Photo by Miss Brodie.

FIG. 2112. THE CROSBY PEACH.

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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 2¾, 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 inclined 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 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 2¼ 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.

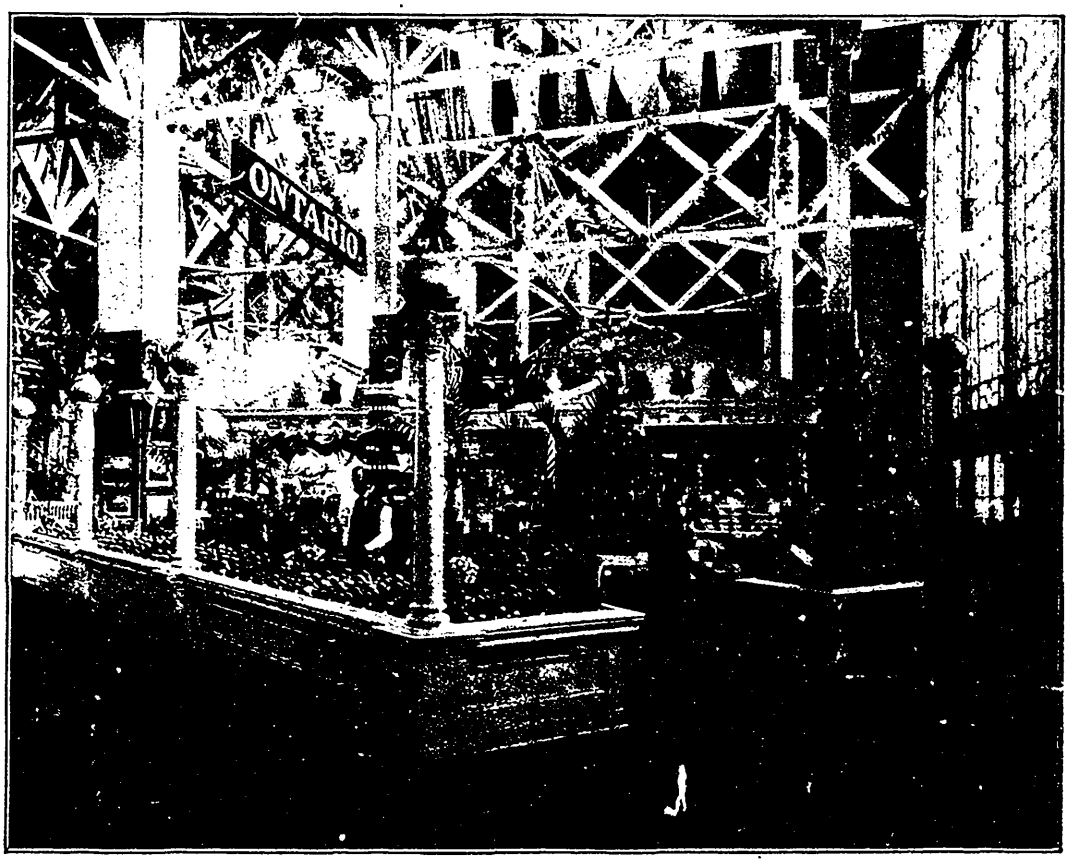


FIG. 2113. ONTARIO FRUIT EXHIBIT.

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 magnificent 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

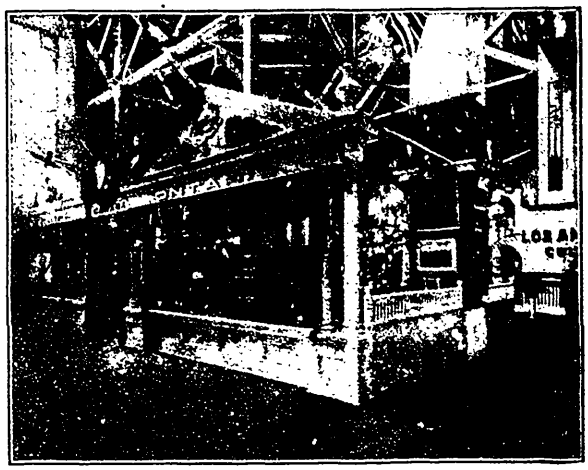


FIG. 2114.

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,

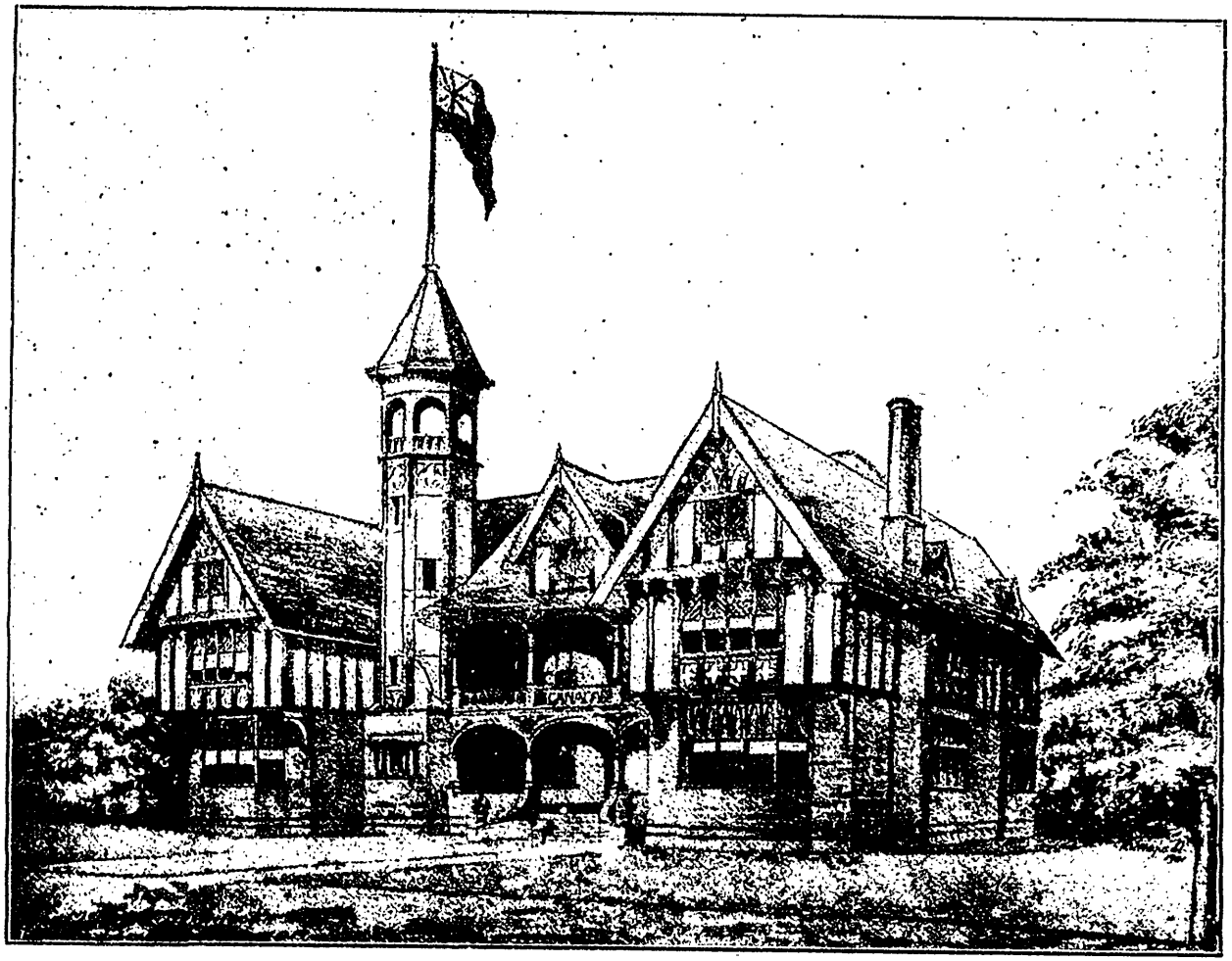


FIG. 2115. THE CANADIAN BUILDING.

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 ½ 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 prodncing 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 reasonally 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-Colonlal 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.

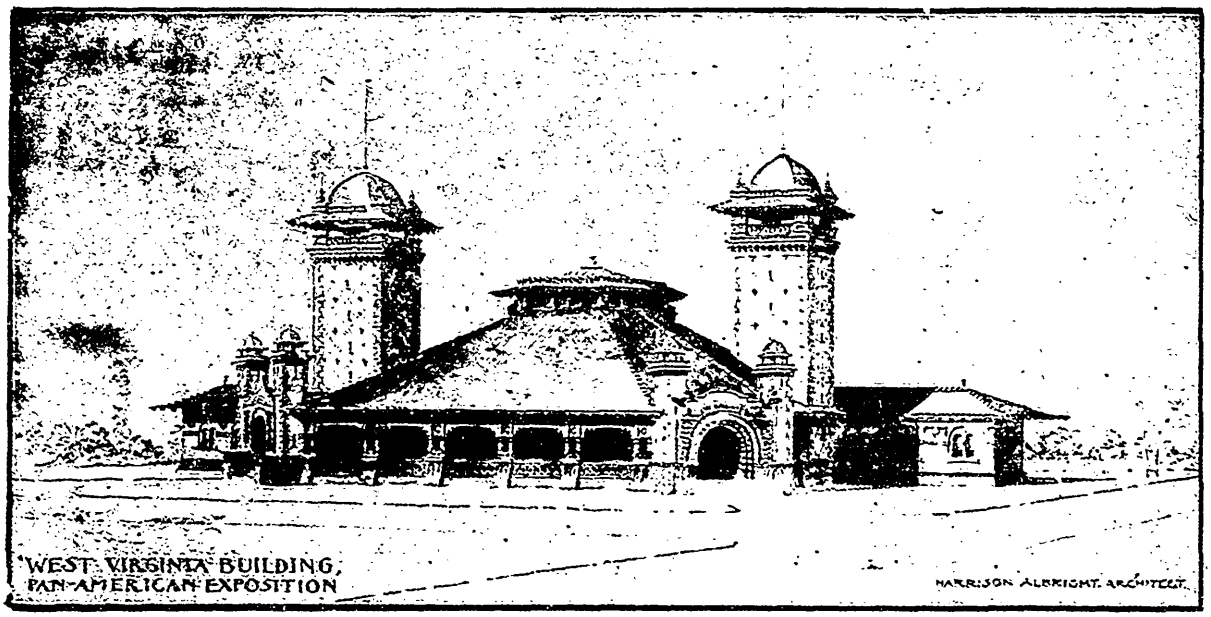


FIG. 2116. WEST VIRGINIA BUILDING.

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 existance 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.

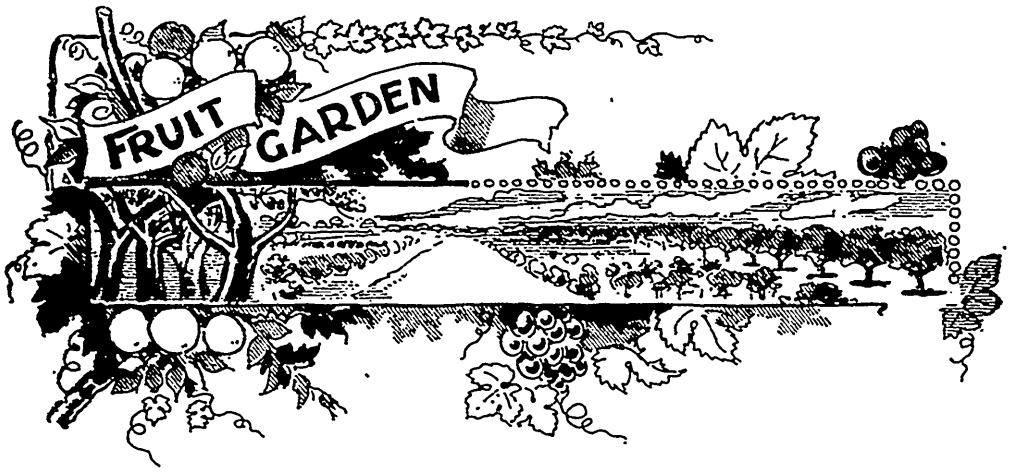
One of the most pleasing baths is made by slicing three or four lemons into the water, which should be drawn half an hour before using so that the juice of the fruit may have a chance to permeate it. The sense of freshness it gives, and the suppleness and smoothness it imparts to the skin are very luxurious. 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.

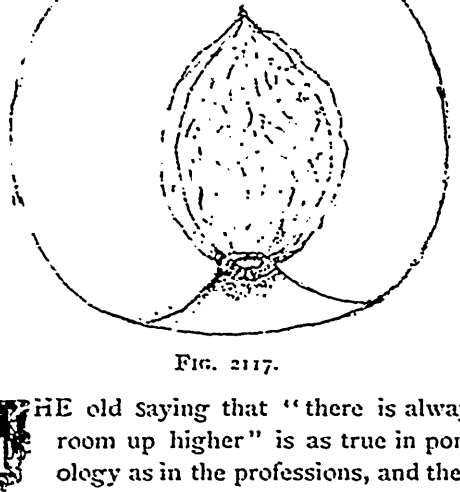


FIG. 2117.

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 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.

FIG. 2118. A BUSY DAY AMONG THE BALDWINS.

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 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.

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 train himself to handle fruit gently if he takes the slightest interest in his work.

FIG. 2120. GRADING AT STOREHOUSE. NOTE PADDED BASKETS.

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 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 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 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.

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 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.

FIG. 2121. GRADING TABLE WITH STOREHOUSE IN BACKGROUND.

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

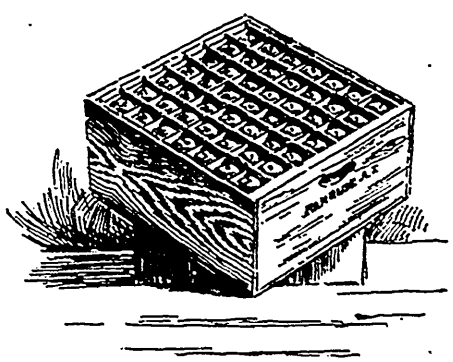


FIG. 2123. COMPARTMENT BOX.

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 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 natural 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.

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 ⅜ 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 windfalls. 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 windfalls, 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 fungus growth. It is therefore in place to give the following extract:

FIG. 2127. AMERICAN APPLE CANKER.

"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. Sunscald, 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 become 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 i spray easily.

Treatment of canker.—In addition to the protection from sunscald, thorough spraying

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 *Sphæropsis* 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.

THERE 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 ½ a crop, Spys ¾ 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, Shackleford, 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 aphis is in myriads in some localities, and the green apple aphis is very numerous in some places, but where spraying had been attended to with bordeax 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 aphis 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 hardiest.

Onions should be havested 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 ing 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 aphis 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.

THIS 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 imaginable 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 (Bizards).—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 fimbricated 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) Variegated 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

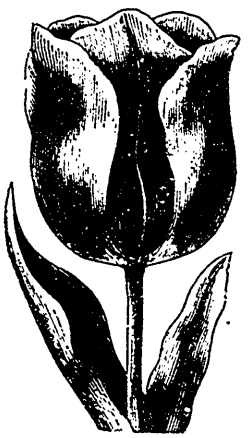


FIG. 2133. SINGLE TULIP.

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'Immaculee, 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 Byblœmens, 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 northwest 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 articie of food.

Since Messer Schmidt in 1725 gave the original singie white form a botanical status, it has been called by varlous 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.

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 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.

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

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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 1½ inches on a bevel, and then sawed lengthwise 14⅛ inches, giving an integral tongue, still attached to the stave and easily sprung outward. These staves are from 3½ to 4 inches wide and 28½ 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 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 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 aphis, 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, Oreg., 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 large limbs, too old to split. These can be most successfuly 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: Pæonia 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. Petit, 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				
R. L. Huggard, Whitby.	under			average	over	
GRENVILLE CO.—						
H. Jones, Maitland.	under	nnder	none	none		
PERTH CO.—						
T. H. Race, Mitchell.	under	average	none	over	none	The only apple near an average is the Spy.
SIMCOE CO.—						
Stanley Spillett, Nantyr.	under	average	none	over		
HALTON CO.—						
A. W. Peart, Freeman.	under	average	under	average	average	
GREY CO.—						
J. I. Graham, Vaudeleur.	under	over		over		
SIMCOE CO.—						
G C. Caston, Craighurst.	under	average		over		
PRINCE EDWARD CO.—						
W. Boulter, Picton.	under	average	none	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.