and it is very easily done if both scion and stock are in a good growing condition.

On the left of the cerei illustration will be seen a very curious form of *Cereus Peruvianus* which has no centre of growth, but is a solid mass of crowns, and growth starts anywhere, making the stem of all kinds of

grotesque shapes. The one in the photo is an extremely fine plant over three feet high, and fourteen inches across the top.

A specimen of the tall heavy growing style of cereus is always a great attraction, on account of its being something out of the common. *C. coerulescens*, is a beautiful sky blue color, and makes an imposing plant. *C. pugioniferous* is chiefly noted for its very long and stout spines. *C. pasacanus*, a rare species, has an almost black stem, and long deflecting spines. Then there is the great *C. giganteus* of Arizona, and Lower California, which is like the trunk of a large tree, and grows forty to fifty feet high. This also branches sometimes, but the small specimens seen in green-houses give a fine idea of the giant in its desert home. The *Cereus* family is a very numerous one, but mention can only be made of a very few here, and there still remains many other families to discuss, and find the attractive members of.

J. H. CALLANDER.

Woodstock, Ont.

HEDGES AND MARGINS OF LAWNS.

MUCH of the beauty and effectiveness of lawns surrounding city and suburban residences is oftentimes greatly marred and in many cases lawns are made decidedly unpicturesque from the fact that unsuitable and inappropriate plants and shrubs—and perhaps trees—are used to form a margin or dividing line between the lawn and its surroundings. Or even worse than this, a close board fence can often be seen without apparently any attempt having been made to hide its bareness from view. When this is the case it detracts very much from the general appearance of the lawn, however nicely the latter is kept, or embellished with plants or other decorative material.

One often sees on lawns of very small dimensions, a row of Norway spruce or per-

haps of strong tall growing cedars planted where a row of dwarf growing evergreen or flowering shrubs would be much more attractive and pleasing than a pine or cedar hedge, as the latter oftentimes present a decidedly rusty looking appearance, especially after undergoing the annual clipping process, so necessary to keep them within reasonable bounds. I am aware that the class of trees just mentioned are sometimes necessary to be used as wind-breaks or shelters for lawns. For this purpose they are most effective but the proper place for them is a distance away from the grass plot, where they cannot devour all the nutriment from the flower beds or borders, in such a position that they will have room to grow and develop into beautiful specimens, and where their stately growth and graceful

outlines can be seen to the best advantage. As dividing lines on small lawns, or even as single specimens, tall growing pines and cedars are decidedly out of place and inappropriate, as they either have to be allowed to grow and overshadow and perhaps destroy everything within the reach of their hungry absorbing roots, or their growth has to be clipped and their roots pruned back to prevent them destroying all other plant life growing near them.

There are however many dwarf growing evergreens and conifers other than those mentioned, that are more suitable for planting on or around small lawns either as dividing lines or as single specimens, where an evergreen hedge is considered to be a necessity. Amongst the best and most easily obtained from nurserymen are the dwarf growing Thuyas or Arbor Vitae, the varieties *Thuja Hoveyii* and *Thuja occidentalis compacta*, being probably the hardiest and best of the varieties to be had. Many of the Japanese varieties of the *Thuja* and *Cypress* are more ornamental than these native varieties, but are not nearly as hardy, and are much more expensive to purchase.

Amongst flowering shrubs suitable for planting as a hedge around a lawn is the pretty little dwarf growing *Spirea*, Anthony Waterer. This shrub is probably not sufficiently hardy in the more northern section of Ontario, but in Southern Ontario it succeeds splendidly, and when covered with its bright pink blossoms, as it is generally from July until October, it has a very pretty effect. One only has to see this plant growing in nursery rows to form an idea of its suitability for a dwarf hedge around a lawn. The *Spirea Bumalda*, and the white variety of the same class (*Spirea callosa alba*) would also be very effective for the same purpose. The stronger growing *Spireas* such as *S. van Houtii*; *S. Douglasii*, and *S. Billardii* and the several similar types of

these plants, are not as suitable for planting as hedges or dividing lines. Only recently I saw a hedge of the bridal wreath *Spirea van Houtii*, planted around a lawn as a hedge, that had probably when first planted been very pretty and effective, but owing to its habit of growth it had of necessity to be clipped to keep it within bounds, making it very little better or prettier than a hedge of the common *Osage Orange* or *Honey Locust*. Some of the herbaceous *Spireas* would be found very suitable to use as dividing lines or as hedges around lawns, amongst them being *S. auruncus* and *S. ulmaria alba plena*, the latter being the most suitable of the two.

Amongst the *Deutzias* the most suitable would probably be the popular little dwarf variety *D. gracilis*, and the newer variety *Deutzia Lemonei*, although the high price of the latter at present, will probably prevent its being used very lavishly on lawns for a year or two.

Another very pretty shrub is the *Berberis Thunbergii*, its hardiness and dwarf growing habit making it particularly suitable for forming a low growing hedge.

Amongst herbaceous perennials that can be used very effectively for the above purpose and that are hardy and not expensive, is the old fashioned *Bleeding Heart* or *Dielytra spectabilis*. A row of these plants has a most beautiful effect, especially when in flower, on the margin of a lawn during summer. The German and Siberian *Iris* are also very pretty and effective for marginal lines. These latter could be mixed so as to give quite a variety of color when in flower. The foliage of the *Iris* is also quite ornamental, if the rows or clumps of roots are kept compact and trim. The dwarf growing *Iris pumila* is very useful for forming marginal or dividing lines on very small lawns as it grows only to a height of eight or ten inches.

Both the *Hemerocallis flava* and the

dwarfer growing variety *H. Dumorterii* can also be used very effectively as line plants, both varieties are hardy and very showy when in flower.

The *Yucca filamentosa* is often used for the above purpose also.

The common ribbon grass (*Phalaris arundinacea variegata*) makes a splendid marginal plant for a lawn, and it is both hardy and inexpensive.

The introduction during recent years of so many new and desirable shrubs and perennials suitable for marginal lines or hedges on lawns, makes it comparatively easy to make a selection that is both pretty and useful, without confining oneself to pines or cedar, or the almost evergreen privet for this purpose.

Hamilton.

W. HUNT.

THE MOCCASIN FLOWER, OR LADIES' SLIPPER.

LADIES' Slipper is not a word in keeping with hemlock and beech woods, but the word Moccasin throws meaning into the black shadows, and brings to mind the stone axe and flint arrow-heads found not long ago on the edge of a newly-plowed field, that was but recently a piece of these same woods.

"With careless joy we thread the woodland way
And reach her broad domain,
Thro' sense of strength and beauty free as air,
We feel our savage kin:
And thus alone, with conscious meaning, wear
The Indian's Moccasin."

We stopped at a point where a pair of chestnut stumps indicate the entrance to a wood road whose guardian gate-posts and rails now lie among the ferns, keeping shape until touched, and then separating into an intangible powder, half dust, half wood-mold.

On this bank, peeping incautiously from between Bellworts and the black stalks of a little forest of damp and only half-opened fronds of Maidenhair Ferns, was a single Moccassin Flower of unusual size and height, its pouch of an almost crimson hue.

It stood like an outpost, commanding a view both up and down the shady road. I straightway picked it, carefully wrapped its stem and leaves in damp moss, and hid it in

the depths of the chaise tops; for, thought I, if, to-morrow being Saturday, any of the people coming down from the back country spy this flower, somebody will surely put two and two together, follow the trail into the woods, and make the whole colony prisoners. And among all our native Orchids this Pink Moccasin Flower is the most hopeless to transplant, as away from its haunt in a year or two at most it pines away, appearing to find some unknown quality in its natal soil with which it cannot be supplied.

Within the wood edge pairs of leaves and single flowers soon become more frequent, but these sank to insignificance when I came in sight of the first tree bowl. There the Moccasins were holding a woodland flower market of their own, peeping over each other's shoulders, crowding the edges of the leafy hollow, straying from the sides and clustering in the bottom, facing this way and that, wearing every shade of color from flesh-white through pink to a deep, veiny purple, and all nodding and swaying as they were continually jostled by the eager bees who came to make their purchases of pollen and nectar.

Notwithstanding the great attraction that a Pink Moccasin Flower in the hand offers

us from its oddity, it is certainly much more beautiful in its haunts. There the paler flowers counteract the somewhat veiny quality of the deeper, and the soft browns of the hemlock-strewn ground act as a setting to the whole, together with the surrounding air of mystery making it one of the half dozen New England Orchids for which true landscape value may be claimed.

Hereabout it is the earliest comer of the tribe. Oh, no! I am forgetting that there is one of another household still earlier, the Showy Orchis, which pierces the mold with its lily-like leaves in late April or early May, in company with Wake Robin, Bloodroot, Anemones, and Yellow Violets. Even Time o' Year does not know its haunt in the deep woods beyond Lonetown on the Ridgefield road, where I cherish a few plants of it, so rare is this region, by letting them alone in the hope that they will increase, and that the seed may be borne to neighboring woods.

This Orchis is most precise in its equipments, and when in its first perfection of bloom, it seems like an artificial plant of wax from its broad leaves, sometimes six inches in length and damp to the touch, to the tip of its spike of half a dozen spurred, shaded purple flowers with broad white or violet tips. Where it is common, it often gathers in crowds like the Moccasin Flowers or Fringed Orchises, but with the few rare plants of my discovering, each kept its distance from the other, as prim as children made ready for a party, who sit perched on chair edges in constrained attitudes to keep finery untumbled until the moment for departure comes.

In common with many of the tribe the Showy Orchis has, on opening, a delicate earthy fragrance that turns to a decided muskiness after the fertilization of the flower; a perfume inseparable from leaf-mold blossoms to whatever tribe they may belong. One quality it lacks, and that is graceful-

ness. If its flower-stem grew longer before the buds opened, so as to raise them well above the leaves and give the wind a chance to sway and bend them, the primness would vanish, and the Showy Orchis be captivating indeed. At present it reminds one of a lovely woman with so short a neck that she cannot turn her head.

Another Moccasin Flower, a taller cousin of the Pink, has sent a few venturesome pioneers over the hemlock ridge to test the climate and soil on the coast side of it, for this family needs bracing air and usually keeps well away from salt water influences.

The Yellow Moccasin, or, as the French call it, *Le Soulier de Nôtre Dame*, comes in flower as the Showy Orchis passes, and precedes the exquisitely painted Showy Moccasin Flower, whose splendid rose-and-white blossoms, often two on a stem, seek high places and are seldom found in abundance south of Maine, New Hampshire and Vermont. It is called *Regina*, for it is queen of a princely family.

The Yellow Moccasin is a striking flower of the high shaded woodland landscape. The unclift shoe itself is of a clear smooth yellow, veined with purple; the other two purplish petals hang as twisted strings, with a hood-like sepal arching between. The flowers, singly or often in pairs, are raised upon a stout, leafy stalk a foot or two above the ground, clearing the more woody undergrowth which serves as a background to deepen their color.

How the eye loves to linger upon yellow flowers! Of the three primary colors, yellow always seems to me the most harmonious under all conditions, from the first Marsh Marigold to the last brave wand of Goldenrod. Even after hard frosts, the same cheerful color wraps the low thickets wherever Witch Hazel blossoms, giving the landscape, through this last flower of the season, a forecast of the willow tints of early spring.

Roughly speaking, without attempting a

census, it seems to me that taking the year through, the majority of landscape flowers are yellow. At least, such species as wear this color grow in greater abundance than those of other tints. And if the strange yet plausible theory of Grant Allan be true, that all flowers were originally yellow, but that

in the processes of evolution they have experimented with other colors only to work back again to the original hue, it is easy to account for the plentifulness of this color.

NOTE.—This is a selection from Mabel Osgood Wright's recent work, *Flowers and Ferns in their haunts*; from the chapter entitled "Some Humble Orchids."

SENDING FLOWERS THROUGH THE MAILS.

SENDING flowers through the mails is a pretty sentiment and often a source of delight to the recipient, especially when the flowers are of a new variety and sent from a long distance by a traveler in token of the places seen and visited. The object of this sketch is to give a few hints as to the best way to pack them to insure the certainty of keeping fresh and fragrant.

Let us suppose that pansies and lilies of the valley are to be arranged for transportation through the mails. A small pasteboard box must be procured and lined with cotton wadding moistened with water; over this make a bed of the leaves from the lilies, and upon these leaves place the flowers. Much taste may be displayed in the arrangement, and upon opening the box the effect will be quite the same as that of a bouquet. Cover the stems of the flowers with damp moss in such a way that they will be firmly imbedded, and thus kept fresh for a long time. Before putting the lid upon the box sprinkle the flowers and place a covering of leaves over them.

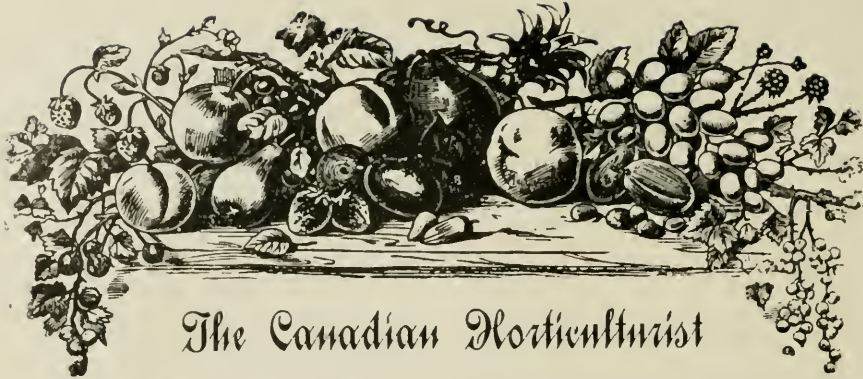
A friend who received a box of camelias from Georgia, reported their arrival in perfect condition. Their stems were laid in freshly cut potato. Some florists wrap oiled paper or tinfoil about flowers when all has been done to prevent the escape of moisture. I have received roses packed in their own leaves in a perfect condition after several days.

At Christmas time flowers are a very sweet remembrance for the friends to whom we dare not send anything of more pecuniary value, and a would-be lover may express volumes in the selection of a box of these dainty things for the lady to whom he has not yet made an avowal of his affection.

In winter, flowers are more easily kept moist than in summer, which is the main point to be achieved in sending a long distance.

An excellent authority gives the advice to plunge the stems of wilted and drooping flowers into hot water to about one-third their length, taking care that their blossoms are untouched. This process drives the "sap" back into the flowers, and causes them to revive in a short time, unless already hopelessly faded. Cut away the withered portion of the stem before putting into cold salted water or wet sand, which is better for vases and dishes in which flowers are to be kept, because it will preserve them longer.

Do not gather flowers while the sun is shining upon them, but choose instead the early morning or the hour after the sun has gone down. Avoid pulling or tearing from the plant; cut with sharp scissors or a knife, and in the case of varieties having a large stalk or stem, rub a little dirt over the wound. Always leave as long a stem as possible, not to interfere with other buds or blossoms.—*Jenness Miller in Household Companion.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

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

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

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 it 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.

NOTES AND COMMENTS.

THE FLORISTS OF HAMILTON have recently organized with Wm. Hunt, President, and P. Lawson Secretary.

MEDAL FOR HORTICULTURAL LITERATURE.—Among the medals awarded at the Pan American, we notice one to the Ontario Fruit Growers' Association, for an exhibit of horticultural literature. This was given for a set of bound and unbound copies of The Canadian Horticulturist which the writer forwarded to Mr. Bunting for exhibition.

We have reason for congratulation over this since this is the only medal awarded for horticultural literature. We also obtained a medal and diploma at the World's Columbian Exhibition for the same.

CONTRIBUTORS FOR 1902.—Our readers will be pleased to know that several talented writers will contribute to these pages during the coming year, and among those who will

write a series of articles we have: F. C. Sears, Professor of Horticulture, of Acadia College, Wolfville, N.S.; H. L. Hutt, Professor of Horticulture, Agricultural College, Guelph; W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa; Wm. Hunt, Professional Gardener, Hamilton, Ont. Besides these there are many others who will contribute occasional articles. Our readers may therefore expect a series of excellent issues of this journal, which we hope will be of great public benefit.

AT THE FIFTH ANNUAL MEETING, the American Park and Outdoor Association, at Milwaukee last June, Mrs. Seavey spoke on encouragement of local improvement work, such as might be done by local Horticultural societies, as follows:—

Your committee suggests, (1) that improvement societies are the already existing nuclei from which great transformations should result; (2) that im-

provement work should be submitted to business men as a business proposition; (3) that the hygienic disposition of household waste is a paramount question that should be considered by every improvement organization; (4) that bad conditions in cities are the logical out-growth of bad conditions in towns, villages and in the country, and that these should be traced to their sources and preventive and remedial measures instituted all along the line; (5) that interested assistance is likely to follow definite statements of bad conditions if accompanied by a clear outline of practical means for overcoming them; (6) that twentieth century intelligence, admitting that the whole is greater than its parts, plans in a large way before executing details; (7) that large aims and earnest work bring their own reward, and lastly (8) that if one person present absorbs the notion that it would be vastly fine to line every approach to the home town with red bud, and wild crab, and wahoo and invite the birds and the squirrels to live in them and—goes home and does it—your committee will feel that “it has done what it could.”

We would advise our Horticultural societies to correspond with Mr. W. H. Manning, landscape architect, 1146 Tremont Building Boston, who is secretary of this Association, for terms on which each society could become associated and receive the reports.

ONTARIO'S TRIUMPH at the Pan-American is indeed a matter for congratulation. “Our display in fruit,” said the Hon. John Dryden at the Horticultural Building one day of the closing week of the Pan, “has been a revelation to the Americans, and, in some respects, to ourselves. Few Canadians un-

derstood, prior to this Exposition, the great possibilities opened up by cold storage in connection with fruit production. Here are apples, of last year's crop, still in perfect condition at a time when our winter apples of this season's growth are already matured. This means that apples which have heretofore been sacrificed in the fall can hereafter be held without loss in quality until a fair market is obtained. Some fear this will mean transferring the crop in the fall from the hands of the producers to those of speculators, and that dealers rather than growers will thus reap the principal profit on our staple fruit crop. But there is no reason why this should be. The law provides a ready means for the establishment of co-operative cold storage depots, and the Provincial Treasury can even be drawn upon to assist in construction of the same.

“Our fruit display has also impressed thousands and thousands of strangers with the capabilities of our Province in this line. The only mistake we made was not realizing soon enough the advertising possibilities in the Pan-American. We should have prepared a year in advance for the work undertaken. Even as it is, we have more than held our own, and have convinced our friends across the lines that we have both the quantity and the quality in fruit.

APPLE REPORTS.



MESSRS. Woodall & Co.'s report, dated Liverpool, October 19, is not very encouraging to shippers and leads us to infer that better money can be made by sales at home than abroad:

The arrivals this season to date are 32,545 barrels, against 83,772 during the corresponding period last year, and it would appear that the crop is the smallest for some time past. The prices realised so far, except in a few instances, are anything but

satisfactory; and it is the same old story, that early fruit mostly arrives in doubtful condition, and, even if sound, does not show sufficient superiority over the home crop—which is marketed at this time—to command remunerative prices. There has been an enormous crop of stone fruit, which interfered with the demand for apples. The results are, no doubt, disappointing, but only what was to be expected, and it is no criterion as to what really good sound winter

stock will bring; there is little doubt such will realise a high range of prices, provided the quality is attractive. It however often happens that a small crop is caused atmospheric conditions unfavorable to the keeping quality and development of the fruit, in which case disposal on the home market is the better policy. Arrivals have been from all shipping ports, including Nova Scotia, and the above remarks apply to one and all. A special feature is that Canadian Snows are again arriving mouldy, and consequently sell at a wide range of prices, but mostly at very low rates.

A fair quantity of Virginian Albemarle Pippins has arrived, but, so far, are most unattractive, being green, dull, and, in

many instances wormy and spotty, and quite unsuitable for a fancy trade; consequently buyers would not give them attention, and they were moved with difficulty at low prices.

A small lot of boxes Californian Newtons, retailed at 12 6 for 4 tiers.

Cable Report of London Market, Nov. 8th, 1901, by F. A. O'Kelly & Co.: Nova Scotians, Kings 18s to 22s, Ribstons 15s to 20s, Blenheims 17s to 21s, Culverts 14s to 20s, Newtown Pippins 30s, strong demand for best quality, Keiffers 10s 6d to 18s according to quality, California Newtons 9s to 9s 6d.

QUESTION DRAWER.

Whale Oil Soap.

1261. SIR,—Can you let me know through the next journal where I can get whale oil soap, and at what price per lb., as I wish to try some this winter. I hear that the San Jose Scale is coming this way from Kingsville, where they have it very bad.

Yours respectfully,

M. G. BRUNE,
Olinda P. O.

Essex Co., Ont.

J. G. Ward, Consecon, Ontario, manufactures whale oil soap, and will be glad of your order.

Also better consult Mr. Geo. G. Foster, Burlington, Government Inspector, of San Jose Scale.

Oyster Shell Bark Louse.

1262. SIR,—When is the best time to spray, and with what material for the oyster shell scale? Does fall, winter, or early spring spraying have any deterrent effect on the aphid on plum and cherry?

St. Thomas, Ont.

A. W. GRAHAM.

The best time is about June 1st, when the young lice are leaving the cover shell of the old mother, and trying to find a new spot on which to raise a colony.

Apples for Oxford County.

1263. SIR,—I intend to plant a couple of acres of apples for commercial purposes and to fill in the rows temporarily with small fruit or early bearing apples.

How would Baldwins, Northern Spy, Ontario and Ben Davis do for permanent trees?

Is the Cranberry Pippin, which I see you recommend for export, suitable for this district?

Would you plant Wagener in between the others? What others would do for the same purpose?

I have taken the Horticulturist for nine years now and enjoy reading it very much. Yours truly,
Embros.

D. M. ROSS.

The varieties you mention are well chosen as permanent trees in your orchard; the Cranberry Pippin is a little uncertain, and we would not like to recommend it too highly. At Maplehurst, with good cultivation and fertilizing, it grows larger than Ben Davis, and fully better colored, and as the background yellows in midwinter, it is especially attractive. But if at all neglected the fruit becomes warty, a blemish to which the Ben Davis is not subject.

We would not plant Wagener or any other apple tree between the regular orchard

trees because they would yield so little fruit before they would need to be removed.

If it is desirable to make the ground pay the expenses of cultivation, we would advise growing small fruits or some other hoed crop.

The Honey Bee.

1264. SIR,—Are the days of the bees numbered? It would seem so from what we read about them in your last issue of the *Horticulturist*, page 470. Would it not be well to cover a few trees altogether with sacking or mosquito netting and such varieties that are most subject to the disease, such as Winter Nelis, Flemish Beauty or White Doyenne, in place of covering a branch on the tree. The branch covered might be the only one on the tree or trees that might escape if not covered while if the whole tree was covered and then the disease took hold there would be a reason for be-

lieving. A simpler way would be to send the bees away to the Klondike for a season, or some other place and prove the innocent creatures guilty. My belief is that the death blow is very simple to the blight such as recommended by J. J. Graham to produce an apple crop (page 487 your last issue) or a similar one, such as proper pruning, moisture and the suitableness of the soil and its cultivation. Why does not the bees introduce the disease to the Keifer, Buffam and others we could mention.

R. CAMERON.

Since the bees can only carry blight from tree to tree during the brief season of blossoming, it is a very easy matter to see that no blighted trees be allowed to bloom. Such trees should be carefully cut out and burned before that season, and then the innocent bee will be perfectly harmless in regard to the spread of blight.

Open Letters.

Rufus.

SIR,—I am sending you some specimens of the Rufus apple, a seedling which originated at Perth, Ont., in the garden of Lt.-Col. Matheson. I have sent some specimens to Hutt also, as I thought it was promising enough to mention in the report on new fruit.

W. T. MACOUN,
Horticulturist C. E. F., Ottawa.

This apple is rather attractive in appearance, of medium size, conical, covered with bright red, and dark red on sunny side.

The flesh is white, tinged with streaks of red, crisp, moderately juicy, and very agreeable flavor.

Horticulture in California.

SIR,—I am immensely pleased with California; its scenery, climate and flowers and fruits. It is indeed a country of extremes, high snow-capped mountains enclosing beautiful verdant valleys, flowers of all kinds, roses more especially. Cacti grow in abundance in the Mojave desert, only 20 miles from here, and you may imagine how I am in my delight. Even now at this late date we are picking strawberries from a patch that has been producing without intermission since last March, the Jessie variety. Grapes here produce and ripen three crops a year, but are not of the same variety as in Canada; one kind is entirely seedless and very nice. They sold well here last year, sales averaging \$30 per ton on the vine. Nearly all grapes are used for wine or raisin making. There is an immense amount of fruit of all kinds dried in the sun.

Fruit here, although of the same varieties as with you, Bartlett pears, Crawford peaches, etc., appear to have quite a different texture, and if not picked will not rot but simply dry up on the tree. Surely it is not on account of lack of moisture, as here we irrigate our orchards once a month most thoroughly as water can be had at all times and is very cheap too. The melted snow from the mountains is the only source we get it from. There are many kinds of peaches and plums here that I think would be profitable with you, also of grapes. I shall be pleased to mail you scions if you should wish them. We are having beautiful weather now and have only had one rain since last April. The leaves on the trees are as green as in April, and the palms and magnolias I especially admire. Everything seems to grow with such ease and perfection. I am often thinking of the Horticultural Society and will with your approval write a paper to read at one of the winter meetings on "Flowers in California." There are no Horticultural Societies here, and I may add no need of the spray pump, for there are very few bad insects or fungoid diseases.

Bakersfield, Cal.

N. KEEP.

Spraying.

SIR,—This year, in spraying, I used 2½ lbs. blue vitriol, 3 lbs. of lime and 4 oz. of Paris green to 40 gallons of water, instead of full strength as heretofore. I sprayed three times after the blossoms dropped, at intervals of ten days. The foliage of the Japan plums and sour cherries nearly all dropped off. The aphid was very bad on those trees this year, was it the spraying or the aphid that caused it? Apple, pear and European plums were all right and bore heavily.

Yours truly, A. W. GRAHAM.

Thujopsis dolabrata.

SIR,—Has any of the readers of your valuable journal had any experience as to the hardiness of *Thujopsis dolabrata argentea variegata* of Japan? I have a good specimen, but I am afraid to risk it out during the winter. I know of but one plant, at the late Senator Sanford's residence in Hamilton. It was grown in a pot like my own, and I was told by the gardener there that the plant was sent to Senator Sanford by Princess Louise. The above is a beautiful plant if found to be hardy. Will someone please report upon it.

R. CAMERON.

Fruit Export and Imports.

DEAR SIR,—I beg to send you the enclosed which I think may be useful to publish, when we expend nearly \$4,000,000 on other peoples' fruit, and we have no corresponding value in exports.

G. H. FAWCET,

Customs Department, Ottawa.

Exported during the year ending 30th June, 1901.

Apples, dried, lbs.....	\$4,325,854	\$	191,193
" green, bbls.....	678,651		1,482,927
Berries.....			112,441
Canned and preserved.....			181,438
All others.....			39,144
			\$2,007,143

Statement showing the kind, quantity and value of fruit imported into Canada and exports therefrom during the year June 30th, 1901.

	Quantity.	Value.
Cocoa Nuts, No.....	2,257,806	\$ 40,569
Dried Apples, lbs.....	97,930	7,158
" Currants, ".....	3,121,722	219,072
" Dates, ".....	1,634,190	30,285
" Figs, ".....	2,705,430	90,094
" Prunes, ".....	4,616,342	149,091
" Raisins, ".....	13,131,663	753,798
" other, ".....	1,997,457	117,850
Nuts, Almonds ".....	699,291	120,545
" Brazil, ".....	57,441	5,399
" Pecan, ".....	512,053	30,392
" Walnuts, ".....	1,030,813	88,054
" other, ".....	4,343,458	67,413
Green fruits—		
Apples, bbls.....	26,357	74,922
Blackberries, goose, raspberries, etc., lbs.....	1,079,652	80,366
Cherries, lbs.....	105,607	9,547
Cranberries, bush....	13,570	26,199
Currants, lbs.....	915	49
Grapes, ".....	1,001,536	59,915
Oranges and Lemons, boxes.....	532,112	919,809
Oranges and Lemons, ½ boxes.....	40,839	52,127
Oranges and Lemons, other packages....		126,486
Oranges and Lemons, bulk, No.....	16,476	121
Oranges and Lemons, barrels.....	18,066	45,820
Peaches, lbs.....	2,094,557	52,043
Plums, bush.....	36,712	36,465
Quinces, ".....	1,383	335
Bananas, bunch.....	581,624	579,479

Pineapples, No.....	925,288	56,066
Guavas, Mangoes, Shaddocks, Pome- granates, etc.....		3,049
Wild Raspberries, berries.....		701
Other dutiable.....		61,593
		\$3,936,712

Our Fruit at Glasgow.

SIR,—Our fruit of last year, now over 12 months old, is still in capital condition. I have not seen any new Canadian apples to surpass them, although I have attended several of the sales at the Bazar and at Simonds & Jacobs where several thousand barrels were disposed of.

I was pleased to see that nice apples brought good prices, up to twenty-eight shillings per barrel. From that down to thirteen shillings, were common prices. Sad to say many badly packed lots were sold at much lower prices. Several lots too, seemed to have heated on the voyage and were badly spotted, so that it is not to be wondered at that they sold at low prices.

I saw some lots that had crossed in cold storage and some that had crossed in well ventilated compartments, and must say that there was but little if any, choice between the two. I rather prefer those from the ventilated compartments. I believe it would be advisable to place registering thermometers in all ship's compartments in which fruit is shipped, whether in cold storage or merely ventilated compartments; we would by that means have the satisfaction of knowing what the temperature was during the passage.

The reason of my preference for the simply ventilated compartment is that apples out of cold storage become so wet immediately on being exposed for sale that they have a bad appearance, they do not look as well as we could wish and consequently do not sell as well. Another reason is, that they sometimes lie exposed on the wharf a day or two after being discharged and during that time they become exceedingly wet, and if they go into cold storage in that condition their last state is worse than the first.

Apples that are to be kept a long time would be better of being shipped in cold storage and immediately transferred to the cold storage on being discharged from the ship, there to remain until the date of sale. But, apples that are to be sold on arrival, would, I am convinced, sell better from mere ventilated compartments.

All our apples for exhibition were packed and shipped in cases with the exception of five barrels. Many of the cases reached us in an almost perfect condition, some of them without a single damaged specimen, and we have to-day, October 13th, many kinds that are as firm and as fine in texture and flavor as they were in May and June, or as when they were gathered.

There is nothing in connection with this exhibit, that more astonishes visitors than the beauty and quality of these year old apples. We sample them freely on suitable occasions.

Shall I say that many apples come to us in very bad condition, one lot of very fine fruit had evidently been packed in barrels at first, and were afterwards transferred to the cases, wrapped in

one fold of tissue paper, without any other packing between them or between the layers; needless to say that those splendid apples were almost a total loss, whilst those that were wrapped in double tissue paper, the inner fold waxed, and packed in excelsior or placed in separate compartments, came as nearly perfect as we could hope for, and might have sold from May till August for from four to five dollars a case.

Some of the varieties still on the table in good condition are the following, viz:

Blenheim Orange, Ben Davis, Fallwater, King, Ben Davis, Black Detriot, Canada Red Baldwin, Bottle Greening, Greening R. I., Cranberry Pippin, Eccles from New Brunswick, Spitz, Lawver, Seeks, Holland pippin, Gold, Russet, Rox Russet, Wealthy, Winter St. Lawrence, Stark, Spy, La Salle American pippin a splendid keeper and sort, Malinda (new Russian, a fine keeper), Ribston pippin Bethel, Pewaukee, Swaar, St. Antoine, Andrew's Seedling (a fine keeper), L. W. Seedling (a fine keeper), Grimes Golden, Coopers Market (a splendid keeper), Nonpariel, Newton pippin, besides about half a dozen sorts that came from Nova Scotia without name that are unknown to me.

Yours truly,

ROBT. HAMILTON.

Canadian Section, Glasgow
International Exhibition, 1901.

OUR AFFILIATED SOCIETIES.

THE DESERONTO HORTICULTURAL SOCIETY held their 5th annual flower show in Union Hall, on Wednesday, Oct. 2nd, and it was a decided success. The Citizen's Band provided music, and an ice cream stand under the able management of the charming president contributed largely to the enjoyment of the evening. The fine bank of ferns which faced the main entrance was much admired, and the collection of palms to the left contained some splendid specimens of rare and beautiful plants. The two collections of greenhouse plants were worthy of careful study, and they received it. The arrangement of the plants in both collections showed that the gardeners were skillful and artistic florists. In the amateur classes the exhibits were good, but the number of entries were not as great as they should have been. The large display of cut bloom was somewhat of a surprise on account of the lateness of the season, and the bouquets were much admired. The design of cut blooms exhibited by P. Casburn, was the finest ever shown in Deseronto, and J. T. Riddle's bouquet of garden flowers extremely artistic. It is questionable if a finer show of vegetables has been seen in Canada this fall—there may have been larger collections but the quality of the exhibits could not be surpassed. In the Public and High school competition Miss Gwendoline Lloyd carried off the first vice-president's prize. The display of fruit was not large, owing to the lateness of the season, but what was shown was highly creditable to the exhibitors. Those in charge of the exhibition are deserving of all praise for the perfection of the arrangements, and for giving so much pleasure to the large number of citizens who visited the flower show of 1901.

LITERARY NOTE.

The building of a grain elevator in the face of difficulties that would baffle nine men out of ten, and the falling in love of the builder, and you have the plot of *Calumet "K,"* by Mervin-Webster. But you also have much more. You have a practical illustration of the point made by the writer of *A Message to Garcia*—that success waits the man who sees that his employer's interest is his own—the man for whom difficulties are an incentive, and not the cause of foolish questions or excuses for non-performance.

The Best Christmas Gift For a Little Money:

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A Handkerchief Worth \$1200.

Among some superb photographs of "The Hand-somest Laces in America," which occupy a double page in the Ladies' Home Journal for September, is shown an exquisite handkerchief valued at \$1200. When one closely examines the weblike film, and the remarkable detail of the dainty design, this sum seems none to much to pay for such a piece of work. Its making doubtless occupied the greater part of one woman's life. The handkerchief is now the property of the Drexel Institute in Philadelphia, to which it was presented by the widow of George W. Childs, the famous journalist and philanthropist. The other beautiful laces shown on this page are owned in New York and Boston, most of them being included in the collection loaned to the Metropolitan Museum of Art by Mrs. Astor. This collection is valued at the enormous sum of \$62,000

Never Forget the Note of Thanks.

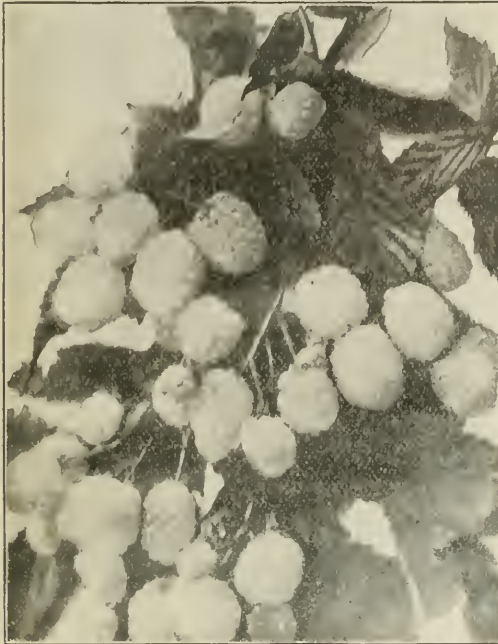
Be sure to send a note of thanks for a gift received at the earliest possible moment. Write it before your ardor cools. Make it hearty, spontaneous, enthusiastic. You need not be insincere, Even if you do not like the gift you must like the spirit that prompted it. Never defer writing with the idea that you will thank the giver in person. You may do that as well when opportunity offers, but do not risk delay. Nothing is more discourteous than belated thanks.—The Ladies' Home Journal for December.

PLANT DISTRIBUTION FOR 1902.

Free to subscribers to *Canadian Horticulturist*.

We are now offering special inducements to new subscribers for 1902, giving them the Journal from date of subscription until Jan. 1st, 1903, and their choice between our new introductions A, and B, described below. Send in both old and new names for 1902 as soon as possible, before the stock of plants is exhausted.

A. Fruit Plant, "ICEBERG" The New White Blackberry, the Paradox of the Fruit World. Two Plants.



THE following is Mr. Burbank's own description, and its accuracy will be vouched for by all who know him, as he is commendably conservative in all that he says about his creations. In his desire to mislead no one, he leans rather toward under-rating than exaggerating the value of his originations. He says: "Owing to the somewhat unsatisfactory qualities of White Blackberries so far known, the impression may have been entertained by some that no White Blackberry *could be* as productive and hardy, with berries as early, abundant, large, handsome and delicious, as the best black ones.

"The well-known Lawton is when ripened, unsurpassed, and very generally known as the most productive market berry. Owing to its fixity of race, it will reproduce itself from seed almost exactly, and its seedlings will not be influenced, when raised from seed pollinated by other varieties, but it steadily imparts its good qualities when employed as the staminate parent. One of the great grandparents of 'Iceberg' was Lawton. The first generation of seedlings when crossed with Crystal White, was all black; the second also, though varying much in other respects; but the third produced this wonderful plant bearing the snowiest white berries ever seen.

"Very little attention was paid to the long rows of cross-bred descendants, until one day this berry was discovered, among its black relatives, with the canes bending in various directions with their load of delicious, snowy berries, which are not only white but so transparent that the seeds, which are

unusually small, may be seen in the berries when ripe.

"Clusters, larger than those of Lawton; berries, as near as could be judged, were at least as large, earlier, sweeter, and more tender and melting throughout, though as firm as Lawton is when ripe."

B. Flower, *Deutzia Lemoinei*, (shrub.)

The introducers describe it as follows--

Flowers pure white. In comparison with other *Deutzias* it is ahead of them all, in that it blooms more abundantly and earlier. Its trusses are larger, double and not single. Can be readily forced with ordinary care in the house in the wintertime to bloom about Easter, thus producing excellent flowers when such a color is in greatest demand. This plant cannot fail to give satisfaction for both indoor and outdoor use. It is dwarf in growth, being about 12 to 14 inches high when delivered, having several branches. It is being introduced by nurserymen at 75 cents each plant.

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1902 in before the end of 1901. We want to make the year (1902) a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new and valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission and thus have for himself both the *Deutzia* and the blackberry "Iceberg."

New Subscribers sending in one dollar for the year 1902, may have the balance of the year 1901 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them, and report whether these novelties are as described.



