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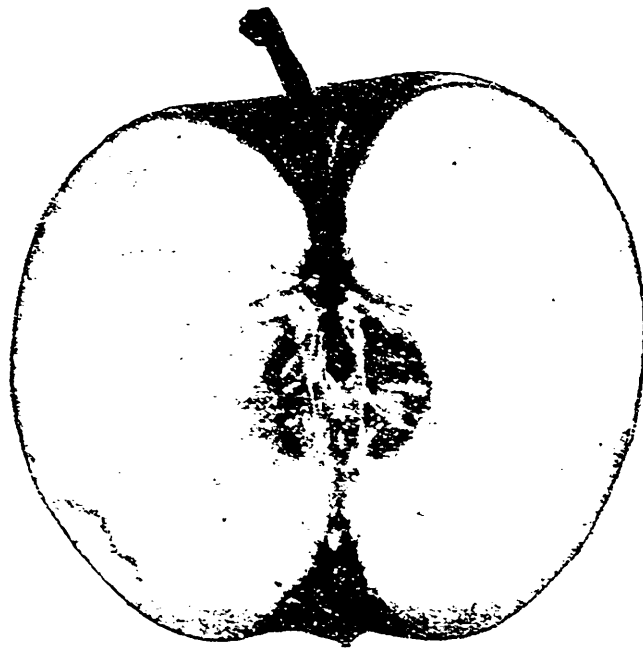
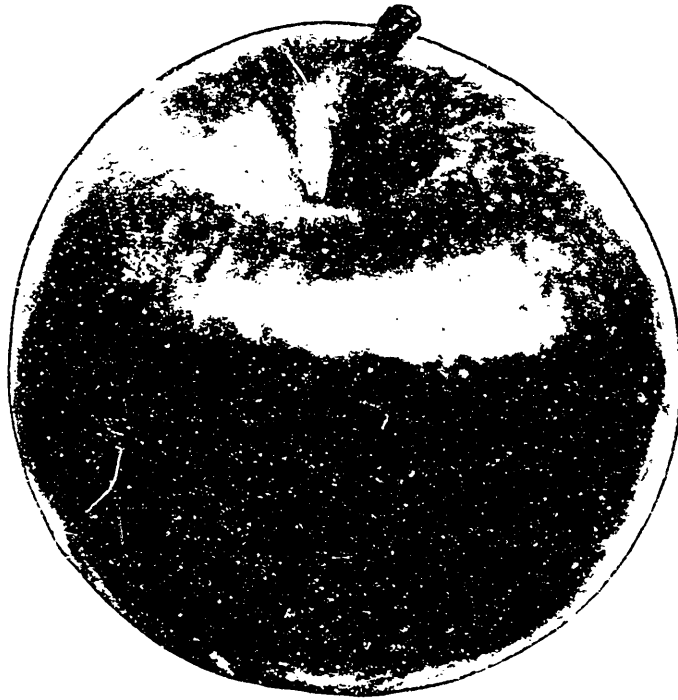


FIG. 2255. CANDLESY PEEL.

THE CANADIAN HORTICULTURIST



* * MARCH * *

THE CRANBERRY PIPPIN.

THE CRANBERRY PIPPIN when grown to perfection is an excellent market apple. Larger and higher colored than Ben Davis, an equally good shipper, and of slightly better quality, it is worthy of planting in place of that variety, in localities to which it is adapted.

Its finest appearance is about Christmas time, when its beautiful stripes and splashes of carmine show up brilliantly upon the yellow background, while the flesh is still firm and crisp.

It succeeds well in the southern portions of the province, especially along the shores of lakes Ontario and Erie, but so far has not been planted by very many apple growers. The writer has about twenty-five trees of this variety in full bearing, which sometimes give an average of four barrels per tree of very fine high grade apples, when other varieties are almost worthless.

In the autumn of 1895 the writer shipped to Edinburgh a carload of this variety; the boxes having his full address upon the outside. They were sold by Messrs. Wood

Omerod & Co. at top prices, and later on we received the following letter from Geo. Pegler & Co., Aberdeen, Fruiterers to Her Majesty and H. R. H. The Prince of Wales :

"We do not have the pleasure of personally knowing you but we have had the pleasure of handling some of your produce in the form of "Cranberry Pippins." The fruit (grade No. 1) has turned out in perfect condition and we have had the greatest pleasure in sending it out.

"We have, for long, hoped someone would adopt your method of packing and we are glad to see it now done. Hitherto the slaughter of fine fruit, tumbled into barrels, has been disappointing all round, and rendered dealing a most unpleasant and often unprofitable matter.

"We hope the extra care and trouble involved in your pack has proved remunerative and feel assured it has only to be persevered in to bring about the best results."

A few years ago we put up one hundred bushel boxes of this same apple for the Australian market, securing from the C. P. R. a special through rate from Toronto to Sidney of \$1.00 per box.

They were magnificent samples, and, arriving in Sidney about Christmas, just in mid-summer and before the early Australian apples were ready, they were sold as high as \$3.75 a bushel box! Unfortunately there was no cold storage on the Pacific steamers, so that only a part of the cargo arrived in good condition, and no further shipments will be made until we have steamers fitted for carrying them safely across the torrid zone.

The tree unfortunately only produces a good crop each alternate season, and sometimes, when soil conditions are unfavorable the apples are subject to warts and knots which mar its beauty.

The Cranberry Pippin was an accidental seedling on a farm near the Hudson river, in New York state, and seems to succeed best under conditions similar to those of its native place.

The fruit may be described as medium to large, roundish, oblate; skin smooth, yellow shaded and striped with two shades of red; stem slender, one one-eighth inches long, in deep cavity; calyx closed in a wide, wrinkled basin. Flesh white, firm, crisp, moderately juicy, sub acid. Quality, fair. Season November to February.

We have inquired of several readers of this journal as to the success of this apple in various parts, but find it very little known. The following are some of the replies:—

"The Cranberry Pippin is not grown as plentifully throughout these western counties as it should be considering its good bearing, keeping and shipping qualities. Being an apple of rather coarse texture it is more suited to the southern districts, where it grows to larger size than it does up this way; but the farther north I find it the crisper and better is its quality.

"I consider it a valuable apple for the southern and middle counties, but the tree will not do so well in the north. Here the tree is a fairly good bearer, but the fruit averages a little smaller than with you at Grimsby. "T. H. RACE, Mitchell."

"In reply to yours of yesterday, I have no knowledge of the Cranberry Pippin being grown in this district. I have never seen the apple or heard of anyone about here having it. The Baldwin does not do here and I presume the other is, if anything, less hardy. "C. L. STEPHENS, Orillia."

"Yours is just to hand regarding the Cranberry Pippin apple. It is not very extensively grown in this vicinity. I know of no reason why it should not be successfully grown here. I have seen a number of samples at our fall fairs that I considered fully up to the standard both in size and color. I consider it a most desirable variety to grow. "FRANK METCALFE, Blyth."

"The Cranberry Pippin has not been a success with me; it is very unproductive and drops early; but it is a profitable apple in many orchards in this locality, where the land had more clay than mine.

"Each alternate year it loads very heavily, and brings good prices. The trees attain good size and are healthy. On such ground it is a very profitable tree to plant.

"W. H. DEMPSEY, Trenton."

"The Cranberry Pippin is here to stay, being looked upon as one of our reliables, both as regards the tree and fruit. Upon all our variation of soil along the lake it thrives well and is reliable as a bearer, and I have heard the same verdict from those who grow it throughout this district. I hope to see it more generally grown.

"ALEX. McD. ALLAN, Goderich"

"The Cranberry Pippin is not much grown here. It is a fine robust tree, moderately productive, about like King, or rather better. Fruit blows off too easily. I don't think it will be extensively planted here.

"J. G. MITCHELL, Clarksburg."

NOTES AND COMMENTS.

Township and County Fairs.—At the Annual Meeting of the Canadian Association of Fair and Exhibition Managers, in Toronto, the 30th of February, 1902, there were several hundred representative men present. A deep interest was manifest in certain proposals made by Mr. F. W. Hodson, of Ottawa, a year previous, for the increased usefulness of smaller fairs.

The Agricultural Societies have not been accomplishing the work designed in their institution, as laid down by the Agricultural and Arts Act, they have concentrated their whole strength upon the giving of prizes, and have lost sight of the most important object of their existence, viz, the education of their members in the best methods of Agriculture. The same lack was observed in the Horticultural Societies, and led to the formation of the Societies affiliated with our Association, which aim at making their meetings and exhibitions purely educative, and even go so far as to discourage giving prizes altogether, claiming that the funds should be spent for the equal benefit of every member. This plan entirely shuts off the professional exhibitor, and enables the Society to make most liberal gifts to each member of new and improved fruit trees, plants, seeds, bulbs, etc., one of the important objects contemplated in the Act. They also hold monthly meetings for the discussion of fruit and flower topics, which form a means for the interchange of experience on the best methods of practice—another object of their existence contemplated in the Act. Why should not our Agricultural Societies profit by their example?

The Farmers' Institutes are doing much of the educational work neglected by the Agri-

cultural and Horticultural Societies, and if these organizations could work in harmony a grand future is before us. Mr. G. C. Creelman, the Superintendent, met with general approval when he advocated that the Farmers' Institutes, the Women's Institutes, the Horticultural Societies, the Fruit Stations, the Fruit Growers' Associations, all should join forces, and make the fairs not only educative but also sociable and attractive.

Fruit Growers' Institutes, Mr. Creelman stated, were being formed in each district, under the supervision of the director of the Provincial Association representing the same. A series of about fifty meetings will be held during the month of March, so arranged as to cover the Province. Now these local Associations can assist the fair managers by revising the prize list for fruit, making it to include such varieties only as are desirable for each district.

Seed Fairs have been held by some four or five Farmers' Institutes, and Prof. C. A. Zavitz, of the O. A. C., Guelph, showed how grain exhibits could be mounted and shown at fairs so as to be of the greatest interest to farmers.

These should include some twenty four plants, a card showing name of variety, number of acres grown, yield per acre, kind of soil, etc. The judging should be done by experts, who could give reasons for their decisions. Mr. Geo. Hood, of Guelph, said the Seed Fair at his town was of the greatest practical use to the farmers. It gave an opportunity for the exchange of seed grain, and farmers exhibited far more with the object of selling their seed grain than fo

prizes, and they would come many miles for this purpose. An exhibit was ten bushels of a kind, and usually this was sold at an advance of 10 or 15 cents a bushel over the ordinary price for such grain. Mr. A. Reynolds, of Scarboro Junction, said such a fair had been conducted under the auspices of the Farmers' Institute of East York for ten years, and last year 6000 bushels of seed grain had changed hands! This meant much for improved grain growing in this locality. He was going to advocate three such seed fairs in different parts of his district this year.

The McDonald Seed Grain Division at Ottawa was represented by Mr. Clarke, who said that prizes to schools were proposed, somewhat as follows:—

(1). To the rural schools exhibiting the best collection of weeds pressed and mounted; and weed seeds in ounce bottles, each specimen and bottle to be properly labeled, 1st, \$50; 2nd, \$30; 3rd, \$20; 4th, \$10.

(2). For the best collection of grain and foliage crop plants, showing stolons, branches and part of root, consisting of five complete plants of each variety * * * Open to farmers' sons and daughters, under eighteen years of age—\$25; \$15; \$10; \$5.

(3). To the rural school exhibiting the best collection of beneficial and injurious insects, mounted and properly named in groups according to the fruits or grains on which they attack—\$50; \$30; \$20; \$10.

(4) To the rural school having the best kept lawn with the most artistically arranged flower beds; said flower beds to contain such varieties of plants as may be most helpful in the study of botany. Competitors for this prize must make application before the 15th of May of each year. (The judge in this competition will be the Public School inspector, together with any other person or persons whom the Association may see fit to appoint for the purpose of visiting the competing schools during the month of September. In all competitions of rural schools, the work must be done and the collections made by the pupils themselves under the direction of the teacher.)

Failure in Spraying.—Mr. A. Rogers, of Aylmer called at our office on the 14th February. He and his son carry on a fruit farm near that town with success, cultivating small fruits, grapes, peaches, plums, &c. "How do you prevent plum rot?" he asked. "Spraying with Bordeaux mixture," was our answer. "It has been a failure with me," said he. "I sprayed six times last season, and yet the plum rot was very serious in my orchard." "How did you do it?" Well, I rode along in the wagon and sprayed from that as we drove past the trees." "Did you thin your fruit?" "No, they hung in great clusters and we did not have time to thin them out."

Plum Rot.—The secret of this gentleman's failure to prevent the plum rot is the same which explains that of many others. The spraying of a tree is only effective for that portion of the leaves or fruit which is covered. Any part of a leaf, or fruit, left uncovered with spray is subject to the attack of a fungus disease. Fruit unthinned, or trees unpruned, are not easily covered; especially is it difficult to cover each separate plum when they hang in clusters, the fruits in close contact. How can a man, dashing a little spray upon a tree as he rides along past, cover every side of every plum on such a tree? The thing is simply impossible! He must get out of his wagon and walk about the tree and carefully spray every inch of wood, leaf and fruit, and then he may hope for success.

Thinning plums or peaches, when overloaded, is absolutely necessary for successful spraying for fruit rot, for when in contact the moisture is held between them that favors the spread of this fungus.

Peaches succeed very well about Aylmer, though only a few have as yet entered upon their cultivation. Mr. Rogers has several hundred trees, including such varieties as Crosby and Langhurst, because of their supposed hardiness. "I was surprised," he

said, "to find how well the Elberta does with me. It seems hardy and productive." "Have you much leaf curl upon the trees?" "No," he said, "very little indeed when I spray the trees with Bordeaux. There is a case in which my spraying has proved a complete success."

Near Markets.—I find my best markets near home for the sale of my peaches. I find any variety will sell, and I have no express charges or commissions. My son and I are in partnership; he does the business part of selling and collecting and I attend to the pickers and the care of the orchard.

Grapes also are all sold in Aylmer, St. Thomas or London. I find a good many shipped up from Grimsby and Winona, but I can get a slight advance upon that stock because mine goes into the shop much fresher from the vineyard. I have been a subscriber to your journal for many years and am putting into practice much of the information gained from it.

Hired Men for fruit farms, who will do satisfactory work, are fewer than for the grain farm. A man who can plough about trees without breaking the bark, who can plough close to the trees so that little or no work remains for plough or spade, who knows how to handle fruit in picking and carting so as to do it the least amount of injury, is much to be desired.

The usual wages for men seems to be about \$22.00 a month the year around, with house and garden, or about \$25.00 a month for eight or ten months with the same privileges. Of course this is a minimum price. We believe in gradations of pay according to worth, and when a man proves himself valuable, that value should be recognized by a supplemental amount. One such man we know who gets about \$350 per annum because he takes a certain amount of responsibility and shows an interest in the success of the enterprise.

Fruit Farms should pay for the labor from the beginning. No man should think of waiting for an income until his apple, pear or peach trees begin bearing, but should put something in every acre to make it pay the outlay upon it every year. A friend has purchased about one hundred acres of land at a cost of over fifteen thousand dollars; he has drained it, fertilized it, planted it, and worked it most thoroughly for about ten years, until the capital invested has run up to about \$30,000! He is waiting for the pear trees to pay back a good income proportionate to the capital invested. Well, they may, if all conditions are favorable, but how much better could the yearly income from small fruits or other crops between the trees have been made to equal the yearly expenses during these ten years of waiting, so that the capital invested would still be only the original \$15,000! He should ponder the old proverb:—

"Who plants pears,
Plants for his heirs!"

Foreigners who have money to invest should live in Canada a year or two at least, and study conditions. A civil engineer has thirty acres of a fruit farm; he left a good business in his own profession, where he was making \$2,500 per annum, and bought without studying conditions or location. He has wasted five years' income waiting for trees to grow, and now, because they do not yet produce fruit, he wants to sell and go on surveys in South Africa! But the location was ill-chosen, and goes begging for a buyer.

A **New Society** has been organized at Walkerton this winter through the enterprise of our director, Mr. A. E. Sherrington. He writes that they have a membership of more than fifty persons, and that it is the intention to hold a public meeting on the 13th of March. He is seeking in every

way to arouse local enthusiasm, with a view of making our next annual meeting a great success at Walkerton.

Peach Leaf Curl is a much more serious injury to the peach tree than is generally supposed. Few of us suspected that we were losing much from peach curl except a portion of the current year's fruit crop, but Pierce, of California, has proved that we lose also in the growth and vigor of the tree, and in the development of fruit buds and fruit spurs. For example, on ten trees sprayed in 1893 there was an average of about 2,800 fruit buds per inch of old wood, and on those unsprayed about 2,600, or a difference in favor of the sprayed trees of about seven per cent. Besides this he found a great many of the fruit buds produced on the sprayed trees so poorly developed that no fruit could be expected from them. For example, at the close of the season of 1893, he found the average number of imperfectly developed fruit buds on the sprayed trees to be 0.944 per lineal inch of old wood, while on the unsprayed trees the average per inch of old wood was 1.249; or 32 per cent. more imperfect fruit buds on the unsprayed than upon the sprayed trees.

Increased Value of Peaches Sprayed.—Pierce's experiments still further point to the great importance of treating the peach orchard either with Bordeaux, or with the lime and sulphur mixture, which seem to be of nearly equal value. He compares the value of spraying for increasing the quantity and quality of fruit, as determined by the cash value of such fruit when matured. To do this he reduces the results to the average net gain per cent. of the sprayed trees of each treated row over those of the adjoining unsprayed row. In one sprayed row, for example, the average calculated value of all fruit set per tree, when matured, was about \$12.00 and in the adjoining un-

sprayed about \$3.00, showing an excess of about \$9.00 in favor of the sprayed row. Some other rows so treated showed a very much larger net gain.

The heightened color of the peaches sprayed with copper salts was very evident in those same experiments, which of course will be an element in the increased value of the sprayed fruit.

The saving in the cost of picking the fruit from the sprayed trees was another element to be counted. To gather a ton of peaches from the unsprayed trees cost \$3.00 per ton, while from the sprayed trees it only cost about \$1.00 per ton; a saving of \$2.00 per ton, because of the less amount of tree and orchard surface to be gone over to gather a certain amount of fruit.

South African Peaches in England.—The South African war has temporarily checked a formidable rival of Canadian fruit growers in the British markets, especially in the line of tender fruits such as peaches and plums. Fortunately, however, these fruits are marketed at an entirely different season from those grown in Canada, and reach Covent Garden in January and February, when we have no peaches to ship; so that the rivalry will always be of a friendly nature.

So long ago as 1896 Cape Colony began to wake up to her great capabilities for the production of peaches for export to Great Britain and in 1897 the second consignment by the "Roslin Castle" was sold in Covent Garden on the 9th and 10th of January. There were 709 cases of peaches, and these were readily sold at from seven to twelve shillings per box of twenty fruits, the higher prices being for freestone peaches and the lower for clings.

Jamaica is exporting bananas to Great Britain but the voyage is long and so far the fruit has not arrived in good condition, partly owing, in the opinion of Messrs.

Garcia Jacobs & Co., of London, to the imperfect nature of the cold storage in the vessels which carried the fruit. So hopeful, however, is the prospect of success in this trade with Jamaica, that Sir Alfred Jones has announced his intention of inaugurating a "Banana Line" of steamers between Liverpool and Jamaica.

New Cherries.—VanDeman speaks, in Green's Fruit Grower, of three new cherries, viz.: The Bing, the Lambert and the Centennial, as follows:—

The Bing Cherry is a new variety that originated with a Chinaman in Oregon by that name. It is large, black when fully ripe, sweet and very solid in flesh. It is an early and abundant bearer and well worthy general trial wherever the sweet cherries flourish. The Lambert is a still newer kind and less is known of its characteristics, except to say that it is perhaps the largest variety known. It is dark, purplish red, of sweet but not high flavor and a fairly good bearer. The season of both these varieties is about medium. Very few of the eastern nurseries have trees of either of them for sale but the Bing is offered for sale by some of them. The Oregon nurseries can doubtless supply trees of the Lambert. The Oregon fruitgrowers have found both kinds good for market purposes.

The Centennial cherry is a little larger than the Napoleon and of the same color, being light pinkish red when fully ripe, but is often sent to market when yellowish with a pink cheek. They are about alike in flavor.

This Fruit Export business which was so encouraging to the Cape fruit growers, was suddenly interrupted at the outbreak of the war, when all lines of steamers were needed for the carrying of soldiers and war supplies, but now the Union Castle Line has again begun to bring fruit from the Cape, and the season for peaches will continue during the months of January, February, March and April. For plums the season will be about the same, and the varieties so far grown at

the Cape for the export trade is the Burbank. This may be a hint to us in Canada, for these Japans are not in very great favor in our markets, and if they are in demand across the sea we shall be pleased to unload them on the other side.

Golden Russet apples are just now, January 25th, bringing the highest price in Covent Garden market, next to the Newton Pippin. The latter sells from 25 to 35 shillings a barrel, and the former at from 28 to 30 shillings.

Does not this point to the importance of this variety which grows to such perfection in the southern parts of our province, and indeed succeeds well as far north as Orillia, in the County of Simcoe.

Fertilizers.—At the the Wentworth Institute, held at Bartonville, on the 19th of February, Mr. Duncan Anderson, of Orillia, claimed that no commercial fertilizer could equal barn manure, because the soil must have humus or decayed vegetable matter for the regulation of temperature and of moisture. One ton of barn manure contains 9 lbs. nitrogen, 5 of phosphoric acid and 10 of potash, all of which can be purchased in a commercial fertilizer for \$1.80, but the former was the most valuable because of the 500 lbs of vegetable matter which it contained.

Mr. Anderson emphasized the same points dwelt upon by Prof. Jordan before the New York State fruit growers—such as soil moisture, and tillage to preserve it. "A plant," said he, "has life just like an animal; stunt it at the beginning, and it never fully recovers." The following three points for farmers which he gave are also valuable to fruit growers:—1. It is impossible to make a seed bed too fine. 2. The fertility should be kept near the surface. 3. Never bring up the cool, hungry sub-soil to the surface.

Mr. Cameron Gage, of Bartonville, gave

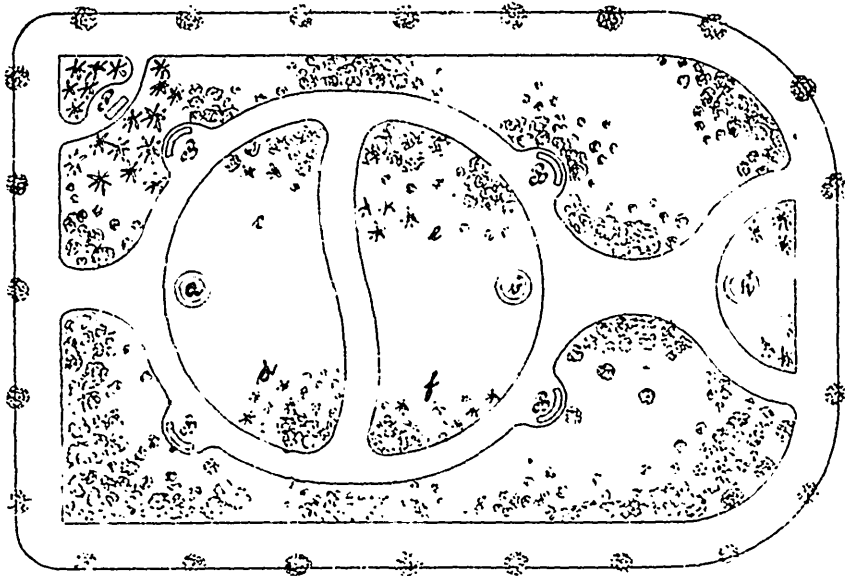


FIG. 2256. SMALL PARK.

an address on Market Gardening, dealing more especially with celery growing, which he claimed could be made a financial success, if certain conditions were observed such as location near a city or convenient shipping point; suitable soil, such as black muck in a drained cedar swamp and abundance of manure. Mr. George Awrey acted as chairman and Mr. Erland Lee, of Stony Creek, as secretary.

A Small Park.—So many of our Horticultural Societies are desirous of doing some works along the various lines of civic improvement, that we give herewith a design from *Moeller's Deutsche Goertner-Zeitung* of an attractive "Pleasure Garden" in the Kaiserstrasse in Mainz. A small park of this kind could easily be laid out in any of our Canadian towns or villages; the trees, shrubs and plants could be selected to please the taste of those most interested, and the result would be great comfort and pleasure to many who are not fortunate enough to own pleasure grounds of their own:—

To the left of the central space of open turf at *a*, is a clump of *Celosia cristata*,


and across the green at *b*, is a mixed group of flowering plants and shrubs. At projecting points, formed by the curves of the walks, are placed single specimens of pines or other needle-bearing trees. A group of palms in a shady nook are designated by *c* and farther along are fuschias and *Erythrina Crista-galli* with its coral-red flowers. Group *d* is planted principally with *Caladiums*, *Aralias*, and *Cannas*, and at *e* is a little rock-garden adorned with *Musa Ensete* and twining and flowering plants. Opposite this at *f* stand tall heliotropes, and *B* shows the park seats. Between these plantings as well as in front of the wooded parts which border the park and give it a secluded atmosphere, are flowering shrubs, making a refreshing spot in the heart of a great city.

Protection for Men Spraying.—There is no more unpleasant work for the fruit grower than spraying with copper sulphate solutions, which are very poisonous. Nothing is better than a sailor's oilskin suit, for it is light, and is water and wind proof. A hat or cap should be worn that will protect both the eyes and the back of the neck, and long rubber gloves for the protection of the hands. If necessary also glass or mica goggles may be used for the eyes.

AN INTERESTING HOUSE MEETING.

A MEANS OF DEEPENING THE INTEREST OF THE MEMBERS IN THEIR SOCIETY.

A GOOD WAY TO SPREAD INFORMATION.

N interesting house meeting of the Grimsby Horticultural Society was held on Thursday evening, the 6th of February, at Mr. A. H. Pettit's. In the absence of Mrs. Palmer, the President, and Mr. Burland, the Vice-President, Mr. A. H. Pettit was asked to preside. Two papers were read and discussed, one by Mr. L. Woolverton, on the Garden and Lawn, and one by Mr. J. F. Brennan, on the Cultivation of the Peach Tree.

The Peach Tree.—Twelve feet apart was advocated as a proper distance apart for planting peach trees, providing they were properly shortened back. This should be done at any time between the harvesting of the fruit, and the month of April following. There is no reason, said Mr. Brennan, why a tree should have a long useless trunk and bare poles of branches, to a height of ten or fifteen feet from the ground, before you come to the bearing wood. That is just so much waste. From the beginning, prune back your trees so that they must bend low down, and throw out fruit spurs along the whole way. You need not cut them back all at once, if they are now too high, but you can renew a part at a time. The proper thing, however, is never to allow them to mature such bare poles of limbs. Trees so trained will live to a greater age than those which grow as they choose, it keeps up the production of fresh, young, growing cells, and the vigor of the tree is maintained almost indefinitely, instead of dying out in ten or fifteen years. Another advantage of my method is that you can employ women pickers. Now, in peach season, men are

usually scarce, because of the rush of farm work, and, if your trees are high and the fruit so far up that you have to use a twenty or thirty feet ladder to reach them, you must employ men; but if the fruit can be reached either from the ground or from step ladders, women will do the work. And a good feature of this is that they make better fruit pickers than men; they seem to know just when a peach is ready; and they handle it with greater care than men do.

"I have never pruned my peach trees very much after they are four or five years planted," said Mr. E. J. Woolverton, "up to that time I prune carefully in order to produce a well formed tree; after that I let them have their own way, simply cutting out dead or useless wood. I believe however the system of shortening is an excellent one."

Mr. Adolphus Pettit, who grows about the finest peaches about this section said, "I would not plant my trees so close as twelve feet. I do not shorten back my trees, but even if I did, I do not think I could keep them so small as to go in a square twelve feet across. I would plant them eighteen or twenty feet apart."

Mr. J. M. Metcalfe plants his trees about seventeen feet apart each way, and counts that quite close enough.

"I would like to know," said Mr. Rutherford, a gentleman from Hamilton recently engaged in fruit farming at Grimsby, "whether it is possible to renew an old tree and get an entirely new top."

"Yes," said Mr. Adolphus Pettit, "I have had a tree with its limbs broken down with

fruit in September so badly that they had all to be cut off, and as a result, the following season I had a magnificent growth of young wood, and now I have a splendid tree with all the vigor of youth."

The writer remarked that he had practised shortening back his peach trees for twenty five years, and always found increased vigor as a result. He had noticed the Essex peach growers going over their orchards in July with their pruning shears, and cutting back the young wood at that time. They claimed that they could thus accomplish a double purpose, first, the shortening back of the wood growth and so keeping it more in bush form, and, secondly, thinning out the young fruit which was then well formed and set.

Climbers. After Mr. L. Woolverton's paper on the Garden and Lawn, the discussion turned upon the best climbing vines for the verandah. He instanced the Virginia Creeper as one of the most vigorous and satisfactory for old houses, when it was desirable to cover up as much as possible, and to afford dense foliage; but to his taste it was too rampant for a good house, it covered everything, and although very pretty in autumn with its colored foliage, it was of late years badly infested with a sort of thrip, which was very objectionable, and rendered the foliage unsightly in summer time. He commended the *Akebia Quinata* as a most excellent climber. It was a little slower in growth, and its flowers were very small and inconspicuous, but after a few years it became quite vigorous, and the foliage was

of a beautiful dark, glossy, green color. It was hardy in the region of the peach. For stone or brick walls no climber equalled the Japan Ivy. Hall's Honeysuckle was another climber which he preferred to the Virginia Creeper, it was not a very strong grower, but it was almost evergreen, and very pretty. *Clematis Virginiana* was a very hardy climber, which he had found away north in Algoma growing wild, but it was rather too vigorous; and required too much attention to keep it within bounds. *C. Jackmanni* and *C. Coccinea* were two of the finest ornamental kinds, but the wood of those was renewed every spring from the root.

"I think," said Mrs. A. G. Pettit, "that the *Cobea Scandens* is the best annual climber. It was given the members of our society last year and everyone was delighted with it."

"I think," said Mrs. J. W. G. Nelles, "that the *Wistaria*, given by our Society two years ago, is a most satisfactory climber. A vine several years old in a neighbor's house produces great bunches of beautiful flowers every year."

A Song.—A pleasing feature of the evening was the singing of *Annie Laurie* by Mrs. Dr. Clark of Hamilton. This old song was rendered so beautifully that everyone was charmed with it.

We commend monthly house meetings to all our affiliated Societies as one of the most delightful ways of increasing the interest in their work, and at the same time giving the members both pleasure and profit.

Peach Curl is caused by a fungus, *Excus deformans*, a fungus which is much more serious if rains or cold weather prevail at the time the trees are leafing out.

The efficiency of sprays in checking the curl is due to the fact that the spread of this fungus is due to the spores, and not to a perennial mycelium, as was at first supposed.

THE NOVA SCOTIA FRUIT GROWERS.

Apples, according to Mr. Bigelow in his recent address before the Nova Scotia Fruit Growers' Association, are the principal fruit crop of that province and the total yield for export in 1901 has been about 300,000 barrels. Strange to say the English market has been the least satisfactory; the famous Gravenstein, sold in Liverpool netting the growers only \$2.00 a barrel, while this variety has sold in the American markets as high as \$4.00 and \$5.00 a barrel. Another singular thing noticed by Mr. Bigelow, is that apples have been shipped to England via Montreal at less cost and have arrived in better condition than when shipped by the much nearer route via Halifax.

The Transportation Problem was taken up by Mr. P. Innes, who complained that it actually cost less to bring apples from Ontario for the local trade, than to move them within the province of Nova Scotia. Comparing the freight on flour and apples he said:

All tariffs are governed by the value and quantity of goods carried. Apples go third class at seventeen cents per 100 lbs., while flour goes fifth class at ten and one-half cents in car lots. The development of Nova Scotian trade had grown immensely. Apples might be worth \$1.50 per barrel, flour \$3.00 to \$4.00. The difference was made in the quantities carried and the charges ought to be reversed. It was a glaring injustice that apples should be carried at an average charge of twenty-five per cent. above flour. Other associations were looking for relief in this matter and we should fall into line. He would, therefore, submit this motion again, hoping that the Association would act in the present instance to better advantage than they previously had done.

RESOLUTION.

Whereas, The Canadian Freight Rate Classification was framed at a time when

the apple production of the country was comparatively limited, while prices were high; and

Whereas, Since that time production has enormously increased, while prices have been continuously falling; and

Whereas, Apple growing has become an important industry in western Nova Scotia, the production averaging 500,000 barrels annually; and

Whereas, The said freight classification and any modifications or amendments thereof have to be submitted to the sanction and be approved by the Governor-in-council; therefore

Resolved, That this classification does not meet the altered circumstances, and is unfair and oppressive to the apple growers and shippers of the province, and that we do respectfully memorialize the Governor-in-council to cause the said classification to be amended by removing apples from the third and fifth classes to the fifth and eighth classes respectively.

Apple Packing was illustrated practically by Mr. Carson of Meaford, Ont., by the aid of two assistants, using three barrels of Baldwins and a full set of appliances. He advised first to secure enough uniform fruit for facers, i. e., the end of the barrel. With nippers remove the stems to prevent marring or breaking of the skins; this induces decay. In facing put medium sized fruit in the outside row; next circle, place a size larger and aim throughout to secure a face which will be an index of the barrel. Set the barrel on a low platform for easy working, and in securing the hoops use short nails to avoid marring the inner surface of barrel. In filling, a basket with round ends is most easily lowered into the barrel. Instead of having a "double facer," merely back the spaces of the first layer with the red side of the second. In filling put the barrel on a plank always. Shake to secure compactness.

NO. TWO STANDARD EXPLAINED.

Asked as to the standard for No. 2, Mr. Carson read from the Ontario Exporters' Bulletin, which required an apple hand-picked from the tree, perfect in color and quality, and not smaller than $2\frac{1}{2}$ inches in diameter. In Russets, he thought the standard might be reduced to 2 inches.

In finishing arrange for two layers laid stems up. Apples, like eggs, will stand most pressure at the ends. Place a pad on the second row and shake the barrel by racking—i. e., rocking back and forth on the bottom without raising clear of the plank. This is most peculiar work. Remove the pad and place in the face layer, nipping stems and grading as before. This row should stand just above the edge of the barrel. Only one man should be permitted to empty baskets and shake the barrel. Put on a layer of paper. Knock off the top hoop and apply the press after the head is in position. Run this down carefully. Just here Mr. Carson advised the use of good presses with steel arms and double threads. Use a hatchet for driving nails only. Never hit a head with a hammer. Put it in with the press. If properly shaken, this can be done nicely. Ship at once on packing.

The barrel was then opened and exhibited before an intensely interested audience.

We would not favor Mr. Carson's advice about using more than one size in packing. In our experience, always, a uniform size throughout a package tends to bring a higher price than mixed sizes.

Tillage in fruit growing was emphasized by Prof. Bailey of Cornell University, who believed that ploughing in an orchard should cease after five years, and, instead, the aim should be to produce a dust mulch by surface tillage with a spade harrow and grape hoe. Cover crops he counted important to furnish humus. He recommends fall vetches for this purpose, but would not allow them

to grow long in spring. He would put them down with a gang plough, turning a shallow furrow, not over four inches deep.

Land worked early in spring should not require deep ploughing oftener than once in every six or seven years. Rye had been a success as a cover crop with him. No land is too poor for it. Hence it is a good thing to begin with. He usually drills in 400 or 500 lbs. of acid-phosphate with the rye in the fall. He thought highly of crimson clover, except that in some cases it induces too rapid a wood growth. This introduced the question of pruning, but tillage and pruning must be considered together at a later time. Sod is now a thing forgotten in orchard culture.

Commercial Fertilizers were not needed in an orchard not in bearing, in ordinary land; but instead, plenty of tillage "hot ploughshares;" with sufficient tillage, he doubted if commercial fertilizers were very often needed.

Apple Tree Management had changed according to Prof. Bailey, since the days when the production of cider apples was an important object, and when any kind of an apple was good enough. Then neither fertility of soil nor high tillage were important. Now, the production of high grade fruit is the aim of the fruit grower; therefore the conditions of success in this have been emphasized, viz., first spraying, next tillage, then cover crops, and now possibly the question of the hour is pruning. Sometimes it might be necessary to till an apple orchard right up to harvesting fruit, in which case barn yard manure had to be depended on to supply humus; but if manure was scarce, rye could be sown as late as October 1st.

Planting Entirely For Export Prof. Bailey counted a mistake; because often our home markets would pay higher prices. For example the King was a most desirable apple, and one that had originated in Tompkins County, New York State, and yet he could not buy in that very county a first class

barrel of that variety; they had all been shipped away.

Cover Crops was the subject of an address by Prof. Shutt, whose address is summarized as follows,

There was perhaps no subject more prominent before fruit growers to-day than that of cover crops. The conditions were very exceptional when a profitable orchard could be kept in sod.

It was now quite generally conceded that a system of clean culture and cover crops was the best treatment that could be given the commercial orchard.

There is no cast iron rule about this system; the practice may be intelligently modified according to soil, climate and size of trees, etc.

What is the usual plan? The orchard is kept in clean cultivation until July, then a crop, usually one of legumes, is sowed and mowed down in the autumn, allowed to start next spring, then plowed down and clean cultivated as in the preceding year.

The Object of the Cover Crop.

1. To increase the organic matter and nitrogen in the soil.

2. By the system of clean cultivation and a dry earth mulch to conserve the moisture for the growth of the trees. The legumes alone have the power of appropriating nitrogen and storing it in the soil.

The increase of humus is also an important matter, for there is no part of the soil which has more important functions than humus. It is, first, a great absorbent of moisture. almost any crop will use up between 200 and 300 tons of water per acre. It is very important to hold this water supply there. More crops suffer from lack of water than from lack of food plant. This is especially true in both the lightest lands and heaviest clays, and in these the supply of humus is especially needed.

Humus indirectly is also a source of plant food: it is nature's store house for nitrogen.

Before the plants can use this nitrogen the supply must go through the process of nitrofication, and humus holds it ready for this process.

3. Humus also contains a certain amount of phosphoric acid and potash. Decaying humus yields these substances in a partially digested form 4 to 5 times as much as the ordinary potash in the soil, by reason of its available form. The amount of potash and phosphoric acid in a soil which is assimilable in muric acid is what measures the fertility or crop-producing power of soil.

In fact it is a general rule that the fertility of the soil is largely governed by the supply of humus.

4. Humus also encourages bacterial life, the presence of which is most essential to the conversion of the plant food in the soil into a form in which the plants can absorb it. Corn crops increase the amount of humus in the soil perhaps from 8 or 10 per cent. to 15 per cent. An experiment had been tried at Ottawa this year, where the result of a corn crop had been shown.

There was a great difference in corn crops as between buckwheat and rye on one hand and clovers and legumes on the other. The former were consumers of nitrogen, and the latter absorbed it, storing it up in the roots in the ground.

The experiments show that all the way from 60 lb. to 125 lbs. of nitrogen per acre in one crop of mammoth clover can be got in the ground—as much as could be got in 10 tons of barnyard manure. Then there was the humus additional. There were also about 45 to 50 lbs. phosphoric acid and 115 lbs. potash.

The clover gets the nitrogen from the air in the soil; the better the soil has been tilled the better the clover will grow. This nitrogen absorption is due to bacteria.


The phosphoric acid and potash are of course merely worked over, and they are left in a more available form than they were previously.

The McPike Grape, which was shown at the Pan-American by The Silas Wilson Co., was originated by H. S. McPike, of Alton.

III. It is a seedling of Worden, of the same season, but larger in berry. The skin is tender and the pulp melting.

THE FALL FAIR AS A HORTICULTURAL EDUCATOR.

BY PROF. H. L. HUTT, O. A. C., GUELPH.

 HE fall fair has not, as a rule, been looked upon as one of the branches of our educational system; but it is, nevertheless, one of the farmer's schools where valuable information may be imparted, and lessons of the most practical kind may be learned by means of object lessons.

There has been much discussion of late about increasing the educational value of these fairs by the employment of expert judges—men who could not only award the prizes properly, but could for the benefit of those present give good reasons for their decisions. This would certainly be a move in the right direction, but before any material improvement in this way can be made along the line of horticultural education; we believe it will be necessary to begin further back, and revise or remodel a majority of the prize lists; for, unless the prize list is arranged to bring out a good display of fruit of the right kinds, the expert judge, no matter how expert he may be, will be seriously handicapped in his efforts to impart information.

My attention was first called to the great necessity for improvement along this line last summer, when I was asked to revise the horticultural section of the prize list of one of our leading county exhibitions; and it struck me very forcibly that if so much revision was necessary in the case of one of the leading exhibitions, what must it be with many of the smaller fairs, where less attention is given to the prize list?

Since then I have taken the trouble to examine carefully a large number of the lists from all parts of the country, and I can assure you the greater number of our fall fairs are coming far short of providing the

education they might from a horticultural standpoint.

I would like, therefore, to offer a few suggestions as to how these fairs might be made of much greater value to the people of all parts of the province, by spreading reliable information relative to fruit growing.

1. Every prize list should be made to encourage the production and exhibition of every class of fruit which may be successfully grown and shown in the section. In the most favorable fruit sections, many of the lists are made to include most of the fruit grown there, and which are in season at the time of the fair, such as apples, pears, grapes, plums, peaches, quinces, etc., but the greater number of them stop short at apples, pears, and grapes, and make no mention of any other kinds of fruit, whatever. Now this is not because other kinds of fruit cannot be grown, for even in the least favorable fruit sections of the province plums of the American type are quite hardy and can be grown to perfection. In some cases where the fairs are held late in the season, it may, of course, be difficult to keep such fruit in condition till fair time, but in a good cool cellar many of the latter kinds might easily be kept for some time. I am inclined to believe it would be a wise plan to place on the lists even the earlier or more perishable fruits, such as strawberries, raspberries, gooseberries and currants, and allow these to be shown in preservative fluids in ordinary gem jars, so as to show the fruits as nearly as possible in the natural condition. Mr. C. C. Caston made an exhibit of this kind at the Barrie Fair a year ago, which attracted great attention, and which was

instrumental in introducing improved varieties into more than one farm garden.

2. In each class of fruit, a few of the leading varieties best adapted to the section, should be named on the list. In fact these lists should be so carefully prepared that they might be taken as a reliable guide by intending planters. If confidence were established in the reliability of these lists, no better means of education along these lines could be given than the annual display of varieties brought out at the fall fair. The list of varieties for which prizes should be offered would naturally vary with the different sections of the country, as a variety that would be excellent for one section might be entirely unsuitable for another. The reports of our Fruit Experiment Stations should be a guide in preparing such lists. In the majority of cases the lists at present are either false guides, or no guide at all. In one list only three classes of fruit are called for, and these are collections of apples, pears and grapes, not a single variety being mentioned. On this same list 34 breeds of chickens are named, there being 83 sections for the entry of poultry. This list is a credit to the enterprise of the poultry fanciers of that section; but if so many classes and entries are necessary for poultry, of which not one farmer in twenty has a pure bred flock, and those who have, keep, as a rule, but one breed, how much more necessary that some encouragement should be given to the exhibition of fruits, of which most farmers have not only several kinds, but a number of varieties of each kind? On other lists where varieties are mentioned, lots of old worthless kinds, which should have been discarded years ago, are still being encouraged by prizes being offered year after year; while lots of valuable varieties of more recent introduction are never mentioned. In such cases the lists are false guides and are doing positive harm.

3. Offering prizes for largest collection of

varieties should be discontinued. The aim should be to encourage the planting of fewer varieties, and not large collections of varieties, many of which are worthless. It is freely admitted by those in the export apple trade that the mixed shipments of many varieties in small lots are injuring our reputation in the British markets. What that market wants is a few of our best varieties in larger quantities. The fall fair exhibit of varieties, as brought out by a good prize list, should be an education as to the requirements of the local and foreign markets. The Goderich prize list is excellent in this particular. In apples it calls for three small collections, viz.: 6 best dessert varieties; 6 best cooking varieties, and 6 best export varieties.

4. Little or nothing is gained and much dissatisfaction and hard feeling is often engendered by trying to class varieties as either autumn or winter. Nearly every fall dispute is referred to us to settle whether the Ribston, or Wealthy, or some other variety should be classed as fall or winter, whereas the classing of it as either one or the other will not in the least alter its season of maturing. In southern sections, it will mature as usual in the fall, while in northern sections it may keep most of the winter; and, as to just where the dividing line would be in each case would be difficult to determine; and when determined would make very little, if any, difference. In preparing a list of varieties they should, of course, be selected so as to cover the season of maturing from early to late, in which case there would naturally be most of the long-keeping sorts; and in judging collections, the seasons covered by the varieties shown be taken into account by the judges.

5. At the end of each list of varieties of each class of fruit there should be one entry for "any other named variety." This permits the exhibition of good varieties which may not be mentioned on the list. Following this should

also be another entry for the "best seedling variety." This would encourage the bringing out of local seedlings, which often prove more valuable for a particular locality than some of the older named sorts. The prize in this case should not be awarded, however, unless the seedling is deemed worthy of propagation.

6. The rules for the abbreviation of the names of varieties advocated by the American Pomological Society are worthy of adoption in Canada. This would not only greatly simplify the lists, but would be a very desirable education in the proper naming of varieties. For example, we would then have :

Blenheim, not Blenheim Orange or Blenheim Pippin.

Colvert, not Culvert or Culbert.

Fameuse, not Snow. Grimes, not Grimes' Golden.

Hubbardston, not Hubbardston's Non-such.

King, not King of Tompkin's County.

Ribston, not Ribstone's Pippin or Ribstown Pippin.

Anjou, not Beurre d'Anjou.

Duchess, not Duchess d'Angouleme, etc.

7. In every prize list the classes and names of varieties should be arranged alphabetically.

This is in itself a small matter, but it has been almost entirely overlooked in the lists, as, with but one or two exceptions, nearly all of the many lists examined have made no attempt at alphabetical arrangement. This would take but little extra time when preparing the lists for the printer, and would aggregate an immense saving of time and annoyance and mistakes on the part of the exhibitors and judges who use the lists. One should be able to see at a glance at any list whether any particular variety is on it or not.

These, then, are a few of the improvements I would suggest, which would help to make our fall fairs of more practical value to those interested in fruit growing, and much of what has been said relative to fruit growing might be applied equally well to the other branches of horticulture, viz., vegetable gardening and floriculture; but we shall say nothing more about these at present.

In conclusion I might say that I shall be pleased at any time to assist those who have the matter in hand in preparing suitable lists and making the improvements suggested.

Tapping Maple Trees.—There are some fine points to be observed even in such a simple matter as tapping a sugar maple tree. Here are five points, just for instance, given us by the Vermont Experiment Station :

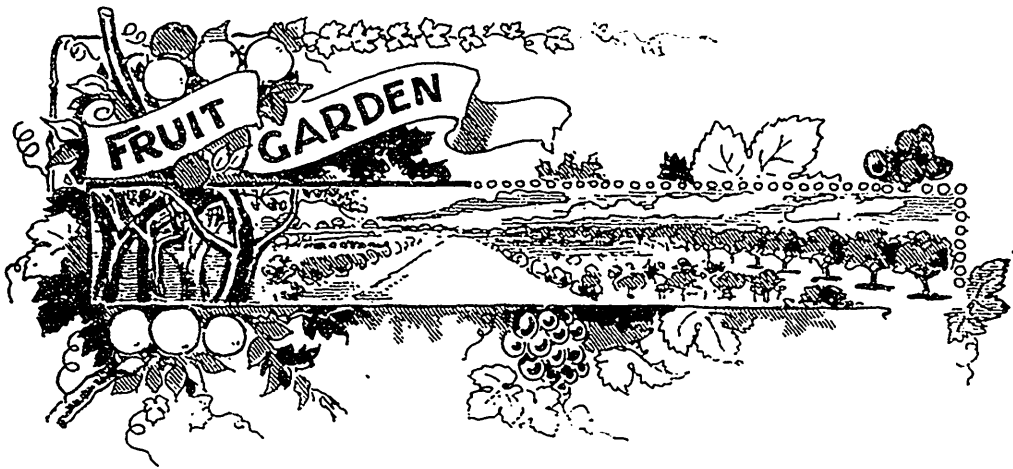
Point 1.—Only a sharp bit should be used,—one that will make a clean-cut hole.

Point 2.—The hole need not be more than three inches deep. The investigations of the Vermont Experiment Station have shown that hardly any sap comes from a greater depth.

Point 3.—The hole should be carefully cleaned of chips, because even a very small quantity of waste matter will clog the spout, obstruct the flow of sap, and seriously reduce the yield of sugar.

Point 4.—A spout should be chosen of such a pattern as will allow the freest flow of sap. It should interfere with the wood tissue of the tree as little as possible. The bark, rather than the wood, should play an important part in holding the spout firm.

Point 5.—The spout should be strong enough, and its hold on the tree firm enough, so that it will safely support the sap bucket. Moreover the spout should be easy to insert and easy to remove. The various spouts commonly sold at the hardware stores differ materially in their merits when judged by the foregoing tests. The sugar maker will do well to examine them all carefully before buying his supply for the coming season.



TIMELY NOTES ON SPRAYING.*

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

I.—Peach Leaf-Curl.

PEACH Leaf-Curl was very prevalent in the Niagara peach orchards in the spring of 1901. Very few orchards escaped, and it was not uncommon to find large areas of peach trees defoliated by midsummer. The writer had occasion to visit the Grimsby and St. Catharines districts several times during the early part of the season, and to observe the attitude of the peach-growers to the question of remedial treatment. The belief was current that spraying had little influence in combating the disease, and many growers expressed the opinion that the trouble was caused altogether by unfavorable weather conditions, and not by a fungus.

It is true that Peach Curl is most injurious when the spring opens with cold wet weather and sudden changes of temperature, but it should be borne in mind that such conditions favor the development of the fungus, the real cause of the Curl, and render the peach more susceptible to attacks by the

same fungus. It has been shown experimentally that the best temperature condition for the growth of a fungus like Peach Leaf-Curl is much lower than that for the best development of the peach. Excessive moisture, while not hurtful to the fungus, is hurtful to the peach, as it saturates the tissues with water, and renders them soft. While growth may be rapid, the new cells will have thinner walls, and there will be a decided decrease in the activity of the living substance due to the excessive amount of water and the small amount of oxygen absorbed.

In the consideration of this disease, then, it must be understood that the fungus is the real cause of the trouble, and that the weather and other conditions cannot by any means produce the disease without the fungus.

There are two possible ways by which the peach leaves become infected: 1. By threads of the fungus which winter over in the year-old branchlets, and 2, by spores of the fungus in spring. The first view is the one which was generally held by botanists up to

*Notes from the Biological Department, Ontario Agricultural College.

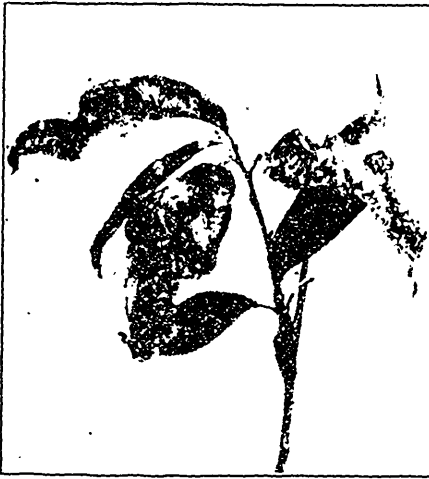


FIG. 2257. PEACH CURL, UNTREATED LEAF.

1900, and was largely instrumental in giving rise to the belief that spraying was of no value as a remedial treatment. According to this view, the threads of the fungus in the spring extended into the leaves of the young shoots, and there formed a net-work of threads which finally caused malformation and death of the leaves. If this view be the correct one, it is manifestly of little or no value to spray, for the fungal threads are within the plant and beyond the influence of the Bordeaux.

Frequently, however, reports were received from reliable experimenters that the Bordeaux mixture did exert a controlling influence on the disease. Messrs. Craig, Orr and A. H. Pettit obtained satisfactory results in Ontario in 1897, 1898 and 1899, while Prof. Bailey, Dr. Duggar and Dr. Murrill reported excellent results in New York. Other instances might also be given, but these are sufficient to show that probably the disease was prevented from spreading to the leaves because the spores did not have an opportunity to germinate.

Newton D. Pierce, of the Department of Agriculture, Washington, D.C., began the investigation of the Peach-Curl problem as far back as 1893, and carried on an elabor-

ate series of experiments in co-operation with peach growers in many of the states. His results were very conclusive as to the value of Bordeaux mixture as a remedial treatment, and he does not hesitate to state that the disease can be efficiently controlled by early spraying.

Mr. Pierce is of the decided opinion that the main source of infection of the leaves in spring is the spores, which find their way to the leaf buds, for over 90 per cent. of the infections can be prevented by a single spraying. Success depends upon an early application of the Bordeaux. The first spraying should be done in April when the buds are beginning to swell, or from one to three weeks before the opening of the blossoms in the spring. If much wet weather follows, another spraying should be made after the blossoming period.

The writer is quite aware that many orchardmen may be quite skeptical in this matter of Peach-Curl control, but facts are accumulating so rapidly that there should be but little doubt that Bordeaux mixture, applied at the proper time, applied in the proper way, after being properly made, will control the Peach Leaf-Curl.

The peach industry is a large one, and



FIG. 2258. PEACH CURL, TREATED LEAF.

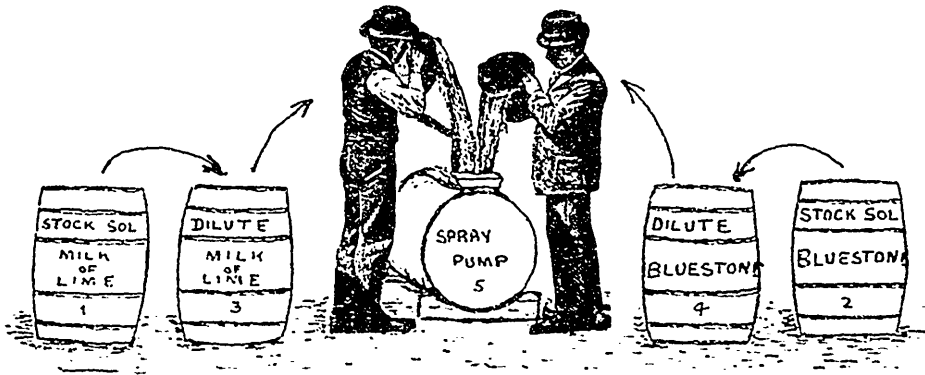


FIG. 2259. Proper method of preparing Bordeaux mixture. The stock solutions are made up and kept in barrels 1 and 2; these are diluted in barrels 3 and 4, and finally mixed in the spray pump barrel 5.

should not be allowed to languish for the want of the application of a remedy. The remedy is known, apply it.

II.—Bordeaux Mixture.

Many speakers at the meetings of fruit growers report that the want of care in the preparation of the Bordeaux mixture is the main reason why better and more uniform results are not obtained in the spraying of orchards for the prevention of fungus diseases. As spraying operations will begin next month, a few notes in the imperative form regarding the preparation of the Bordeaux mixture will not be out of place here.

1. Use nothing but fresh quick-lime. The lime should be slowly slaked by the gradual addition of water.

2. Never mix the concentrated stock solutions together.

Stock solutions of milk of lime and blue-stone are usually prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 lbs. of fresh lime are gradually slaked with 25 gallons of water; in barrel No. 2, 25 lbs. of copper sulphate or blue-stone are dissolved in 25 gallons of warm water. (Fig. 2259).

These are the stock solutions: Each gallon of milk of lime contains one pound of lime, and each gallon of blue-stone solu-

tion contains one pound of blue-stone. When we wish to make up a barrel of Bordeaux solution, all that is necessary to do is to take out 4 gallons of milk of lime, and 4 gallons of blue-stone solution, and either dilute each in separate barrels in 20 gallons of water before mixing in the barrel attached to the spray-pump, or else pour each separately into the barrel in which are already 32 gallons of water. The first method, that is, where the four gallons of the stock solutions are diluted in separate barrels to 20 gallons, before mixing in the barrel attached to the spray pump, is the preferable one.

If the milk of lime and blue-stone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. It is also believed that the fungicidal value of the copper and lime compound formed is not as great as that formed when the solutions are mixed in a dilute form.

3. Test the Bordeaux to find out if sufficient milk of lime has been added. This is most readily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In testing, place some of the Bordeaux, which has been thoroughly stirred, into a saucer, and add a few drops of the

ferrocyanide. If sufficient lime has been added, no discoloration will appear, but if insufficient, a dark brown color will be produced.

4. Always strain the milk of lime to prevent gritty particles from clogging the nozzles. The milk of lime can be readily strained if a large 20-mesh brass wire strainer is fitted over the mouth of the barrel in which dilution takes place.

5. Use a fine nozzle; do not soak or drench the tree. The liquid must be put on as a fine mist, and the spraying of the stems, leaves and fruit must not go beyond a complete bedewing, for, if more is put on, the fine dew spots will run together and begin to drip.

Lime is very variable in strength and the ferrocyanide test should be made every time a new "batch" is made up. Too much lime does not harm the Bordeaux to any extent, but it will clog the nozzle, and this is a very important matter in actual practice.

III.—Pure Paris Green.

A prominent fruit grower told the writer, not long ago, that some simple tests for determining the purity of Paris green would be welcomed, for he believed that some of the Paris green on the market was adulterated

and unsuited for purposes of spraying. Bulletin 68, Illinois Agricultural Experimental Station gives the following as the requirements of a good Paris green :

1. It should be a wholly dry and impalpable powder. Grittiness and caking are indications of adulteration.

2. It should have a bright, light emerald green color, which should not whiten or become dull in the streak left in allowing a small sample to slide down a clean glass plate, when tilted and gently tapped.

3. It should be entirely soluble in ammonia. Any residue is an adulterant.

4. Under the microscope it should be seen to contain only a small trace of foreign matter, and should consist of *clean* green spheres, wholly separate from one another. Aggregation into masses is evidence of careless manufacture.

5. Paris green should contain not less than 50 per cent. of arsenious oxide, of which not more than 4 per cent. should be in the fresh state or uncombined with copper.

Requirements 2 and 3 may be readily tested by any person, and do not take much trouble. Every purchase should be tested, for if it is adulterated to any extent, the work it will do will be correspondingly decreased.

THE REINE HORTENSE CHERRY.

SIR,—In your cherry report, which by the way, is of great value to every intending planter, you place the Reine Hortense cherry among the first of its class.

Your estimate of that fine cherry has been fully verified in my experience. I have a tree eighteen years planted, that is doing very well indeed. Almost every year its slender branches are bending with its load of fine fruit, although frequently during those eighteen years the temperature has fallen twenty and more degrees below zero.

The fruit is very large and nearly sweet, and it is the finest flavored of the class of Duke cherries. The tree is very distinct

and beautiful in its habit of growth, resembling, as it grows older, the weeping willow; its slender branches drooping almost to the ground. Those of my acquaintances, who have sampled them, agree that in flavor and size of fruit, combined with beauty of tree, it is indeed a wonderful cherry. No garden or orchard should be without it.

The Reine Hortense will add to the beauty of a home and its juicy fruit to the health and pleasure of a family. Any one setting out cherry trees in the spring should not forget to include the Reine Hortense.

Galt, Ont. WALTER M. TURNBULL.

FIRST LESSONS IN FRUIT GROWING—IV.

BY PROF. H. L. HUTT, O. A. C., GUELPH.

Forming the Tree Top.

IN the last lesson, we studied the structure of the tree trunk, and learned something of the way in which new growth is added each year.

In this lesson, we shall look into the top of the tree and note some of the peculiarities of the branches composing the head.

The formation of the head of most of our fruit trees is begun in the nursery by cutting back the top of the young tree at whatever height it is desired the head should start, and by lopping off also the lower branches nearly to the top. Several branches are thus started into rapid growth near the top, and it is often left for the planter when transplanting these trees into the orchard to thin out all but three or four, which become the **main branches** and form the frame-work of the tree.

From the main branches, which are situated upon the trunk, are thrown out numerous secondary branches, which subdivide again into smaller branches, until a branchy top is formed.

What Determines the Shape of the Head.

The form of the head depends largely upon the habit of growth of the branches, which varies greatly, not only with the different species of trees, but also with the varieties of any particular species. In most kinds of pears, the branches have a very erect habit of growth, which naturally causes them to form tall narrow heads. In apple trees we see a greater tendency for the branches to spread, although in a few varieties, such as the Yellow Transparent, there is a more or less upright habit of growth as in the pears. The branches of the Northern

Spy have what might be called a curved erect habit, that is, they branch out somewhat horizontally, and then become more or less erect. A horizontal habit of branching may be seen in the Roxbury Russet and Greening, and such trees form spreading flat-topped heads. The two extremes in habit of growth may be seen in the Abundance and Burbank plums; the former grows very erect, while the latter is a sprawling, horizontal grower, the branches of which often become drooping from the weight of crop.

Shoots.

Shoots are branches of one season's growth. In a young vigorous growing tree, the shoots annually formed are often several feet in length. but as the tree becomes older and its vigor diminishes, its energies are turned to the production of fruit rather than wood, and the new shoots are often not more than a few inches in length. In Fig. 2260, at (a). (a.), may be seen the short shoots of last year's growth in a Morello cherry.

The long sprawling shoots in grape-vines and berry-bushes, when matured, and known as canes. The term sucker, or watersprout, is often applied to the strong shoots which make their appearance on the older branches, particularly after the tree has been severely pruned. Such shoots are an effort on the part of Nature to restore the equilibrium between top and roots which has been disturbed by severe pruning. The term sucker is more correctly applied to those shoots which come up around the base of the trunk, or which spring from underground stems or injured roots. The tendency to sucker is much more common in some species than in

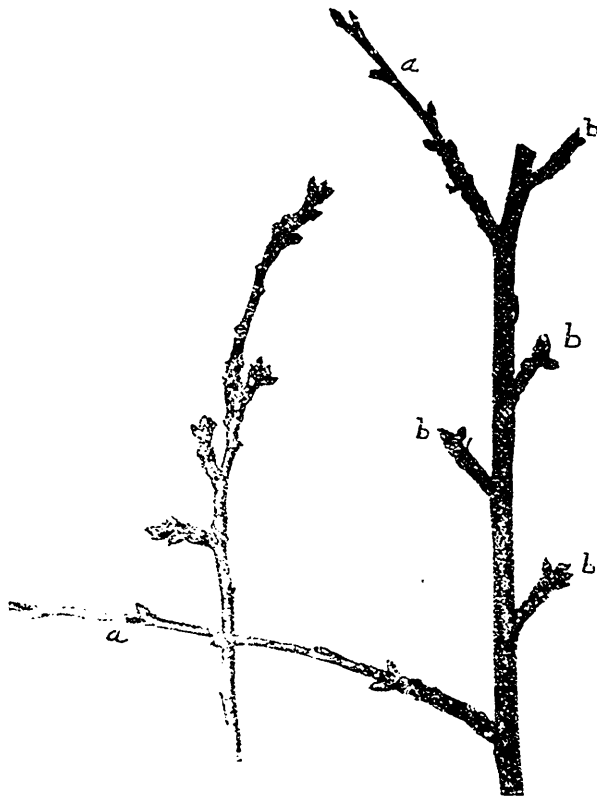


FIG. 2260. Branches of Morello Cherry (half size), showing last year's shoots (a, a) and fruit spurs (b) along the sides of the older wood.

others, and kinds that sucker readily may easily be propagated by root-cuttings.

Fruit Branches.

When trees begin bearing fruit, special forms of branches may be found in them, that are not noticeable in young trees not yet in bearing. These are the branches upon which the fruit is produced. Different kinds of trees have different kinds of fruiting branches with which it is important that the fruit grower should be familiar.

One of the most insignificant-looking branches, yet the most important in its productiveness, is what is known as the **fruit-spur**.

Fruit-spurs.

These are short, stunted-looking branches which differ much in appearance and habit of growth in different fruits, as may be seen by the accompanying illustrations.

In apple and pear trees, the fruit-spur makes its appearance first as a prominent bud on wood at least two years old. During the second season, it lengthens a short distance, and bears only a cluster of leaves, but the third season it usually blooms; and, if all goes well, bears fruit. After fruiting, it branches again just below where the fruit is produced, extends half an inch or more, and bears again, and usually continues branching and bearing in alternate seasons. After several years of such growth, the branch may not be over six to eight inches in length, and yet the scars on its sides may show that it has several times produced fruit. Fig. 2261 shows an apple fruit-spur of seven seasons' growth, which has produced four apples, as seen by the large scars at (a). Three attempts at bearing have been made at (b) but the blossoms have fallen without setting fruit, as shown by the small scars; and six strong fruit-buds at (c) give promise of fruit next year.

In vigorous young apple and pear trees just beginning to bear, most of the fruit will be found at the end of the slender fruiting branches from six to ten inches in length, usually in the centre of the tree.

Such branches were shoots that began life with the evident intention of producing nothing but wood and leaves, as has been the custom in the tree, the terminal bud of each has been transformed into a fruit-bud, and Nature has directed their energy to the production of fruit.

When the trees are bare of foliage, the fruit-spurs may often be noticed very much enlarged and swollen. This is quite commonly seen in the Ben Davis and Oldenburg apple trees and also in some kinds of pear

trees, and is due to the storing up of an extra supply of nourishment at that point for the development of the fruit.

The plum and cherry and also the currant and gooseberry have fruit-spurs, but they are quite different for those of the apple and pear. Fig. 2260, shows a section of branch from a common Morello, or sour cherry tree. The larger part of the branch is five-year-old wood, about two feet of the newer wood having been cut off at the top. By comparing this with the apple branch, it will be noticed that it has not the zig-zag habit of growth of the apple branch. The reason for this is that the fruit-buds in the cherry, as also in the plum, currant and gooseberry are not on the end, but are grouped near the end of the spur, and have a leaf-bud in the centre to extend the growth straight ahead.

The peach tree forms no fruit-spurs, although the fruit may occasionally be found on short stunted branches, which have the appearance of fruit-spurs, but these are in reality very short shoots which never bear again.

If a peach tree is examined when in flower or fruit, it will be seen that the fruit is produced from the lower buds along the sides of the last year's shoots. In this fruit, then, the vigorous shoots of this season's growth become next year's fruiting branches.

In the case of grapes, raspberries and blackberries, the fruit is borne on shoots of the same season's growth, which start from last year's canes. In the grape, the fruit is born at two or three joints near the base of the shoot, which grows several feet in length and becomes next year's cane. In the raspberries and blackberries, however, the fruit is born at the ends of the shoots which die with the whole cane after fruiting, and are succeeded by new canes which spring from the root.

The quince bears fruit in a manner peculiar to itself. It does not produce fruit-

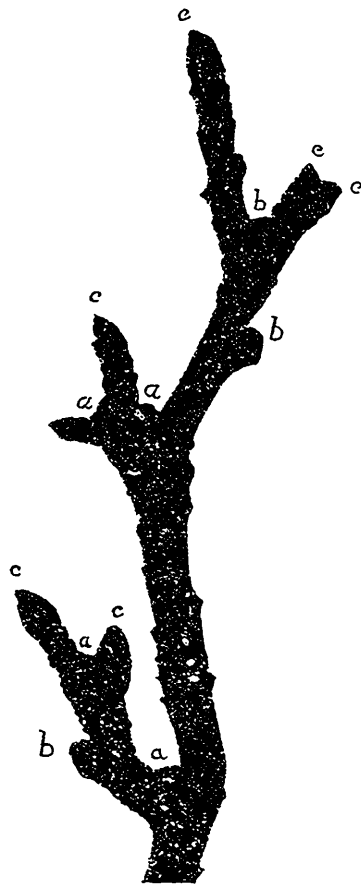


FIG. 2261. Apple Fruit-spur (natural size).

- (a) Large scars showing where fruit has been borne.
- (b) Smaller scars where blossoms have appeared but fruit has not set.
- (c) Strong fruit-buds which will blossom next spring.

spurs, like the apple; nor yet along the sides of last year's shoots, like the peach; but it bears the fruit singly on the ends of shoots three or four inches in length, of the same season's growth.

Here, then, we have quite a number of ways in which Nature develops and modifies the forms of branches to serve her purposes in the production of fruit. How important, then, that the man who grows fruit should study her methods, and learn how to work at all times in harmony with her laws.

FERTILITY OF ORCHARDS.

NEARLY one whole morning was given by the Western New York Horticultural Society to the study of soil conditions for fertility. Dr. Jordan, of the Geneva Experiment Station, showed that this was a complex question, and one that did not depend so much upon the amount of fertilizing elements in the soil, such as potash, nitrogen and phosphoric acid, as upon physical conditions which alone could enable the plant to take the benefit of these substances. The important physical conditions were such as texture of the soil, warmth, moisture, etc. Without these conditions, commercial fertilizers were little use. Indeed everyone had noticed that in a dry season no good was perceptible from fertilizers applied.

Water.—First, he emphasized water as the most important of such conditions. The amount of water extracted from the soil by growing crops was much more than is usually supposed; e.g., an acre of oats, in one season, would transpire 2,000,000 lbs. of water.

He explained how water was stored in the soil, each independent particle of moist soil being completely surrounded by a film of water. Soil therefore, whose grains have the largest surface to the cubic foot would retain the largest amount of water. The smaller the soil particles are the more the surface area; thus, as King puts it, a cubic foot of marbles one inch in diameter possesses an aggregate surface of 57.7 square feet, while if the marbles were reduced in diameter to one thousandth of an inch, then the total area per cubic foot is increased to 57,700 square feet. From these differences it is evident that the amounts of water coarse and fine grained soils retain will be very different, and, in general, clay holds more water than sand.

The amount of water retained by the particles will also be influenced by the distance of standing water below the surface. This is what is known as the water level, or the level of complete saturation. This must be below the roots of the plants, to provide for soil ventilation, without which the plant cannot grow.

Tillage is most important in the conservation of moisture. An immense quantity of water is lost by evaporation, in some cases as much as 15 to 20 pounds per square foot per day. This is prevented by an earth mulch or "dust blanket," which breaks up the capillarity that carries the moisture to the surface and allows it to escape by evaporation. It has been proven that scratching the surface one, two or three inches deep will serve to prevent this escape of water, and since, as shown in our notes last month, the amount of nitric nitrogen is greater in soil cultivated three inches deep than a greater or less depth, it would appear well proven that this depth of three inches for summer cultivation is the best for all purposes.

The immense amount of water needed is evident, from the fact that each ton of dry matter produced uses up from two to four hundred tons of water. The production of four tons of Indian corn would probably need from eight to twenty tons of water.

Fruit growers must take care, said the director, not to let useless crops rob the land of the moisture needed by the fruit trees.

Would you grow apple trees in sod? asked some one. Prof. Jordan emphatically opposed such a practice. Hilgard found, from actual test, that a cultivated orchard had much more available water than one not cultivated, in which the grass had robbed the trees of their moisture. Besides, the cultivated trees had made a growth of three

feet in a single season, and those uncultivated only about three inches. Burriil had made a test and found 12 per cent. of water in cultivated soil, and only 8 per cent. in that which had run to grass.

Constant Cultivation is necessary to get the best results; cultivation that will stir every particle of soil, to a depth of two or three inches. Granted that the soil in spring is saturated, then you should have twelve inches of rain during the season to keep up the supply. Husband this rain by tillage and give your tree the moisture needed for best results. Late fall ploughing tends to increase the supply, while early spring cultivation breaks the capillarity and saves the moisture by an earth mulch. Then every rain tends to compact the surface soil and encourage rapid evaporation; therefore the importance of at once cultivating the soil, after every rain, to prevent a serious loss of moisture.

Even Cover Crops tend to draw moisture from the soil, and therefore should be ploughed in as early as possible in the spring.

Kellog, of Michigan, had found oats sown in July or August the best cover crop to supply humus to the land and protect the roots of the trees from winter killing, because the oat plants are dead in the spring, and therefore do not draw moisture at that season. Their excellence as a cover crop had been shown by Prof. Taft, of the Michigan Agricultural College.

Hitchings was an advocate of sod for orchards. He had adopted this system for years with success, but every summer he had mulched the trees heavily with cut grass or some such material. He had in this way encouraged his trees to root near to the surface, where they could easily drink in the least shower of rain, which could not percolate down to the deeper rooted trees. His soil was clay loam, very stoney.

Secrets of Success.—This important subject of Soil Fertility was still farther emphasized by Prof. Roberts, of Cornell Uni-

versity. Tillage and cover crops are, in his opinion, the two great secrets of success in orcharding. In clay soil there were too many large and too few small particles, and, for such soil, lime was beneficial because it tended to flocculate the small particles, and thus make it more open. Heavy rains tend to seal up a heavy clay surface, but surface tillage unseals the lumps. If, after a heavy rain, we cultivate and form a loose earth mulch of dry soil, the moisture from below will only rise to the bottom of it. This constant cultivation, besides protecting the soil from loss of water, is a most efficient agent in setting free plant food.

Commercial Fertilizers Not Always Needed.—In fact there is in the soil, locked up, an abundance of plant food, and, if we only possessed the means of unlocking it and getting it out, we could sell fertilizers to the fertilizer dealers at their own price and make enough money to endow a college. The key to this, to a large extent, consists in constant tillage. Cover crops are useful by furnishing humus, and by helping to secure nitrification.

The physical condition of the soil, Prof. Roberts declared, was more important to tree growth than the addition of commercial fertilizers, for unless the soil is in proper condition, fertilizers will be wasted.

The St. Louis World's Fair was spoken of by Mr. A. W. Taylor at the Rochester meeting, who drew especial attention to the grand provision for horticulture in the magnificent combined building for Agriculture, Horticulture and Dairying, which was to cover an area of thirty-three acres—the largest building in the world of its kind.

The Anjou Pear was shown at Rochester by Messrs. Ellwanger and Barry and, as usual, the samples were magnificent. Several commercial packages of this pear were also shown; they were put up in a box 10 x 10 x 18 inches, each containing forty-two pears. The smallest of these pears measured 2½ inches in diameter, and the

most of them three inches. The average price for these packages in New York, in the month of January, is \$2.00, or nearly five cents a pear.

Among the other pears we noticed P. Barry a winter pear, ripening in May; a variety which succeeds splendidly in California, but averages rather small in the east; and Duhamel de Monceau, which presented a very attractive appearance and is considered a valuable commercial variety. Among the apples shown by the New York Experiment Station were York Imperial, which was of good color, but which averaged barely $2\frac{1}{2}$ inches in diameter and disappointed us considerably after all the reports given us of its value as a commercial apple. Certainly it is away behind the Canadian Spy, in size and in beauty. The samples of Holland Pippin

were fine, measuring about $3\frac{1}{2}$ inches in diameter and showing a fine waxen yellow color.

Campbell's Early Grape was shown in the form of a dried bunch, which must have been remarkably fine, for the note attached by Geo. S. Josselyn, the grower, stated that the bunch originally weighed seventeen ounces.

The Fruit Fly, which infests sour cherries, was mentioned in Prof. Slingerland's report as one of the most formidable of insect pests. No certain remedy has yet been found for it, and it threatens to wholly ruin the business of growing sour cherries. The fruit looks fair, but the housewife finds every cherry infested with a maggot, which fortunately does not affect the sweet cherries.

STRAWBERRIES FOR EXHIBITION.

BY M. A. DIER, OTTAWA.

VERY few realize the large amount of pleasure and satisfaction there is in growing one kind of fruit, and in producing the very finest that can be grown. And not many are willing to adopt modern methods of cultivation, which mean more labor and more thought than old methods.

There are many things to consider in connection with the production of fine, extra large, highly flavoured strawberries, beautifully colored and glossy; but I shall treat the subject as briefly as I can.

The ideal method is, I believe, the annual system. By this I mean the transplanting of runners in August or September—runners grown carefully, being assisted in obtaining a foothold in the soil, instead of blowing about in the wind, and fruiting them the following season, and then immediately plowing or spading the same soil (if

necessary) for re-planting a month or so later. Early every spring I plant out as many plants of each variety as I wish for propagating purposes only. Every attention is paid to these plants, the soil kept perfectly clean, the first runners only being pinched off. After this the runners are assisted to take root by pegging them down, and a little soil drawn over the parts where roots are emitted. Two plants are grown on each runner, and only four or five runners on each plant. They are kept apart so there is no crowding.

If the weather is dry, thorough irrigation is necessary.

The soil for this nursery bed should be in the finest possible condition, as success depends on well nurtured plants.

I do not think I need say much in reference to soil preparation, as the readers of the Horticulturist know all about this. I

might say, however, that I do not consider it necessary to work the soil to a great depth as has been, and is frequently, recommended. Five or six inches of well prepared top soil is enough. A liberal dressing of manure, the fall before planting, is advisable in most cases, being plowed in and the ground left in a rough condition during the winter, and this supplemented by bone meal and wood ashes, or sulphate of potash in the spring—sulphate is better than muriate of potash.

The soil cannot be made too fine and ought to be perfectly free of lumps, and before planting should be rolled or tramped quite firm.

The plot of ground for fruiting should be enriched and prepared as above and sown with radishes, early peas, etc., which can be got out of the way by the middle of August. A thorough digging and firming should follow after the vegetables have been removed, and it is ready for the plants.

Transplanting ought not to be done during a drouth if it can be avoided. Better wait a month for rainy weather, unless, of course, irrigation is possible. The plants are removed from nursery to fruiting plot with great care, leaving as much soil as possible adhering to roots. This is a slow and tedious process where one's time is limited, and for this reason the fruiting plot should be close to the nursery so that little time will be lost in moving plants from one place to the other.

Too much care cannot possibly be exercised in transplanting. When this is done the surface of the soil, an inch or so, should be kept loose to prevent evaporation until the mulch is applied later on.

Weeds and runners should be watched for and kept down. About the middle of September or earlier, a mulch of manure may be applied, covering the soil between the plants. I use partially decayed leaves for that purpose, and find them excellent. These when dug in after fruiting, keep the soil in

perfect condition. The object of this mulch is to protect the soil from early frosts, it makes further cultivation unnecessary and the top inch of soil becomes filled with fine roots without which a plant cannot do its best.

Protecting the ground from early frosts, permits the growth to continue much later than it otherwise would. After the ground is frozen solid, the whole bed is covered with a heavy mulch of clean straw or other suitable material, the larger part of which is removed early in the spring. I have found that a heavy mulch between the rows during fruiting is anything but beneficial. Thinning of blossoms may be a good thing and I have always practiced it until the past season, when my fruit was fully equal in size and quality to other seasons.

In making my fruiting plot, I plant in beds, with a path two feet between. In the beds the plants are one foot apart each way; three rows in a bed. One can work among the plants nicely when so planted without tramping on or injuring the plants in the least.

The varieties which have succeeded best with me for exhibition are: Marshall, Edgar Queen, Brunette, Sharpless, Woolverton, Greenville, Bubach, Wm. Belt, Nick Ohmer and Margaret.

By giving close attention to all the requirements of my plants, I have produced Haverlands, Warfields and Lovetts of such large size as to be almost unrecognizable, and I do not think the limit has yet been reached.

I make selections every year, taking a few plants from those which have produced the finest specimens, and propagate from these. In this way, I believe, I am improving my stock.

In growing strawberries, as in everything else, results are directly proportional to the amount of energy expended, and one always feels well repaid for extra work done in the strawberry patch.

HONEST FRUIT PACKING.

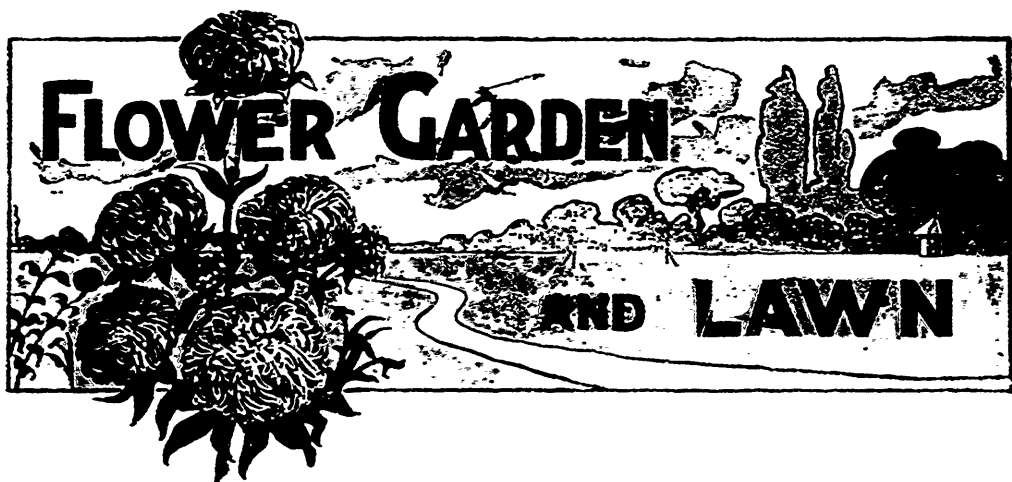
WE have so often emphasized the importance of a revolution of methods in fruit packing that it seems almost superfluous to revert to it again; especially now that it is regulated by an Act of Parliament. Nevertheless we believe that our readers will be interested in an address by Chas. E. Forster, of New York City, before the Connecticut Fruit Growers on Domestic and Foreign Fruit Markets, from which we make the following extract:—

“Who that has stood in any of the markets of the world to which our special lines of perishables find their way has not blushed at the sight of offerings unworthy of the name? It was but last spring that a prominent commission firm at Liverpool wrote of a certain consignment of Russets from New York:—‘It is a shame that any American of character should send such trash to the English markets with the expectation of satisfactory sale. The whole invoice after removal of the top layers is little better than culls.’ A society of horticulturists as prominent as this, and which is bestowing so much time and thought upon the subjects of conservation of the soil, elimination of insect pests, and the general physical up-building and expansion of orchard and garden cultivation, can well afford to supplement its good work by allying itself strongly upon the side of honorable methods of marketing the developed product. The exalted standard adopted by your distinguished colleague, Mr. J. H. Hale, of South Glastonbury, should be an inspiration to all serious-minded horticulturists. His scientific skill in the growing of fruits is only exceeded by a studied choice of the most marketable varieties, while his methods and style of grading and packing has given him a name beyond reproach in all markets he has entered. We have another in our own State of New York, in the person of Mr. Geo. T. Powell of Briarcliff Manor, who, in addition to the study of how to produce, is ever foremost in the discussion of how best to market this great fruit crop of ours.

“Honesty of method is the prevailing in-

stinct which dominates the work of high-minded, practical men in all departments of industrial life. The United States may well be proud of the great galaxy of talent devoted to the elevation of fruit growing from the haphazard standard of former days to that of the scientific culture which gradually but surely is making its influence felt in every rural community. The average grower of fruits and vegetables needs just as much education upon the secondary proposition, how best to market his product, as upon the primary one of how best to grow it. The distributor, or dealer, to whom he may consign withholds suggestions for fear of being misunderstood. To criticise a shipper’s methods too often means the loss of a more or less valuable client. It does not pay and is therefore considered not worth while.

“What the markets require is, quality first, and quantity next. Let the peaches be well graded with but one variety in a package. Give generous measure. A crate of raspberries scantily filled never brings its real value. Avoid the pony package, and let the latter be new whenever and wherever possible. The apple barrel adopted by the National Apple Shippers’ Association is the standard of the country, and will sell in any market at home or abroad. The stove-pipe barrel of the Hudson River can go to Europe or to New York, where they don’t want it, but the great West will have none of it. When using the generous second-hand flour barrel always wash and dry it thoroughly. Flour dust upon apples, pears and quinces means a cut of twenty-five or fifty cents in the price to make the stock sell. It represents a poor economy of time and labor. Use a stencil for the different varieties. It costs but a trifle, and indicates care and interest in the details that is always appreciated. Don’t be ashamed to have a brand of your own, and pack up to it. The No. 2 stock will sell under a second brand, which can be understood. Shake apple barrels often while packing the fruit, and the attendant pressing need not then be too severe to bring it to market light and in good form.”



SEASONABLE NOTES FOR MARCH.

BY WM. HUNT, HAMILTON.

THE GREENHOUSE.

TOWARD the end of the month or at least early in April it will be necessary to give partial shading to palms and ferns as well as to newly potted cuttings or young seedling plants. If the shading is delayed too late in the season many of the plants (especially the young growth of palms) will suffer from sun scald. There is even greater danger in this respect at this early season than later on when ventilation can be given more freely than now during the treacherous weather often experienced in March. Bright hot sun, accompanied with keen, biting, frosty winds, makes it difficult to give ventilation sufficient to keep down the temperature without exposing the plants to danger. A light shading will prevent the hot sun from doing any great damage on bright cold days, when perhaps it is difficult to open the ventilators. Plants in flower will scarcely need shade for a week or two yet.

Water must be used more freely than hitherto, not only to the roots of plants, but on the floors as well as overhead syringing. Sprinkling the floors liberally with water,

early in the afternoon, will benefit the plants very much.

Freesias.—Pots of these useful greenhouse plants should still be given an ample supply of water, after they have done flowering, if good strong flowering pips or bulbs are required for use next season. Freesias commence to form young bulbs just about the time the plants are in full flower, so that it is necessary to give them water several weeks after they are out of flower. The drying off or resting period must not be commenced until the young bulbs have attained to almost mature growth, which is usually three or four weeks from the time the old bulbs are out of flower. After this period water can be withheld gradually until they are dried off completely, when no more water must be given them until time to re-pot them in August or September.

Roses.—These, whether in pots or planted out, will require regular daily syringing on bright days. A little fertilizer will be found beneficial now that a more active growth has commenced.

Cyclamen.—Continue to water cyclamen rather liberally, even when they have done



FIG. 2202. CHINESE PRIMULA.

flowering. In fact at no time should the soil become quite dry, even during the summer resting period. Pick off all the seed pods unless seed from them is required, as the production of seed reduces the strength and vitality of the corms or bulbs considerably.

Fuchsias.—These should be coming into flower nicely now. A little shade, plenty of water at the roots and a gentle syringing every day will help fuchsias greatly. A little fertilizer once a week will also help them along.

Azaleas.—Syringe azaleas every day when they are out of flower. Water at the roots must be given in sufficient quantities to thoroughly moisten all the roots.

Primulas.—Less water should be given these plants when out of flower. The double variety (*Primula alba plena*), as shown in the engraving should be propagated as soon as they are out of flower. Cuttings of this useful variety strike readily in sand in a shady position. This double variety of the Chinese Primula is one of the best and most satisfactory for an amateur grower. Like all other primulas it delights in a well drained soil, with a good admixture of leaf soil added to rich loamy potting soil, as well as a little sand mixed in.

Annuals.—Seeds of these for early flowering can be sown now. Better results will, however, probably be obtained by sowing them a month later.

Bedding Stock.—Cuttings of coleus, ageratum, lobelia and all bedding, out plants should be taken now. Heliotrope and abutilons strike readily now from tender growth. One of the most valuable additions to the list of bedding plants recently is the pretty dwarf growing *Abutilon Savitzi*. Its bright silvery marked leaves and its compact habit of growth promises to bring this new variety into great popularity as a bedding plant.

FLOWER GARDEN.

March is a trying month for half-hardy plant life out of doors. A light covering of some protective material such as straw, long manure, etc., will be found beneficial to many plants laid bare by their winter blanket of snow having been melted away from them. A little protection now for a few weeks will be more needed than earlier, even though the frost may not be quite as severe.



FIG. 2203. ABUTILON SAVITZI.



FIG. 2264. COMET ASTER.

Bulbs.—These should not be uncovered until danger of severe frost is over. Remove the covering by degrees, as sudden exposure to light and air (and perhaps late frosts) will likely injure the flowering heads.

THE WINDOW.

Late in March, or early in April, is a good time to re-pot all the hardiest kind of window plants, such as geraniums, cyperus, ferns, and plants required for summer decoration.

Tuberous Begonias.—Old tubers of these plants can be started into growth now. Shake out the old soil carefully from the tuber if it has been kept in the pot during the winter. Good, rich, loamy potting soil with a small quantity of soil mixed with it suits these pretty summer flowering plants splendidly. Soil that a geranium will grow well in will suit tuberous begonias. Use plenty of drainage in the pots, water the soil once thoroughly after potting. Water should then be given sparingly until the plants have well started into growth.

Summer Flowering and Foliage Begonias, including Rex varieties, can be potted. The same remarks regarding drainage and watering will apply as for tuberous begonias, but the soil, especially for the Rex varieties, should have about one-fourth part of leaf soil added to that recommended for the tuberous variety. Amongst the newer varieties of begonia suitable for the window are *B. Thurston*, *B. Haageana* and *B. nivea*, whilst older varieties such as *B. Sandersonii*, *B. fuchsiaoides* and of course *Begonia rubra* cannot be omitted.

Annuals.—Seeds of those can now be sown so as to secure early flowers. Although the antirrhinum is not classed strictly as an annual, it can be grown as easily and successfully as any of the annuals. The newly introduced dwarf flowering varieties make a splendid display as border plants and will give a supply of flowers during the burning days of July and August, when flowers are often scarce. These dwarf growing varieties also succeed splendidly in pots in winter. The beds of these plants at the recent Pan-American exhibition were very much admired and proved conclusively the suitability of the new types of these old favorites for bedding plants. They are easy to raise and a few plants should be found in every flower garden.

The *Scabiosa* is another annual that will give good results during the hot months of summer and on until late in autumn. A pot or two of these sown early in April and planted out the second or third week in May will, with very little care and attention, provide a bountiful supply of flowers for decorative purposes. A bunch of the multi-colored types of *scabiosa* with a few spikes of antirrhinums and mignonette sticking up above the somewhat flat flowers of the *scabiosa*, relieved here and there with a few sprays of fern or foliage will make a most acceptable vase of flowers for table or house decorative purposes. The *scabiosa*, like the

snap-dragons, are not very exacting as to the nature of the soil, flourishing in either a loamy or a stiffer soil with almost equal vigor and profuseness of flower. A rich soil, however, brings much larger flowers and richer and more intense tints and shades of color. A dozen or two plants each of the

snap-dragon and scabiosa planted out in the garden will not only beautify the flower garden but furnish an almost unlimited supply of cut flowers the entire summer. Both of these varieties are largely grown by commercial florists, a fact that proves their usefulness for cut flower purposes.

FICUS REPENS.



FIG. 2265. FICUS REPENS.

This plant is perhaps one of the prettiest evergreen greenhouse climbers that we have. One would scarcely think, judging from its miniature-like foliage and its decided climbing habit of growth, that it belonged to the same class of plants as the well-known rubber plant (*Ficus elastica*) that has such coarse, heavy foliage, and is altogether of a

different habit of growth from this little climbing *Ficus*. Unlike a good many so-called climbers, *Ficus repens* requires no tying or training to induce it to cling to any support against which it is planted. In this respect it is very similar to the out-door climber, *Ampelopsis Veitchii*, or Boston Ivy; in fact, it has sometimes been termed the indoor Boston Ivy. It is very easy to propagate, striking root readily in sand in a moderate temperature. For covering a wall or even a board partition in a greenhouse or conservatory it comes in splendidly, as it is of very small culture, in fact, if given only fairly rich soil and an ordinary greenhouse temperature it will soon cover two or three square yards of surface with its ivy-like growth and small glossy green foliage. Its immunity from insect attacks as well as its ease of culture is another point in its favor, as few, if any, of the insect pests that are so partial to greenhouse climbers ever give any trouble with this miniature *Ficus*. A fairly rich compost of loamy soil, plenty of root room and a temperature of 50° to 75° suits this useful little climber splendidly. The plant as shown in the photo had been planted only about a year and a half from a cutting when the photo was taken.

Hamilton.

W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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

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

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

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

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

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers' Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

QUESTION DRAWER.

Spineless Gooseberry.

1273. SIR,—Can you tell me anything about the Spineless Gooseberry? Has it been a success or failure in Canada? I am sure a great many of your readers would like this information.

Anagance, N. B. LESTER STORTON.

We know of no one in Canada who has tested this berry as yet. We will have it tested at one of our fruit stations.

The Laburnum.

1274. SIR.—Would the Laburnum stand over the Quebec winter?
Montreal, Que.

J. A. HARTE.

No. This tree is tender even in the Niagara district and would not succeed north of the peach belt.

Lime, Sulphur and Salt.

1275. SIR.—Is not the preparation of this spray a very troublesome operation?

SUBSCRIBER.

The following directions may be a good

answer to this inquiry, given in the Delaware East Shore Farmer:

FORMULA.

Unslacked lime . . .	40 pounds.
Sulphur	20 "
Salt	15 "
Water to make	60 gallons.

Place ten pounds of lime and twenty of sulphur in a boiler with twenty gallons of water, and boil over a brisk fire for not less than one hour and a half, or until the sulphur is thoroughly dissolved. When this takes place the mixture will be of an amber color. Next place in a cask thirty pounds of unslacked lime, pouring over it enough hot water to thoroughly slack it; and while it is boiling add the fifteen pounds of salt. When this is dissolved, add to the lime and

sulphur in the boiler and cook for half an hour longer, when the necessary hot water to make the sixty gallons should be added.

Mr. Geo. E. Fisher, our provincial inspector, gives a slightly different formula, see page 61, and doubts if the salt is really essential. He writes:—"With good cooking appliances the preparation of lime, sulphur and salt wash is not nearly so serious an undertaking as it may appear. Where only fungus is involved I would prefer to use Bordeaux, but the California wash is a good insecticide as well as fungicide and costs only from one-quarter to one-third the cost of soap, the water for which must be heated also. I have not guaranteed any result from this wash (L. S. & S.) but am asking the growers to join us in making further experiments next spring and they are likely to do so in a wholesale way. The sulphur is supplied in bags of 112 lbs. and ninety-one bags have been applied for. One bag will make seven to eight 30 gallon lots of wash. If it goes on like this I am afraid the people I bought from will not be able to supply the quantity required."

Cultivation of the Gooseberry.

1276. SIR.--Please give your method of cultivation of Gooseberries.

ANSWER BY MR. STANLEY SPILLET, NANTYR.

As I pointed out in my last letter the gooseberry has two layers of roots, one layer close to the surface. I visited quite a large plantation last year in which the scuffler had been run close to the bushes, with the result that this upper layer was badly torn. If that had been done a little earlier in the season every berry would have fallen off. Black currants will act in the same way. I lost two crops of gooseberries and black currants by deep cultivation before I detected the cause, and I have never failed to have a crop since. The method that I prefer, one year with another, is to mulch under and about the bushes with fine well-rotted manure, and run the scuffler (a Planet, Jr.) one width

between the rows. When the conservation of moisture is the sole object in mulching, finely broken pea straw beats everything else I have ever used for that purpose. I prefer the manure because it feeds the bush through the upper layer of roots.

If pea straw is used, it is better for the purpose if it has lain a year out in the field in a pile. It should be applied early in the spring so that the rains shall flatten it down. The nicest piece of mulching I have ever seen was pea straw well broken by a threshing machine; it was applied in the fall, and all the surface was covered with the straw.

The snow in winter packed it down and the whole piece was as level and smooth as a carpeted floor. I never saw finer Downings than grew that year. Mice made paths in all directions under the straw, but not a stem was touched.

Morris and McCullough, our principal strawberry growers here, use pea straw altogether for covering the vines after the ground has frozen. It is spread thinly and raked off in spring between the rows, and they find nothing else equal to it.

For cultivation under and about bushes of all kinds, including Shaffer and Columbian raspberries, my favorite tool is a long-handled shovel, ground sharp both at the point and along the sides of the blade. Early in spring a large shovelful of hardwood ashes is sprinkled under each bush and then the mulch is applied over the ashes. Our supply of manure is obtained from hotel stables. We have just got in thirty two-horse loads, and it is infested with all kinds of seeds. The strong weeds will grow through the mulch but can be easily cut by running a shovel under the mulch, and this can be done without disturbing the mulch very much. Every second year manure is dug in between rows. Strawy manure is preferred, as it serves to loosen up the clay soil. The ground is dug deep and thrown well back, and the trench thus formed is filled with manure, well tramped

in. By covering this manure another trench is formed and filled, and so on. I have no doubt that the manure can be ploughed in. I have always had the largest crop of raspberries from Shaffer and Columbia when they are mulched. The roots of these two varieties are so near the surface that the soil can scarcely be stirred without injuring them and letting in the drouth, or rather letting out the water.

I have never covered my strawberries and always have a good crop of berries.

Ferns and Insects.

1277. SIR,—I am sending you leaves of two ferns that are infested with some small insect; can you tell me the best treatment to use? The larger of the two I have had for many years; it has grown a large handsome plant and I have had no trouble till now. It did not look well and on examining it with a magnifying glass I found tiny insects all round each leaf on the under side. For some weeks I have been dipping it in strong soap suds, once or twice a week, and about a week ago repotted it, but so far it does not look much better. Would you recommend me to cut off all the leaves and let it spring up again from the root?

The asparagus fern has had a few scaly insects which I have picked off, but something smaller seems to attack the very ends of the fronds and spoil its beauty. I have given it also the soap suds bath. What would you advise for it?

Will you kindly tell me the name of the larger one, and if you can, the cause of the trouble?

Port Dover. (MISS) E. P. BATTERSBY.

ANSWERED BY PROF. H. L. HUTT, O. A. C.
GUELPH.

The name of the Fern enclosed is *Pteris longifolia*. This is a vigorous growing fern which does well in ordinary dwelling houses. The other, frequently called *Asparagus Fern*, is not a fern at all, but is a plumose variety of the common vegetable *Asparagus*. Its proper name is *Asparagus plumosus*. The leaves were somewhat dry when they arrived here, so I could find no trace of insects upon the fern; but I judge the trouble was caused by the Red Spider, a very common pest upon house plants, especially where the air is dry and temperature runs high.

Your plan of dipping the plants in strong soap suds is probably the best that could be

adopted to keep plants free of this pest; but if the fronds are already much injured by it, it would probably be just as well to cut them off close to the ground and allow fresh ones to come up. Care should then be taken that the new ones are kept free from the spider.

The few scale insects found on the *Asparagus* would hardly account for the dying of the tips. The scales should, of course, be picked off whenever noticed; but the dead tips may be due to the age of the shoots. It would be better to cut off all unsightly shoots and allow fresh ones to come up to take their place.

Club Root in Cabbage.

In your January number, Mr. E. Millihen, Port Colborne, Ont., asks to "Kindly give cause of club root in cabbage and what will prevent or stop it." Prof. Hutt mentions that no reliable data has been obtained, but that lime has been effective in destroying the spores of club root in the soil.

We have market gardeners in the vicinity of Montreal who have grown cauliflowers and cabbage for over ten years in succession on the same land, but always with a liberal application of lime. For over twenty years we have used ashes as well as lime with equal success. A few years ago we had not enough ashes to finish a row, leaving about ten rows without, and we lost nearly all the cauliflowers in these ten rows with club root. Next season we planted the same land with cabbages, with ashes in abundance, and did not find a plant affected with club root.

A very good way to find if the land is affected with club root is as follows: In pulling out the plants of wild mustard, if you find them with club root, then don't spare the lime for the cabbage or cauliflower. You will find Dr. Fletcher, Entomologist of the Experimental Farm, Ottawa, will substantiate what I say.

R. BRODIE.

"Westmount," Montreal.

OPEN LETTERS.

The Niagara Fruit Exhibit Before the Duke and Duchess.

SIR,—In looking over the February number of of the Horticulturist I find a timely communication from J. P. Brennan, Esq., Grimsby. I am more than surprised at his closing remarks, namely "We had a golden opportunity to show the Duke and Duchess of York the resources of the fruit sections of Ontario, but it was lost," &c. Doubtless Mr. Brennan at the time of the Niagara Fruit Exhibit was very busy with the final disposal of his fruit crop, and like some other fruit growers failed to notice in the Toronto daily papers, also the St. Catharines, Niagara Falls and Niagara Times papers reports of this Niagara Fruit Growers' Exhibit for the Royal party at the Queen's Royal Hotel, Oct. 12, 13, 14, 1901. I now enclose a clipping from the Toronto Mail referring to the subject:—

"No, the fruit growers were not behind. The exhibit was in every respect a decided success and is thought to be the best advertisement ever given our export trade in fruit.

"The collection of peaches, grapes, pears, strawberries and figs was exceptionally fine in regard to flavor, size and color, and was said to be the best ever seen at that late season, Oct. 12th to 14th.

"The exhibit in the above named fruits was larger than at any time seen on the tables during our Ontario Fruit Exhibit at the Pan-American, except after the 10th of September, when the tables of that exhibit literally groaned under the pressure."

I seldom take the trouble to correct an error in print, but in justice to the committee, the contributors and Mr. Winnett of the Queen's Royal Hotel, Niagara, who together paid every cent of the cost of this exhibit, this explanation is now needed.

The chairman of this exhibit received a letter from the Governor-General Lord Minto, expressing the thanks and high appreciation of the Royal party to the fruit growers for their excellent display of fruit at Niagara. I am, yours sincerely,

W. ARMSTRONG.

Riverside Fruit Farm, Queenston, Feb. 19, 1902.

Orchard Tools and Implements.

SIR,—I think a very interesting article might be written on orchard tools and implements. I have a good sized young orchard which I have been cultivating with a disc harrow, but that is a pretty heavy instrument for a team, and my idea is that an orchard would be easier and better cultivated if part of the cultivating were done with a spring tooth cultivator and not a harrow, because I think the harrow does not stay well enough in the ground and is liable to be knocked against the trees with stones, but the spring tooth cultivators that are made now have very high wheels. The

trouble with those is that if the trees are branched out 4 or 4½ feet from the ground, they run out a little before growing upwards, and with the high wheel cultivator one has to keep out perhaps three feet from the trees, or the high wheel will scrape the 1 mbs.

FRANCIS S. WALLBRIDGE, Belleville.

Fruit and Health.

SIR,—Has the Association ever paid any attention to the scale on the orange imported into this country, or has the Association ever paid attention to the fruit and vegetables imported into this country in a diseased condition? What effect has this decayed fruit on the health of the people? Some five years since I noticed on the Ottawa market, imported cabbage in a decaying state. I claimed at the time, that if such importation was continued it would bring sickness to the consumer. The importation has been continued and I claim as a result it is largely responsible for the present state of health in the Dominion of Canada.

Those imports ought to be inspected at the port of entry by a health officer and all fruit that is in bad condition returned to the shipper at the shipper's expense and not to be appraised by the custom-house officer.

In regard to fruit packing, when fraud is found why not make the penalty the returning of the package to the shipper and charging him all expenses.

Billings Bridge, Ont. MARKET GARDENER.

Bug Death—A New Insecticide.

SIR,—Having recently received numerous enquiries regarding the composition of "Bug Death" a new insecticide, for destroying the potato beetle, we submitted the material to analysis and obtained the following data:—

Moisture40 per cent.
Insoluble matter, sand, etc.....	11.21 "
Oxide of iron and alumina.....	5.60 "
Lime.....	.51 "
Potash	none
Zinc oxide.....	\$2.10 per cent.
Lead and copper.....	faint traces.
Phosphoric acid.....	traces.
Chlorine.....	.47 per cent.
Nitrogen.....	.107 "

These results show that it is practically an impure or commercial zinc oxide, no doubt a by-product. As regards the essential elements of plant food, it is strikingly deficient, the only constituent present of any fertilizing value being nitrogen, of which there is only one-tenth of one per cent. It is therefore, obvious that any claims made for it as supplying nourishment for crops are without foundation.

Yours truly,

FRANK T. SHUTT,

Dominion Experimental Farm, Ottawa. Chemist.

Our Apples at Glasgow.

SIR,—On page 506, December number, 1901, of the Canadian Horticulturist, is inserted a letter from the Glasgow (Scotland) Herald of October 6th, that needs correction.

In it the writer says, "while strolling round the Canadian section of the Glasgow Exhibition in July, I came upon the most magnificent display of apples I ever witnessed. Entering into conversation with the gentlemen in charge he kindly explained to me the different varieties, and also allowed me to taste several, which I found to be excellent.

The varieties which he particularly recommended as first rate eating apples, were Alexander, Gloria Mundi, Holland Pippin, Ben Davis, Wealthy, Fameuse, Mann, Spitzenberg and Blenheim Pippin.

I think it will be almost needless to say, that, with regard to that paragraph of his letter, the writer must either have misunderstood what was said or writing from memory, some time afterwards has unintentionally fallen into error.

The largest and showiest apples at the date of his visit have evidently been fixed on his memory, and are placed at the head of his list. The two last, viz. the Spitzenberg and the Blenheim Pippin, were remarkably fine in quality, and much admired and commented on during the whole term of the exhibition.

Another passage in the letter requires explanation, viz., that where it says he was surprised to find that out of fifty varieties exhibited, only three were as yet known in Britain. This also is probably due to a misapprehension.

As very few of your army of readers are person-

ally acquainted with me, I have thought it advisable to draw attention to these misleading passages lest any one should fancy that some inexperienced fellow was in charge of the fruit exhibit at the Glasgow Exhibition.

Grenville, Que.

ROBT. HAMILTON.

News from our Fruit Stations.

Algoma Station. SIR,—At the fall show at Sault Ste. Marie the display of fruit was immense. Collections ran from twenty-five to fifty varieties, all good sound fruit; but the variety that caught the eye or the tables for the immense size and showy appearance, was Alexander.

I have not seen anything to come nearly equal to them in eastern Ontario. There were eight exhibits of this apple, besides those shown in collections. Ben Davis was exhibited for the first time, but judging from the species shown, will be no use here. A number of Russian varieties obtained from Central Experimental Farm, Ottawa, were also shown; they were, I should judge, all fall apples and none of them equal to what we already have.

An arrangement might be made to hold our annual picnic here, something along the same line as last season at the Fruit Stations. Our usual attendance at this meeting was from three to five hundred and it is to be held at Richard Landing this year. The usual time is the beginning of August.

The thermometer is twenty-eight below zero here to-day, with bright sunshine; there is about one foot of snow on the ground.

Richards Landing.

CHAS. YOUNG.

OUR AFFILIATED SOCIETIES.

Orillia.—The annual meeting of the Orillia Horticultural Society was held in the Council Chambers on Wednesday evening, the 5th of January. The President, Mr. G. I. Bolster, in the chair. The attendance was satisfactory. The Secretary-Treasurer presented the annual statement of accounts, which showed receipts from all sources of \$239.63, including balance on hand from 1900 of \$60.88. The total expenditure was \$240.45 leaving a balance due the Treasurer of 85 cents. The President read the following report of the proceedings of the year: "With much regret I have to announce to you that since our last annual meeting we have been deprived by the hand of death of our friend and Vice-President, Mr. W. H. Leef. In him we have lost a zealous and valuable member of the Society. I have the pleasure of making the following report of the proceedings of the society during the past year. At the first meeting of your Directors, it was determined that monthly meetings should be held during the year, and the first of these monthly meetings was held on the 12th of February. This proved an interesting meeting and many matters were freely discussed.

It was determined to invite Prof. Fletcher to deliver a lecture some time during the spring; this however, he found impossible to do, but promised to try to meet our views at a subsequent period. A committee was appointed to communicate with the Town Council and the Board of Trade with a view to joint action in the matter of planting and care of street shade trees, boulevards, etc. Both of these bodies appointed committees to meet your committee, and a joint meeting was held, of which Mr. C. L. Stephens was made chairman, and Mr. G. H. Clark, secretary. The matters referred to were fully considered and several recommendations made for the action of the Council; and subsequently the joint committees met the Council and everything recommended seemed to receive favorable consideration and a promise of being carried into effect; but notwithstanding, no steps were taken during the year to carry out the matters agreed upon. A slight improvement in the method of planting street trees was, however, noticeable and with good results so far.

A vote of thanks and congratulations to Mr. Stephens was moved by Mr. Secord, seconded by

Mr. Alport, for the interest he had taken in, and success which had attended his efforts to secure a creditable exhibit of fruits from this district to the Pan-American Exposition, last summer. Both the mover and seconder expressed in felicitous terms the pride with which they had viewed the Canadian exhibit at Buffalo, more particularly the Ontario part, in which Orillia district occupied so prominent and creditable a place.

On motion of Messrs. Reeve and Fisher, it was resolved that meetings of the Board be held on the second Tuesday in February, March and April, 7-30 p. m. in the Council Chambers.

On motion of Messrs. Secord and Reeve, the Secretary was instructed to suggest to the Minister of Agriculture, that should any amendment be

made in the Agriculture and Arts Act, at an early day, it be provided the annual meetings of Horticulture Societies may be held on any day during the second week in January which may be appointed by the Directors, on due notice being given in the usual way.

At a subsequent meeting of the Directors, Mr. C. L. Stephens was appointed Secretary-Treasurer for 1902. The Secretary was instructed to communicate with Prof. Fletcher, with a view to having him deliver a lecture in Orillia at some early date. The committee of last year to act in conjunction with Town Council and Board of Trade in the matter of street shade trees, boulevards, etc., was re-appointed.

OUR BOOK TABLE.

BOOKS.

Atlas of Western Canada, issued under the direction of Hon. Clifford Sifton, Minister of the Interior, Ottawa Canada, 1902. This is a most creditable work, and is designed to give the world some adequate idea of the resources and extent of our magnificent country.

Mr. F. Marion Crawford's novel, *Marietta: A Maid of Venice*, is now in its fortieth thousand and a new edition is on the press; and a fourth edition of Mrs. Alice Morse Earle's *Old-Time Gardens* is also on the press.

"The Cow Pea" is the title of the latest publication issued by the Experiment Farm of the North Carolina State Horticultural Society at Southern Pines, N. C. This book, neatly bound and illustrated, in plain and concise manner, discusses the value and uses of that important crop. The Cow Pea. Every reader can get a copy free by writing to the Superintendent of Experiment Farm, Southern Pines, N. C.

JOURNALS.

Country Life in America, January, 1902, Page, Doubleday & Co., 34 Union Sq., East New York City. This is only the third issue of this elegant publication, which is edited by that indefatigable writer, Prof. L. H. Bailey, of Cornell University. It is a folio of thirty two pages, printed on extra heavy, highly finished paper, and illustrated with magnificent photogravures, some of them full page size. We know of no journal in the world equal to it, dealing with country life, either in make up or in subject matter; and it will command a place on the table of the gentleman as well as on the desk of the practical horticulturist.

Farm, Field and Fireside Monthly, published by the Howard Co. Chicago, Ill. got up in similar style with the well known American Agriculturist, on ordinary paper, but containing very much valuable, practical information.

CATALOGUES.

THE JEWEL NURSERY CO., Lake City, Minn., fruit trees. VILMORIN ANCELIEX & Co., 4 Quai de la Megisserie, Paris, France. Seed-Merchants. THE ROBERT EVANS SEED CO., Hamilton, Ont., Catalogue, Farm and Garden Seeds, 1902. JOHN A. BRUCE & Co., Seed Merchants, Hamilton, Canada. GEORGE S. JOFFLEYN, Fredonia, N. Y., Wholesale Catalogue of American Grape Vines, 1902.

CANNAS, NEW AND HYBRID GIANTOLI, Graft's Hybrids, John A. Campbell, Simcoe, Ont. HOW TO SPRAY, when to Spray and what Sprayer to use, The Gould Mfg. Co., Seneca Falls, N. Y. THEODORE B. SHEPHERD'S DESCRIPTIVE CATALOGUE, SEED ANNUAL, 1902, D. M. Ferry, Seedsman, Windsor, Ont.

SILAS WILSON, ATLANTA, IOWA, Circular of the McPike Grape. Price List of Nurseries 1902. ALBERT WOOD, Woodlawn Nurseries, Rochester, N. Y., Descriptive Catalogue, Spring 1902—Small Fruits.

BULLETINS.

RESULTS OBTAINED IN 1901 from Trial Plots of grain, fodder corn, field roots and potatoes, by Wm. Saunders, L. L. D., Director Experimental Farm, Ottawa. Bulletin 39.

APPLES AND PEARS are treated of in the Fourteenth Annual Report of the Vermont Experimental Station, 1900-1901, by Prof. F. A. Waugh, Horticulturist, Burlington, Vt.