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WEAVER.

THE
Canadian Horticulturist

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No. 12.



WEAVER PLUM.

UP to the present very little attention has been given in Canada to the cultivation and improvement of our native plums. Few lines in horticulture, offer greater inducements, however. Comparatively little has been accomplished in the United States by systematic effort, yet since the introduction of the Wild Goose plum about forty years ago, more than 150 varieties have been named and disseminated. This remarkable increase in number of varieties is only surpassed by the marvellous progress made in the development of the American grape. The value of the native plum has not yet been recognized to any extent, except in sections where the severity of the climate precludes the easy or profitable culture of varieties belonging to the *Prunus domestica* class. Without doubt, however, there are improved varieties of our native plums which may be profitably grown in all portions of the Dominion, including the most favored localities. There is a wide variation in regard to the hardiness of these varieties, due principally to climatic conditions prevailing in the place of origin. Thus De Soto, belonging to the *Americana* group and originating in Wisconsin, may be taken as the type of hardiness, while Pottawattamie of the *Chickasaw* family, and introduced from Tennessee, is not hardy at Ottawa.

The Weaver plum belongs to the same American family of plums as that which includes the De Soto and Wolf, and seems to inherit all the hardiness of

the type. It originated in northern Iowa, and was introduced by Ennis & Patten, of Charles City, Iowa, in 1875. Its merits seem to have been unduly lauded by dealers in nursery stock, who sold single trees as high as a dollar and a half. A reaction took place when growers found that it was simply an improved variety of the native plum, and we find this feeling recorded in the report of the Iowa State Association for 1878, when the Weaver was stricken from the list of recommended plums.

At the last meeting of our Society, during the course of a discussion on native plums, the fact was brought out that another variety has been introduced under the same name, which has been grown and has borne fruit in the vicinity of Grimsby. This variety ripens early in August, whereas the true Weaver is one of the latest of the *Prunus Americana* family. Three trees of Weaver planted at the Experimental Farm at Ottawa, in 1888, have borne heavy crops the last four seasons. During '92 and '93 the crop has been so heavy as to require thinning to prevent the branches from breaking down. Fruit large for a native, oblong, somewhat flattened. Skin yellow, partly covered with a mottling of dark red, and overlaid with a purplish bloom, suture well marked, stone long, narrow and flat, semi-cling, ripens at Ottawa about Sept. 20th.

This variety is not equal in quality to De Soto, but is well worthy of cultivation where blue plums and members of that variety are not sufficiently hardy.

Ottawa.

J. CRAIG.

Melons with Strawberries.—Jacob Smith, Lockport, Illinois, has a novel method of caring for his strawberry plants during the first summer. Thorough cultivation of the plants during the first season is practised by successful fruit-growers generally. Keeping them free from weeds and the soil loose requires frequent cultivation and is quite an expense for which, ordinarily, the next year's crop of berries are the compensation. As an experiment several years ago, Mr. Smith tried planting watermelon vines among the rows of one plot of strawberries, cultivating an adjoining plot in the usual way. He found that the plot with the melon vines did better than the other, both in this and subsequent trials, and the melons paid for the cultivation of the plot. After satisfying himself that watermelon vines did not injure the strawberries, or, as he declares, helps by serving as a green mulch, he tried planting muskmelons among them, and reports even better results from this practice, the vines making a thicker covering and a better mulch. He has a nice field of strawberries growing this season with a good crop of muskmelons among them, which are doing well considering the dry weather. Small fruit-growers should remember this plan and try it next season, for it is certainly a great waste not to grow melons among the strawberries the first year, if it improves them and pays for cultivation.—Orange Judd Farmer.

FRUIT GROWING IN ANNAPOLIS VALLEY.

(Concluded.)

IT has been already stated that there are about 12,800 acres now bearing apples, with 800 more planted with young trees. But this is only the beginning. There are at least 250,000 acres in this valley capable of producing fruit, and sooner or later the whole valley will be covered with apple trees or other varieties of fruit, including the small fruits. Only a few farmers have ventured on an extensive planting. It is usual for the farmers to have from one to five acres covered with trees. Scarcely any of the established orchards cover more than ten or twelve acres, whereas it is maintained by those qualified to form an opinion, that splendid profits would be obtained by covering hundreds of acres with trees. Judge Weatherbe, who has bought a fruit farm in the valley, has covered 50 acres with young trees, which are now five or six years

old, and will presently be bearing. It is contended, and not without reason, that if there are large profits in one acre of fruit, there will be proportionally larger profits from 100 acres. The reason that more men of speculative temperament do not engage in fruit-growing in the valley, as an investment, is to be found in the absence of the gambling element. Ten years at least must elapse before the trees begin to bear, and at least twenty years must pass before they are in full bearing. Most men who are seeking wealth prefer some enterprise in which, coupled with greater risks, there are chances of more immediate profits. Fifteen or twenty years seems a long time to wait for large returns from even small investments. Nevertheless, fruit companies have already been incorporated in the valley, the object of which is to purchase large tracts of land and cover them with fruit, and by cultivating plums and other varieties which bear earlier, it is hoped to pay dividends in two or three years after the formation of the company, though not relying upon larger dividends until the apple trees get in full bearing.

The scenery in the valley is extremely beautiful. Numerous roads extend over the mountains, both north and south, and from the top of the mountain the view is simply magnificent. Long ranges of farm houses can be seen, with villages here and there dotting the valley. Farming in the Annapolis Valley is far less toilsome than in other parts of the Province, or indeed in most parts of the Dominion, and, as a consequence, there is much comfort and considerable

style in the methods of living among the people. Young men drive fast horses in handsome carriages, and in most of the houses throughout this valley a piano or organ is found, and in many of the farm houses the methods of living from day to day are what would be called more than comfortable.

In addition to the Fruit Growers' Association, there has been a separate organization formed, entitled the Annapolis Valley Small Fruit Association, which is devoting itself to the growth of strawberries, cranberries, gooseberries, currants, grapes, etc., and very satisfactory progress is being made in this direction, the only difficulty, in reality, being in connection with the market. If the United States market were open to the small fruits of the Valley, there is no doubt that the industry would develop enormous proportions.

Mr. R. G. Haliburton has been mentioned as the first president of the Fruit Growers' Association. The next year, Dr. C. C. Hamilton, of Canard, was elected, and he held the position without interruption until 1880, when he died. He was most enthusiastic and indefatigable in the work of the Association. Among his coadjutors in this work may be mentioned the names of Mr. Richard Starr and Mr. R. W. Starr. In 1880, Avar Longley, M. P., filled the office of president. The other presidents of the Association since then have been Rev. J. R. Hart, of Bridgetown¹; Henry Chipman, M.D., of Grand Pré, and the present incumbent, Mr. J. W. Bigelow, of Wolfville. Mr. C. R. H. Starr was secretary for many years, and, indeed, until last year, when Mr. S. C. Parker, of Berwick, an enthusiastic fruit grower, was appointed to the office.

The Annapolis Valley has other resources besides that of agriculture. Splendid deposits of iron have been discovered in two or three places, and one

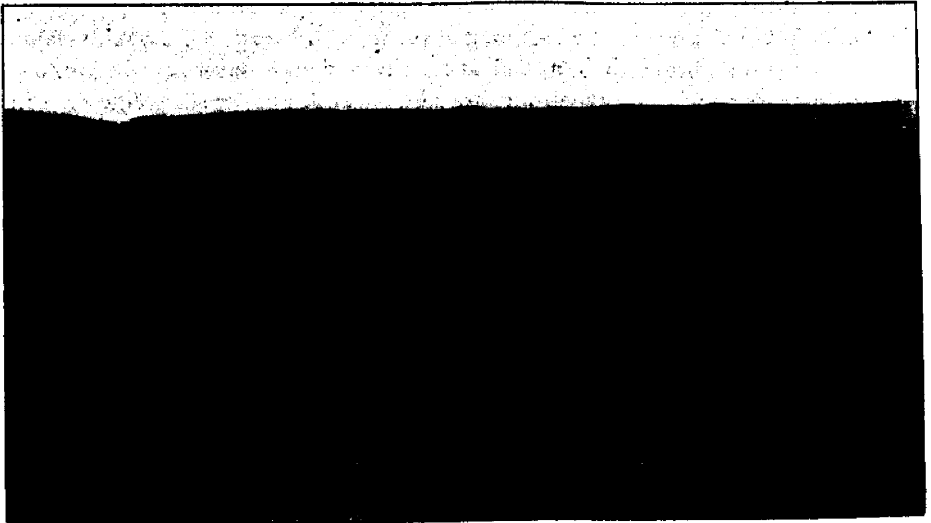


FIG. 399—AN ORCHARD IN BLOOM.

of the veins at Torbrook, Annapolis County, is being extensively worked by Mr. R. G. Leckie, and is supplying ore for the Londonderry Iron and Steel Works. It is quite possible that in the event of reciprocity a considerable export of iron ore may be had to the United States.

The Dominion Government has established an experimental farm at Nappan, in Cumberland County, and the Provincial Government has established an agricultural school and model farm at Truro. Both of these, more or less, deal with the growth and care of fruit, but neither of these institutions seems to be entirely satisfactory to the fruit growers, who are anxious to have a special school of their own in the vicinity of Wolfville, where special attention can be given to the development of fruit culture, the care of trees, the destruction of caterpillars and other insects, the best method of securing rapid growth of wood, and the proper methods and times for grafting. The Provincial Legislature voted a subsidy towards the establishment of such a school at its last session and it is understood that the Fruit Growers' Association are making special efforts to create such a school.

Reference has been made to the fact that old Port Royal, now called Annapolis, is situated in this Valley. It must not be overlooked that Grand Pré, the place made famous by the expulsion of the Acadians, is also situated in the heart of the Valley. These points of historical interest, with the beauty and fertility of this part of the country, combine to make the Annapolis Valley in summer a favorite resort for visitors, and many thousands pass to and fro on the

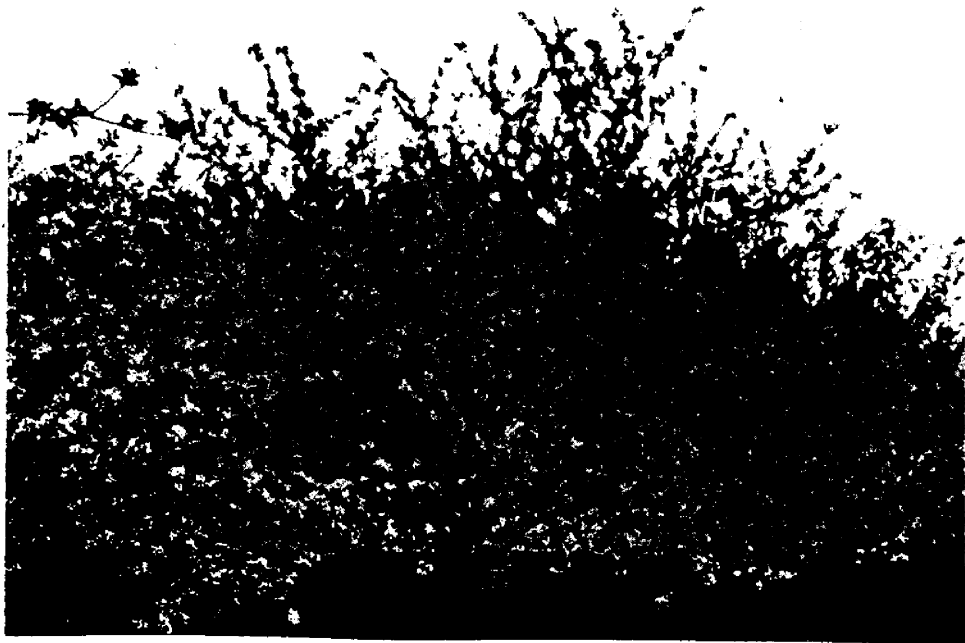


FIG. 400.—APPLE BLOSSOMS.

Windsor and Annapolis Railway, which intersects the Valley from beginning to end.

The last census indicates that, notwithstanding all these natural advantages, there has been in reality a decrease in the population of the Valley. It is situated so near to the United States, and the means of access are so numerous, that there is an overwhelming tendency, on the part of the young people, to go to Boston and vicinity rather than to remain and take care of the farms. The result is a scarcity of farm labor, and a development less pronounced than could be desired. It is undoubtedly one of the sections of the Dominion that would profit enormously by free trade relations with the United States, and with its great resources—natural beauties, and numerous advantages as a place of residence, and with a soil and climate so favored by nature—there can scarcely be a doubt that in the course of time, with proper energy and enterprise on the part of its people, it will be the happy home of very many thousands of prosperous and progressive people.



FIG. 401.—APPLE PICKING, ANNAPOLIS VALLEY.

CANADA'S NUMEROUS AWARD IN HORTICULTURE.



HE prominent position taken by Canada at the World's Fair, and her many awards in all departments, must surely disarm all criticism concerning our expenditure in pushing forward such a great enterprise. In all, Canada has taken 69 awards in fruits and vegetables; more than half of which were taken by Ontario.

LIST OF AWARDS.

1. Department of Agriculture, Ottawa, General Collection of vegetables from Experimental Farms.
2. Central Experimental Farm, Ottawa, grapes.
3. " " " " collection of vegetables.
4. Experimental Farm, Brandon, Man. " "
5. " " " vegetables in solution.
6. " " Nappan, N. S. collection of vegetables.
7. " " " N. B. Farmers, collection of vegetables.
8. " " at Indian Head, collection of vegetables.
9. " " Agassiz, collection of apples.
10. Mrs. Tinling, Winnipeg, mixed pickles.
11. Ontario Canning Co., Hamilton, Ont., canned fruits.
12. W. Boulter & Son, Picton, Ont., canned fruits.
13. W. D. Kitchen, Grimsby Ont., unfermented grape juice, for sacramental use.
14. Ontario Fruit Growers' Association, fourteen volumes of THE CANADIAN HORTICULTURIST.
15. Province of Ontario, Toronto, grapes.
16. " " " apples of 1892.
17. " " " apples of 1893.
18. " " " pears and quinces.
19. " " " stone fruits.
20. " " " cherries.
21. " " " currants.
22. " " " gooseberries.
23. " " " blackberries.
24. " " " fruits in solution.
25. " " " (Niagara District), grapes.
26. " " " (Burlington District), grapes.
27. " " " (Wentworth District), grapes.
28. " " " (Wentworth Dist.), apples and peaches.
29. " " " (Wentworth District), pears.
30. " " " (Burlington district), apples.
31. " " " (Burlington district), pears

32. Province of Ontario, Toronto (Niagara district), apples.
 33. " " " (Niagara district), pears and peaches.
 34. " " " (Essex district), apples.
 35. " " " (Belleville and Eastern district), apples.
 36. " " " (Grey district), apples.
 37. " " " (Huron district), apples.
 38. " " " (Simcoe district), apples and pears.
 39. " " " (Jas. Shepherd & Sons, Queenston),
 peaches.
 40. " " " (W. R. Read, Port Dalhousie), peaches.
 41. " " " (C. Atkins, Port Dalhousie), peaches.
 42. " " " (W. Kottmeier, St. Catharines), peaches.
 43. " " " (E. Tyhurst, Leamington), peaches.
 44. " " " (Geo. W. Cline, Winona), plums.
 45. " " " (Wm. Stewart, Goderich), plums.
 46. " " " (Wm. Warnock, Goderich), plums.
 47. " " " (W. M. Orr, Stoney Creek), plums.
 48. " " " (R. Trotter, Owen Sound), plums.
 49. Province of Quebec (Missisquoi Horticultural Society), grapes,
 50. " " (Missisquoi Horticultural Society), apples.
 51. " " (G. B. Edwards, Covey Hill), apples.
 52. " " apples of 1892.
 53. " " fruits in solution.
 54. Province of British Columbia, collection of vegetables.
 55. " " " apples.
 56. " " " plums.
 57. Province of Prince Edward Island, collection of vegetables.
 58. " " " " apples.
 59. " Nova Scotia (Fruit Growers' Association), apples of 1892.
 60. " " " (Fruit Growers' Association), apples and
 pears of 1893.
 61. " " " (J. W. Bigelow), apples.
 62. Province of Ontario, collection of vegetables.
 63. " " (Wm. Rennie, Toronto), turnips and mangels.
 64. Department of Agriculture, Ottawa, General Collection of vegetables
 from Experimental Farms.
 65. Mrs. A. M. Croly, Tilsonburg, botanical collection.
 66. Province of Ontario, Toronto, collection of plants.
 67. " " " (names not yet published) wine.
 68. " " " " " "
 69. " " " " " "

PARKER EARLE ON THE STRAWBERRY.



E grow our berries in matted rows and cultivate them well. We have always had strong, thrifty plants, and get a good yield of berries except when they are destroyed by insects. Our berry farm is in Southern Illinois. We pick our berries every day in the berry season; there is no other way to do it. You can't pick a strawberry that is two days old and send it to market. It must be picked when it is exactly at the right stage for picking, and if you take care to do that you can ship them 1,000 miles, if you want to. The condition to which I refer is that which the berry has reached when it just begins to color. It is largely a question of variety, as some varieties will continue to change color and ripen after they are picked, while others will not. Of course, the ones for shipping purposes are the ones that will thus continue to change. We ship entirely in quart packages, using the Illinois form, and not the Michigan form of box, and these are packed in 24-quart crates. We ship in refrigerator cars, and try to maintain a temperature of about 50 degrees. We pack the crates very carefully in the car in such a manner that there will be perfect circulation of air. Each crate is by itself and does not touch the next crate beside it. If the berries have been well handled, you can pack them in a car as you want to. I have shipped more Crescents than of all other varieties together, though they are hard berries to ship. I market many of my berries in Detroit. That is 600 miles from the place where they are grown. Some of them are sent beyond that city, and even get as far as Montreal and Cleveland. They arrive in those cities in good condition. They are sent by express for 24 hours after leaving the cars at Detroit, and when arriving at their destination they are yet in good condition. Strawberries are something that you can transport for three or four days if you carry them right.

Q.—Does it make any difference whether or not the berry is on its stem when it is packed for shipping? A.—Those that are shipped are always on the stem. A berry that is off its stem is ruined for marketing purposes, and is ready to be eaten.

Q.—How many crops do you pick from one bed? A.—Usually two. Sometimes we have picked more, but on the whole it does not pay. I have sometimes thought that it did not pay to pick the second crop, but I guess it does.—*The Farmer's Review.*

"TOMMY, who was Joan of Arc?" asked the teacher. "Noah's wife," said Tommy, who is great at guessing.—*Harper's Bazar.*

FRIEND: "Well, Tommy, now that you've started to school, what do you like best?" Tommy: "Recess."—*Chicago Inter-Ocean.*

LIME IN THE GARDEN.



THE present time of the year, together with early spring, being suitable for the application of lime, it may not be out of place to consider briefly what are its manurial properties, what classes of soils are likely to be benefited by its addition, and in what form it can be most advantageously used. This is the most desirable, as the usefulness of compounds of calcium seems somewhat liable to be overlooked or under-rated. It is well to remember, in the first place, that the function of lime in the soil is two-fold—it is a direct plant food, and it also possesses a remarkable power of rendering other inert matter suitable for the nourishment of plants. Besides this, it is capable of making considerable modifications in the physical condition of soils—a matter quite as important to the cultivator as its chemical composition.

It is scarcely necessary to point out here the fact that calcium is one of the elementary bodies that are absolutely necessary for the complete growth of plants; but it is not always borne in mind that some garden crops remove comparatively large quantities of this substance; and that, moreover, lime is a body which, to adopt the common phrase, “sinks” in the ground, thus rendering its application from time to time advisable. That leguminous crops such as peas and beans, need large quantities is fully recognized, as is indicated by their popular description as “lime” plants. But there are many vegetables, which from their marked preference for manures containing other elements, are rather liable to be starved in the matter of lime, although the latter may be no less necessary for their full development. Turnips, for instance, need much phosphoric acid and potash, but analysis of their ash shows about 49 per cent. of lime 13.024 per cent. in the roots, and 25.65 per cent. in leaves. Potatoes, again, show only 3 per cent. of lime in the ashes of their tubers, but their haulms contains about 17 per cent.; and it is upon the leaves, be it remembered, that the tubers have to depend for their supply of starch. Many other instances might be given of the importance of lime as a miner constituent.

It was stated above that lime sinks in the ground. The explanation of this is very simple. Rain-water holds in solution carbonic acid gas, which it has absorbed from the air, and thus charged, it has the power of dissolving the carbonate of calcium in the soil, and carrying it away off the surface and through the drains or porous subsoil. Moreover, the carbonic acid formed in the soil by the decomposition of organic matter dissolves the carbonate of calcium, which is carried away by drainage water. The nitrates and chlorides of calcium are likewise readily diffusible, and easily lost. It may be noted in passing that the alkaline base soda suffers from this washing-out process in common with lime, while most fertile soils are strongly retentive of ammonium and potash. Hence the reason why lime must be added in large quantities, and more frequently, than a calculation of the actual amount removed by any given crops would seem to warrant.

Briefly all soils deficient in calcareous matter, stiff clays, and sour peaty soils are particularly responsive to its application. Stiff clays are lightened and rendered warmer and more friable, and the soluble plant foods are increased by quicklime; whilst, on the other hand, the retentive power of light sandy soils is increased by the addition of slaked lime (calcium hydrate), chalk (carbonate of calcium), or marl. On soils containing a large amount of peat, quick or slaked lime, it is of great value, counteracting the "sourness" due to excess of organic acids, and assisting the decomposition of woody fibre, etc. There is another case in which lime may be applied with very marked results, namely, to old garden ground which has year after year received heavy dressings of farmyard manure, and which have become sour and profitless. Mr. J. Wright, in a paper read before the Royal Horticultural Society in 1889, described a striking but by no means uncommon instance of this. When he took possession of the garden in question, he found it like a mass of humus, nothing would grow satisfactorily, the soil being "poisoned with humic acid." He gave it a good dose of lime (a bushel per rod), together with potash and bone-meal. "The effect," says Mr. Wright, "was magical, and the crops of potatoes and peas, where they would not grow before, were remarkable." The late Mr. Shirley Hibberd, on the conclusion of the above paper, remarked on the too frequent neglect of lime as a corrective of acidity; and Mr. G. Wythes—than whom, perhaps, no one knows better how old garden soils should be treated—expressed himself in favor of lime, soot, and wood-ashes, where organic manures alone had been given for a long series of years.

As a general rule as indicated above, *quick-lime* (put on in its caustic condition, or slaked by adding water, or by leaving it exposed to the atmosphere for a time), is preferable for heavy soils, and may be applied at the rate of from two to nine tons per acre. It should never be applied with manure containing ammonia, the latter being liable to be driven off thereby.

Chalk is suitable for light sandy soils, and can be given in about twice as heavy dressings as caustic lime.

Marls, being variable mixtures of carbonate of lime and clay, are suited to light land, the dressing being regulated by the proportion of lime contained.

Gypsum, or sulphate of calcium can be used with ordinary manure, as it is a "fixer" of ammonia.

Gas Lime, is simply slaked lime which has been used in the purification of coal-gas. It contains, when fresh from the works, calcium sulphide and sulphite, and these substances are injurious to plants. After exposure to air, however, they are oxidised and form sulphate of lime (gypsum), and consequently become innocuous. Gas-lime is useful for mixing in the "rot-heap," hastening the decomposition of leaves, weeds, etc.

It should be remembered that bones, bone-meal, dissolved bones, and superphosphate all contain more or less calcium; therefore, liming is not so necessary where any of these are applied in quantity. *Gardener's Chronicle.*

BANK'S RED GRAVENSTEIN.



ROSSING and hybridization are playing such an important part in the production of the new fruits of to-day that we are frequently inclined to attribute to these agencies the credit of producing all the new and desirable varieties of fruit; but there is another agency to which the gardener owes much; it is that force in nature, the manifestation of which the horticultural student calls "sporting" or bud variation. The landscape gardener and florist is more deeply indebted to this peculiarity of plants than is

the fruit grower. We have but to look around us upon the numerous varieties of ornamental shrubs, and upon rapid multiplication of types of flowers varying from the original form, to see the confirmation of this statement.

The Moss rose appeared first as a sport on a bush of the Provence or Cabbage rose. The Pelargonium shows a remarkable tendency to bud variation, the many varieties of which are principally due to this tendency.

The large number of variegated plants now in cultivation have all appeared, at different times, as single shoots upon the parent tree, and their peculiarities are reproduced and multiplied by means of bud propagation. A striking example in pomological lines of this force or power was recently noted in the collection of apples exhibited at Chicago by the Province of Nova Scotia. Among them was a variety called the "Bank's Red Gravenstein," which the introducer, Mr. A. S. Banks, Waterville, N. S., claims, "appeared as a sport upon the common Gravenstein tree in the orchard owned by E. C. Banks, Waterville, and that this branch has for thirteen years always borne apples that were almost wholly red." In appearance it is rather rounder and possibly less ribbed than the average Gravenstein; not quite as large, with a much more brilliant color; many specimens being entirely covered with deep crimson. In quality there is little difference from the type. In season it is said to be two to four weeks later. Its brilliant color and greater keeping qualities should add much to its value. The following is a description made from a typical specimen taken from the tables at Chicago, and the cut illustrates the same specimen:—

Medium size, round, regular; calyx closed; basin shallow, obscurely ribbed.

Stem $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long, set in deep narrow cavity. Color deep yellow, almost covered with splashes and blotches of brilliant crimson. Flesh white, moderately firm, juicy, rich, sub-acid, melting. Quality best. Core open. Same type of flesh and juice as Gravenstein.

As a sport from the old time favorite it is exceedingly interesting, and as a possible competitor it should receive careful attention.

Ottawa.

JOHN CRAIG

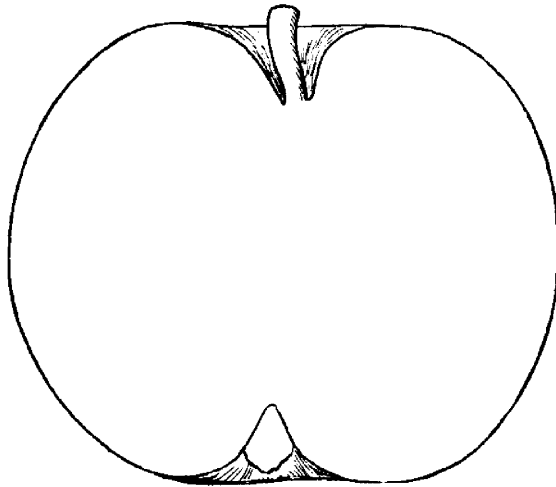


FIG. 402.

In addition to the fine exhibit of this apple at the World's Fair, from which Mr. Craig's notes were made, some samples were sent to our office by Mr. Chas. E. Brown, of Yarmouth, N. S., and from them the following description was prepared by Mr. A. McD. Allan, of Goderich, Ont. :

Bank's Red Gravenstein.—Fruit large, roundish ovate, irregularly ribbed. Skin yellow, covered with red, dotted and splashed, distinctly showing deep yellow skin in the shade, and the red covering in the sun being complete and of a darker hue. From the complexion of the specimen submitted, I would expect a covering of fine bloom when picked. Calyx closed, set in a shallow, uneven, corrugated basin. Stalk nearly an inch long, set in a narrow, fairly deep basin, smooth, with slight tinge of fine cinnamon russet in patches. Core large, long, and open, few seeds. Quality good, partaking somewhat of the texture and flavor of Gravenstein, but a longer keeper. Judging from the specimen seen, and the history given by Mr. Chas. E. Brown, I unhesitatingly consider this would be a decided acquisition, possessing as it does those leading essentials that command the highest prices in the British or any market.

ALEX. MCD. ALLAN.

MONEY IN RADISHES.



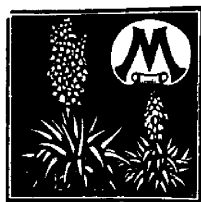
AMONG the various crops grown in the Ohio State University forcing houses the past winter, none have given greater satisfaction, with the possible exception of lettuce, than radishes. This crop is so easily grown, matures so rapidly, and is in such great demand, that for the time and labor expended the returns are most satisfactory. The production of radish seed is itself an immense industry, and a large part of the supply needed for this country comes from France and Germany. The production of good seed is quite laborious, and can only be carried on profitably where labor is cheap. In this country, radishes are largely grown in the South, whence come the main early supplies for the Northern markets. In addition to this, however, immense quantities are raised under glass in the vicinity of our large cities. As raised in the forcing houses of the University, a crop of radishes occupies the bench space little more than three weeks, so during one winter five or six crops can be grown. The seed is sown in flats, which are filled two inches deep with black muck. It is sown in drills one and one-half inches apart. The soil is thoroughly moistened by placing the flats in the water bench. After being watered by this sub-irrigation method, the flats are placed on the ground under the benches until the seed has germinated. In six to nine days they are transplanted to the bench. In midwinter, when there is likely to be much cloudy weather, it is not best to set them closer than six by two inches. This gives twelve to the square foot. When there is plenty of sunshine they may be planted as close as four by one and one-half inches, if all other conditions are favorable. This gives twenty-four to each square foot, or just double the number at the wider distance named above. As a rule, about eighteen is the average number grown on each square foot.

Repeated tests have shown that we gain all the time the radishes are in the flats before transplanting. Whenever seed has been sown in the benches and no transplanting done, it required just as much time for sowing the seed, and the labor of thinning was about equal to that of transplanting. If we can save a week on each crop, this enables us to increase the number of crops by at least one, during the season. Radishes are prepared for market by tying them into bunches containing six each. These bunches are sold at wholesale for 25 to 40 cents a dozen. Allowing a fair margin for waste and imperfect plants, this gives 6 cents per square foot for the bench space of the forcing house. Five crops would give 30 cents a square foot, which is a profitable return for capital invested.

Our success in growing radishes for market is largely due to the practice of sub-irrigation. In fact, we failed to raise them profitably where the plants were

surface watered. By this latter method we always got a much ranker growth of top and a proportionately smaller growth of root. When pulled for market the tops would frequently weigh more than the roots, and many plants with unusually large tops would have a small, tough, spindling root, which was worthless. Under sub-irrigation the tops are comparatively small and the roots large, the latter more than double the weight of the former, and well developed in almost every plant. At the very lowest estimate, our radishes yield fifty per cent. better in merchantable roots under sub-irrigation than they did by surface watering. The average weight of our radishes when marketed this year was a trifle over one-half ounce each. This would make three ounces per bunch, or two and one-quarter pounds per dozen bunches. The varieties grown in the forcing house were French Breakfast, Round Dark Red, Early Fame, and Red Forcing Turnip.—PROF. LAZENBY.

HOW I GREW THE MAMMOTH SQUASH FOR THE WORLD'S FAIR.



Y land is naturally well drained, being of a gravelly formation, with about sixteen inches of clay loam on top. It is kept in good condition by an annual application of manure. In order to grow a Mammoth Squash I prepared for each hill a compost of two barrow loads of hen manure, and four of good soil, mixed well together. This I did about the first of April, near the place intended for the hills. After two weeks I mixed the compost well again, and about the first of May I mixed thoroughly with four barrow loads of well-rotted manure, keeping all well covered from the rain. On the eighteenth of May I ploughed in a heavy coat of manure, and then dug out my hills seven feet in diameter and six inches deep. Then I mixed the best of the soil that was thrown out of the hill with the compost as it was thrown into the hill. In this way I made a hill about six inches above the level of the ground, and about ten feet in diameter.

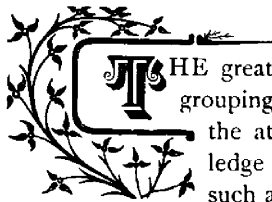
I planted three or four seeds in each hill, and when well started, I thinned out to one plant, always keeping the ground well worked up. When the vine had grown out three or four feet, I mulched it around, to a distance of ten feet from the root on all sides, with horse manure, about three inches deep. I kept the hills well watered, and I staked each vine down as they ran, so that they took root at every joint.

As soon as I had a good specimen on a vine, well started, I pruned off the others. I also nipped the ends of the vines, not allowing them to increase in length; and I kept all blossom buds carefully nipped out. In this way I grew the Mammoth Squash weighing 365 pounds, which was considered such a curiosity in the Canadian vegetable exhibit at the World's Fair.

Goderich, Ont.

WM. WARNOCK.

GROUPING TREES.



THE great secret of making the home grounds attractive is in so grouping the trees as to hide objectionable features and show the attractive ones to best advantage. An intimate knowledge of trees is also needed, in order that one may choose such as will best harmonize, with respect to habits of growth,

color of foliage, etc. Fig. 403, from American Gardening, is a good group for an entrance to one's private grounds. The trees selected are:—3 European linden, A; 3 American Linden, B; 3 European beech, C; 1 American chestnut, D; 2 English elm, E; 3 arborvitæ (Siberian), F; 2 Norway maple, G; 3 silver maple, H; 1 weeping willow, I.

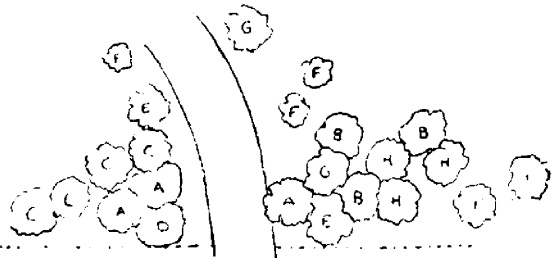


FIG. 403.

Another group (Fig. 403) is one for a curve in the roadway, near the house, which is composed of shrubs and smaller growing choice ornamental trees and shrubs, according to the following key:—1 English elm, A; 3 *Weigelia candida*, B; 1 rose acacia, C; 1 oak-leaved mountain ash, D; 9 Japan quince, E; 1 double-flowering thorn, F; 3 *Spiræa sorbifolia*, G; 6 variegated-leaved dwarf weigelias, H; 6 weigelias in assortment, I; 2 *Magnolia speciosa*, J; 3 kerria, silver-variegated, K; 12 spiræas in assortment, L; 1 Chinese double-flowering crab, M; 6 *Forsythia viridissima*, N; 1 European bird-cherry, O; 3 mock-oranges, P; 6 *Viburnum plicatum*, Q; 3 *Spiræa Billardii*, R; 6 *Tamarix Chinensis*, S; 3 dogwood, red-branched, T; 1 European larch, U.

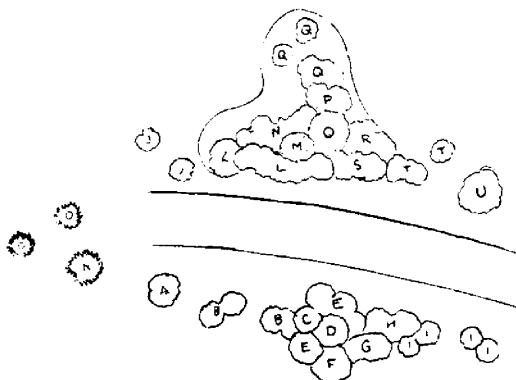


FIG. 403.

Another good group, just by the carriage-house, and partially screening it from view, is given in Fig. 405, to which the following is the key:—2

Norway maples, A; 3 *Ailanthus glandulosa*, B; 3 *Spiræa sorbifolia*, C; 3 *Aralia japonica*, D; 3 *Tamarix Africana*, E; 3 royal willows, F; 3 *Spiræa Billardii*, G; 2 cut-leaved elders, H; *Paulownia imperialis*, I; 3 hibiscus, or althæa, J; 3 *Elæagnus argentea*, K; *Clethra alnifolia*, L.

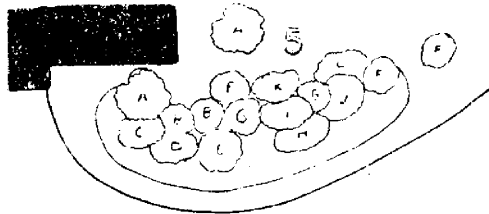


FIG. 405.

Perennial and other flowers should be used along the margins of this group or be mingled with the woody growths.

U. S. Fruit Products.—"Within a few years the foreign markets have taken from this country, in one season, between one and two million barrels of apples, and three thousand tons of evaporated fruit. The horticultural productions of the Mississippi Valley, consisting mainly of fruit, have been estimated at an annual value of one hundred thousand dollars, while more limited regions give corresponding returns. The Illinois Central Railway carried over four thousand tons of apples into the City of Chicago, besides two thousand tons of strawberries, the product of a single season. The Michigan Central conveyed fifteen thousand packages of peaches in a day. The City of Boston received from Norfolk, Va., during one year, sixteen thousand bushels of strawberries, and from plantations nearer home, ten thousand bushels more. A single county in Western New York (Orleans), furnished the market two hundred and sixty-nine thousand dollars' worth of fruit, besides the amount consumed at home, in one year, and other counties have occasionally exceeded this sum. Two hundred thousand bushels of peaches were canned at San Francisco in 1881, and the dried fruits of that State sold for over two million dollars, of which the raisin crop amounted to half a million."

Importance of Drainage.—Some interesting facts are stated showing the great advantage of a well-drained soil for planting fruit trees or grapes. A vineyard on the Hudson was planted on sloping, wet ground and did not succeed well. A tile drain was then placed midway between the rows, the character of the vines was at once changed, and it became an excellent vineyard. An interesting case is mentioned in the *Gardener's Chronicle*. Apples, pears and cherries were planted on heavy clay, which was trenched down to the top of the hard pan. The trees made no growth, and were covered with lichens or moss. The orchard was then thoroughly drained. In a few months the lichens began to disappear, and the next year the trees became vigorous and made a large growth. The same benefit would result by draining wet orchards in the country, although moss does not infest trees as in the damp climate of England.—Country Gentleman.

A NORTHERN ORCHARD.



Dear Editor,—

WHEN I had the pleasure of meeting you at the World's Fair, at Chicago, I told you that I felt pretty queer to see almost every American who visited our Canadian fruit exhibit, showing their astonishment at the nice display that the Province of Quebec, "such a cold country," had sent there. Then you asked me to give you for the *HORTICULTURIST* a few notes on what we are doing in connection with fruit growing, hoping that, perchance, those astonished Americans would read and learn what we can really do in that line. This is to explain to your readers why a Quebec fruit grower trespasses on their ground.

To show you what are the possibilities of fruit culture in our far north, I cannot do better than to tell you what I have done myself in my experimental orchard, which is situated at St. Denis, Kamouraska County, Province of Quebec, 47° 30' north latitude.

This orchard is situated on ground composed of equal parts of clay and sand, gently sloping to the north. I planted it in the spring of the year 1889. All my trees have had to stand this year the coldest winter we have experienced for thirty years; the thermometer having marked as low as 30° F. It is then no bold assertion on my part to say that all the trees and shrubs which have fruited in my orchard this year are surely acclimatized here, and that probably many of those which gave no fruit, but made a good growth this last season, have a good chance to be useful to us, too.

With these preliminary remarks, I will now simply give you one list of the trees and shrubs which have fruited here this summer, and another of those which has made a healthy growth since they were planted, and specially this year, though not having yet given any fruit.

VARIETIES HAVING FRUITED IN THE SUMMER OF 1893.

Apples.—Antonovka, Arabka (summer), Arabka (winter), Duchess of Oldenburg, Fameuse, Hyslop, Longfield, Charlottenthaler, Tracendant, Wealthy, Whitney.

Plums.—Coe's Golden, Damson, Lombard, Reine Claude, Shropshire Damson, Smith, Orleans, Lombard.

Cherries.—Bessarabian, Early Richmond, Lutovka, Montmorency, Vladimir.

Gooseberries.—Downing, Houghton, Pearl, Smith's Improved, Yates.

Currants.—Black Naples, Fay's Prolific, Versailles, White Grape.

Raspberries.—Antwerp, Golden Queen, Marlboro, Reliance, Souhegan (blackcap), Stone's Hardy (blackberry), White (of French origin).

Strawberries.—Sharpless, White Alpine.

VARIETIES HAVING MADE HEALTHY GROWTH SINCE PLANTED, THOUGH NOT GIVING FRUIT YET.

Apples.—Alexander, Babushkino, Blush Calville, Bode, Gipsy Girl, Golden Russet, Golden White, Grand Duke Constantine, Hare Pipka, Louis Favorite, McIntosh Red, Peach, Princess Louise, Red Astrachan, Red Queen, St. Lawrence, Titovka, White St. Lawrence.

Pears.—Baba, Bessemianka.

Plums.—Bradshaw, John Trotter, Moore's Arctic.

For the sake of variety, I have also brought in my orchard from the forest some of our wild fruit bearing trees and shrubs, and these are great favorites with my children. I offer here a list of them :

Choke Cherry (*Cerasus Virginiana*).

Hazel (*Corylus Americana rostrata*.)

High Cranberry (*Viburnum opulus* or *edule*).

June Berry (*Amelanchier Canadensis*).

Mountain Ash (*Sorbus Canadensis*).

Mountain Currant (*Ribes prostratum*).

Wild Gooseberry (*Ribes rotundifolium*).

Wild Red or Bird Cherry (*Cerasus Canadensis*).

St. Denis, P. Q.

J. C. CHAPIAS.

THE QUINCE RUST.

It is important to know that the quince rust grows in one form upon another plant, for it is possible to check its ravages by diminishing the chances of its being able to find a cedar upon which to live. So far as we know it seems likely that if the cedars were absent the rust of the quinces would not be present. The quince stage of the rust is not confined to the quince, but thrives upon the apple, hawthorn and shad bush, in fact it was first found upon matters somewhat, for the shad bush and the hawthorn serve as breeders for the troublesome parasite in the hedgerow and wood lot. The rust that is now under consideration is quite different from the many molds, mildews and blights that prey upon our crop plants, and may be held in check with fungicides. The rusts proper, of which there are many hundred kinds, are deeply seated gross-feeding fungi, and usually have done a large portion of their mischief before observed. There is but little doubt, however, that spraying might be effective, if the time was known when to do it. This would mean the application of the fungicide to the quince trees at the time, or just before, the spores are mature upon the cedar nodules. A better way, however, seems to be found in the removal of cedars from the vicinity of quince trees. As another cedar gall fungus is associated with rust of the apple, it is all the more important to separate the cedars from our orchard fruits, to prevent these diseases.—American Agriculturist.

POISON IVY OR SUMACH.

Trailing Sumach.

(Rhus Toxicodendron.)

ALTHOUGH much has been said and written about this very noxious plant, only few persons seem to know the danger of approaching it, until they are taught by woeful experience. It is traditionally stated that at one time there existed a kind of animals called "Basilisks," whose breath blasted vegetation. But although I believe the statement, I cannot vouch for the truth of it.

I do know, however, that the venomous exhalations of this plant has caused great distress to some persons, and considerable suffering to many, who unknowingly would again lie down upon a clump of it as readily as they would on a bed of ferns.

Last fall I met a number of friends returning from camp on one of the Rideau Islands. One of them had been blind for three days, and her body was seemingly afflicted with exczema and erysipelas. She had been told it was the effects of poison ivy, but said she would not know the plant if she saw it.

Poison ivy is not the right name of this plant—it is no relation to the ivy, but is a member of the sumach family, of which there are about thirty species. It has probably been given the name of ivy on account of its somewhat trailing habit. It sends out root-stalks near the surface, whereby it multiplies and increases rapidly.

It is an unattractive plant, and is not readily distinguished from small plants of some of the other sumachs. It seldom grows more than $1\frac{1}{2}$ feet high unless supported by some other shrub. Even the smell of the poison which it emits can be detected only by persons of the keenest scent. The plant is sometimes mistaken for the Virginia creeper, but its growth is not nearly so vigorous and its leaves are ternate, *i.e.*, having only three leaflets on the leaf-stalk, whereas the leaf of the Virginia creeper, or Virgin's bower, are compound, having five leaflets on the leaf-stalk. The flowers are produced in loose clusters, nearly white, at the ends of the branches, in July.



FIG. 406.—POISON IVY, RHUS TOXICODENDRON.

The most remarkable fact in connection with this pernicious plant is that it affects different constitutions in a very different degree, or rather, it may be the state of the constitution, which renders some poisons more susceptible of poisoning than others. Some persons seem to be proof against this kind of poison. I have often handled the plant without gloves, and never felt any bad effects from it, while others passing a clump of plants on the windward side on a hot day, when in a state of perspiration, would thereby certainly have inflamed faces and necks the following day, after which small pustules arise and fill with watery matter, occasioning a burning sensation and intense itching. After a few days the eruptions suppurate, the inflammation subsides, and the damaged skin comes off in scales, leaving the new skin with a scalded appearance.

This kind of plant is common in Eastern Ontario, and is generally found growing on high and dry ground, with a seeming preference for partially shaded spots, although I have often seen it growing on poor ground where there was neither shade nor shelter.

I do not know of any good property this plant may possess, and yet, the time may come when in the medical profession it may be utilized as a cheap substitute for catharides.

Cataraqui, Ont.

D. NICOL.

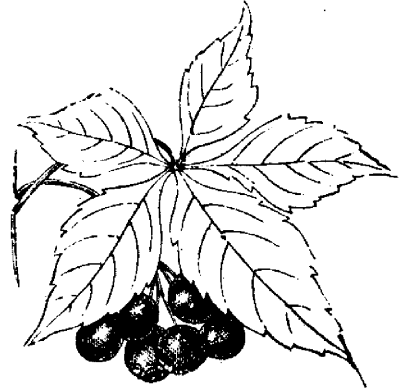


FIG. 407.—VIRGINIA CREEPER,
(HARMLESS.)

THE CHINESE SACRED LILY

Is properly a *Narcissus* of the *Polyanthus* type. The bulbs are very large, and each one sends out from five to twelve spikes, which bear clusters of waxy white blossoms with a yellow centre, of a powerful and delicious fragrance not excelled by any other flowers. They grow well in pots of soil, but the best and most popular way of growing them is the Chinese method, as follows: Fill a bowl or some similar vessel with pebbles, in which place the bulb, setting it about one half its depth, so that it will be held firm, then fill with water to the top of the pebbles and place in a warm sunny window. Care should be taken to change the water once a week or oftener. The bulb will at once commence a rapid growth and bloom in three or four weeks. The bulbs are so large and have so much vitality that they can be kept perfectly dry all winter, and be planted any time when flowers are desired.

Toronto.

A. SIMMERS.

OUR RURAL CEMETERIES.



HERE is certainly much room for improvement in the laying out and planting of our rural cemeteries. The city of the dead is at best a mournful place, for it is so associated with the grief arising from the dear departed. But it is not good to give ourselves over to mourning, and the cemetery ought to be made bright and cheery by landscape art, so that its associations may be robbed of gloom, as far as the beauties of nature and art have charms to effect.

The following extracts from Rules and Regulations of a Western Cemetery, will be interesting to many of our readers :

The sub-division of lots by the lot owner is not allowed.

The joint purchase of a lot is not recommended, but when it occurs, the board of trustees, on application in writing if deemed expedient, may allow a transfer duly executed by either owner to the others, but to no other persons. No transfer is valid until entered on the cemetery records, and no transfer of a lot by sale or otherwise by a lot holder, without the consent of the board of trustees, will be recognized by the association.

To prevent the excessive and unsightly crowding of tombstones, not more than one monument, grave stone or mark exceeding two feet in height above the surface of the ground, shall be permitted in an entire lot.

Grave stones or marks must be placed at the head or foot of the grave, and must be placed upon foundations not less than four feet deep, and not less than twelve inches square, unless the stone be a single piece, in which case a depth of three feet below the ground will be sufficient. No grave stone or mark can be set in a socket.

No fence, coping or enclosure of any kind will be permitted on burial lots. Boxes, shells, toys and similar articles scattered upon the graves and lawn, are inconsistent with proper keeping of the ground and will not be permitted.

Every lot holder should have a diagram on the back of his deed, or convenient place for reference and mark every interment thereon. This method will enable them to point the precise location for each grave, without going to the grounds, and thus prevent misunderstanding and mistake, which occur from an imperfect description of location. One interment only should be made in the same grave, unless at a great depth or when necessity seems to require it.

The land marks or corner stones indicating the boundaries of the lots will be set even with the surface of the ground, by the superintendent at the expense of the lot owners.

No elevated mounds over graves will be permitted, as it is impossible to mow the grass and keep it alive and green on mounds. No lot shall be filled

above the established grade. All family burial lots and all single graves will be sodded and kept in good order by the association, and without charge.

The superintendent will plant trees and shrubs in accordance with the general plan for the ornamentation and embellishment of the grounds. No additional planting by the proprietors of lots will be permitted, except by consent of the superintendent.

All preparation of flower beds, planting and trimming, must be submitted to the superintendent, and all work done by the gardener of the cemetery, the charges for which will be as follows, payable in advance :

For digging up and planting flower beds, gardeners per hour	\$o 3o
Teams, when hauling is necessary ; per hour	5o
Care of flower beds after planting ; for the season	
Beds filled with geraniums, verbenas, etc., per square foot	1o
Mixed beds of geraniums and foliage plants, per square foot	15
Fine foliage beds, per square foot	2o

No flower beds to be dug up in the cemetery larger than the plants furnished will plant properly.

No horse must be left on the grounds unfastened. Drivers must remain on their seats or by their horses during funeral services. Carriages will not be allowed to turn upon any avenue.

Except in cases of emergency when lots are required for immediate use, the superintendent will not attend to the selection or sale of lots on Sunday.

THE RED SPIDER IN INDIA.



Looking over the HORTICULTURIST for Oct., I see an article on the Red Spider, and as this is an old acquaintance and enemy of mine in India among the tea plant, I thought it might interest some of your readers to know how we used to fight the pest there. We found that anything that would smother the eggs for a day or two had the effect of stopping the ravages, so we used to take ordinary swamp mud and mix it with water till about the consistency of cream and smear the bushes all over. The process was performed in this way. A number of *cooly* children were told off each armed with a small earthen pot and a brush or broom, made from some stiff grass. The pots being filled they took what they could of the mud on the broom, and shook it over the bush time after time till the whole was covered, and in a day or two (in the country where the growth is rapid) the new growth could be seen coming away entirely clear of red spider. Some parts of the plantation are usually more subject to this pest than others. A western slope invariable suffers more than one sloping in the other direction, and also where the land is shallow, more than where the soil is heavy and deep.

TOM WILSON.

Lisgar Farm, B. C., 30th Oct., 1893.

THE CYCLAMEN.



It pays well to buy large bulbs in the fall. They are not expensive and will yield so many flowers, and by having a variety of colors will render the window a very marvel of beauty. The bulbs should be planted in pots of well drained rich sandy soil, the crowns exposed, and after growth begins placed near the glass and kept constantly moist. They are moisture-loving plants and will only thrive with such treatment. A strong bulb will have many flowers and will yield them from late fall until the next June, and each flower has the strange faculty of lasting for a number of weeks. When summer comes the bulb should have a season of rest. To insure this the pot may be set in some half shady place and given only just enough water to keep the ground from becoming dry and dusty.



FIG. 408.—THE CYCLAMEN.

A very good plan is to bury the tuber at the time in the pot in the open ground and thus the root when uncovered in the autumn is fresh and plump. In August or September the bulb should be got ready for its winter campaign by reducing the ball of earth about the roots, but with care, and placed in a larger pot with plenty of new rich soil. As to kinds, the *Cyclamen Persicum* is an old and well established variety of very beautiful and mottled foliage and great variety of coloring as to flower. *Giganteum* is a greatly improved and larger variety of *Persicum*, the flowers of great size and many-colored, the wealth of rich dark foliage with its silver tracery is very beautiful. This variety is becoming better known; formerly it was a great rarity but is now more often seen, and bids fair to become quite as popular as the well known and much loved *Persicum*. It is well to cultivate both, as one variety enhances the beauty of the other.—*Vick's Magazine*.

“I dote upon oaks,” said the languishing maid,
 “So noble, so stately, though few.
 Tell me, now, Mr. Jones, what’s your favorite tree?”
 And he tenderly answered her, “Yew.”

—*Drake's Magazine*.

A FEW MISTAKES MADE IN THE GARDEN.



It is a mistake, in laying out walks, to get senseless curves in them, that look for all the world like a huge snake track. A curve is a line of beauty in the garden as elsewhere, but there should be a reason for the curve, or one artificially placed there. The more flowing the outline or the larger the radius, the better the effect. A straight walk to the front door is more effective than a curve in

most city lots.

It is a mistake, however small the grounds, to have walks a couple of feet wide, or so. Even a twenty-five-foot lot should have walks that are to be travelled on not less than four feet wide; the main one from the street to the house at least five feet in width. It is not pleasant to be obliged to go single file, like an Indian on trail, when approaching a house, or walking about enjoying the flowers in the garden.

It is a mistake often made by amateurs to sow seed broadcast (except for the lawn, of course) for the reason that quite often amateurs do not know the seed they have sown from the weeds that spring up. If in rows, the young plants show for themselves, and the hoe can easily be slid along to cut off weeds that are called plants out of place. Even seed sown in small patches, as in boxes or small beds, can by this means be easily observed.

It is a mistake to water plants by dribbles in the summer out of doors, or pot plants in the window. When watering pot plants see that the water goes through into the saucer, then withhold water until the soil becomes again dry. Fast-growing plants, or such as have a mass of leaves, require more than those not growing, or with but little leafage. A small plant in a large pot needs less than the reverse—a large plant in a small pot.

It is a mistake when transplanting new shrubs, trees, plants, etc., from the open ground, not to trim off a portion of the shoots, or, in case of small plants, a few of the leaves. The reason is, that in digging up many roots have been destroyed. Taking off some of the top growth equalizes things. A vigorous rose or grape vine, for example, cut back one-half, will make better growth and longer shoots in a summer than if left entire. Plants grown in pots, of course, have no mutilation of roots, and suffer no injury through transplanting.—*Prairie Farmer*.

BANANAS AND ORANGES.—Peel and slice six bananas, sprinkle with sugar and with a little orange juice between the layers, using one large or two small oranges for six bananas. Chill on the ice and serve with whipped cream.

PEDIGREE IN SEEDS.



ENRI L. DE VILMORIN, of the great seed house of Vilmorin, Andrieux & Co., of Paris, France, read a paper before the Seedsmen's Session of the World's Fair Horticultural Congress, Chicago. The entire address may be found in the *American Florist*, of August 17: "Let any one who doubts the high value of selection look at our fine races of cabbages, kales, cauliflowers, kohlrabi and rutabaga, and compare them with the wild cabbage of our western shores of Europe; let him compare our fine garden beets and our mangels to the wild beet of the Mediterranean shores; let him compare the tomatoes and potatoes of to-day with the wild South American plants, and he will see proof that only human thought and skill have brought about such wonderful changes. Where selection is done with skill and care the improvement of many kinds of cultivated plants effected by its means is invaluable. The large pansies, the huge hybrid gladioli, the large flowered cannas were all brought from the state of small flowers to their present excellence in our own days by careful observers, who, watching every variation and keeping an exact record of the descent of all their plants, turn to the best account the wonderful action of heredity. Most of the variations induced in our garden plants are not in favor of the plant in a 'free fight' with its kind in nature. All our improved roots, as carrots, turnips, beets, make an early and succulent growth for our own benefit, but not at all for their own good. If left to their fate to struggle with their own wild forms, they would soon have to take a 'back seat,' and very likely soon perish. It follows then that varieties improved from man's point of view must receive kind treatment and richer food than wild forms of the same plant. The cultivated plant, like the domesticated animal, yields in a measure its powers of self-defence to adapt itself to our service. Man must in return provide for its safety and nourishment."

To Prepare an Asparagus Bed.—The preparation of an asparagus bed should be made with more care than for most vegetables, as it is to be a permanent crop. The ground should be thoroughly drained, naturally or artificially and preferably of a rather light sandy loam. This should be trenched and a heavy coat of well-rotted manure applied. Either one or two-year-old plants are set, which may be raised from seed or bought of nurserymen. Set in rows not less than four feet apart, six is better, and three feet in the row. Set the roots from four to six inches below the surface so as to cultivate over the crowns. The beds will last longer and stand droth better when set deep. The plants may be set in either spring or fall. If in the spring, as soon as the ground is dry enough to work; and if in the fall, as soon as plants can be obtained, which is usually early in October. Fall setting, where possible, is preferable for the roots have a chance to form and start earlier the next spring.

SMITH'S CIDER APPLE.



AMONG the apples which have acquired extensive popularity in certain localities Smith's Cider is one of the most prominent. The name, however, is misleading, for while it is a valuable cooking apple on suitable soils it is by no means equal to Fink and many others as a cider apple. Indeed for making cider it may be said to be one of the poorest; not but there is an abundance of the juice—there is a superabundance rather—but it is not of high quality. Some think the name was not intended to indicate its value for cider. The original tree, it has been said, sprung up near the cider press of a farmer named Smith, in Bucks County, Pennsylvania, many years ago; and when it began to attract attention it was spoken of Smith's cider press apple which in the days before the establishment of pomological societies was naturally shortened to Smith's Cider. And yet if this be the same fruit that is mentioned by Coxe in his view of the cultivation of fruit trees, etc., (Philadelphia, 1817) as grown "in the county of Bucks and the contiguous parts of Pennsylvania," it was then "chiefly used for cider," although "a pleasant table fruit." And his description of both tree and fruit seems to suit. It is No. 52 in his list, and he calls it Cider apple—the same name applied to it by the well-informed agricultural editor of the Cincinnati Gazette, who has known it for over half a century; first in Bucks county, its original home, and afterwards in the West.

In certain portions of Ohio and Indiana it is a popular and profitable apple. On the uplands of the Central Ohio it is less valuable; not equal to Rome Beauty, Ben Davis, Kentucky Long Stem and several others, either in productiveness or appearance; and in quality there are many varieties that are much superior.

There is a red variety, known in the East by the name of Red Cider, or Red Smith's Cider, which some think is a sport from the above, but others consider it an original seedling. It is high colored without stripes, and some say of finer quality; and those who have tasted both say the red is the most popular.

On the whole, Smith's Cider may be recommended for planting wherever it has been tried and found to do well; which will not be in any of the colder regions, for the tree is not very hardy, even less so than Rambo.—Exchange.

PACKING PEARS IN SMALL CASES—Through a verbal mistake in November No., Mr. J. L. Thompson was made to say that for the British markets, pears should be handled with care and packed in very large cases; the reading should be "not too large cases," for as he writes:

"It is obvious to all who cultivate pears, which are among the very softest of the large fruits, that packing them in very large cases would cause them to heat, thus initiating and promoting decay, which, in "not too large cases," would be much less likely to occur, and perhaps, be altogether avoided."

* The Apiary *

THE TWENTY-FOURTH ANNUAL MEETING OF THE NORTH AMERICAN BEE-KEEPER'S ASSOCIATION.



BEE-KEEPERS as well as fruit growers have their calling advanced by means of conventions. Not only are those profited who attend in person, but the report of the proceedings finding its way into the press give readers some of the most advanced ideas upon the subject in hand. The North American Bee-Keepers Association takes in the largest territory of any bee-keeper's association in the world.

It is international in character, and certainly amongst its members may be found the most extensive and practical men engaged in the bee-keeping industry. The last convention has just been held in Chicago, the date being Oct. 11th, 12th and 13th. In reporting the proceedings, much of interest has, of course, transpired, which is not of practical value to those having a few colonies only. The best will be selected for the readers of the HORTICULTURIST.

An address was given by Prof. A. J. Cook upon the subject "Apiculture at our Experiment Stations." It would appear almost incredulous that in the United States \$705,000 are spent annually to develop new truths, and further the interests of agriculture. And out of that, barely \$2,000 thus far, of it spent for the development of truths and further the interest of apiculture; that means not one-three hundred and fiftieth. When we come to Canada the state of affairs is even worse. We have no government experimental work at all. For many reasons, some of them given in previous numbers of the HORTICULTURIST, bee-keeping is an important branch of agriculture, aside from the value of the honey produced. In Canada this is even more the case, the Dominion did not make an exhibit of honey; this is to be regretted. She has lost a rare opportunity of showing what her resources are in this direction. For nothing will prove to a foreigner more quickly a country's adaptability to agriculture than an exhibit of her fruit and honey.

Ontario has, however, acquitted herself well. The quality of honey is excellent, and there is no doubt that she will secure quite a large proportion of awards. Her comb honey is the best, only one sample from Michigan even approaching the best Ontario sample. It is with some pride that I say even Americans admit the best comb honey is from Brantford. At the World's Fair were samples of honey from many foreign countries, and rarely indeed could even an individual sample be found equal to Canadian, and none superior. Again from foreigners I found that the honey which we produce in largest quantity, is the honey which the British consumer has a liking for, and the British import from year to year, yes, month to month, large quantities of honey.

Under these circumstances, bee-keepers would expect to find that in Canada at least, a fair proportion of the public money would be spent in the advancement of apiculture, experimentally and otherwise. But the contrary is the condition; not only is the proportion not greater, but absolutely not one dollar has been spent in experimental work. Prof. Cook very ably suggests that bee-keepers insist on their rights. It is a trifle to the country as far as expenditure is concerned, and means much to the individual bee-keeper, and much directly and indirectly to the development of the country.

The North American then placed itself on record as follows: "That we recognize the value of experiments and experiment stations, and firmly believe that bee-keeping would be greatly aided in each State and province where bee-keeping is a leading or important industry, if the experiment stations in each State and province should secure an able apiarist to give his full time and energies to the work of experimentation, and if these apiarists should work together to advance the general apiarian interests."

The resolution closed urging bee-keepers to act in this direction.

The question "What experience has taught us in the past few years," then received attention. Mrs. L. C. Axcell, who opened the discussion, found that bees were more liable to swarm with a small brood chamber. The tone of the communication was in the direction of attempting to keep bees without care and attention. In the discussion which followed, this idea was condemned; one member going so far as to say if the experience of the past five or ten years had taught us anything, it had taught us that bee-keeping could not be entered into without proper care and attention, and to fully succeed in it experience was required. The opinion was also expressed that whilst a large brood chamber might answer for extracted honey, for comb honey its capacity should be no greater than what a good average queen could fill. Another ably expressed himself thus: "The question is not what system will allow us to give the least attention, but what hive and system will give us the best results."

Upon a vote being taken sixteen favored the ten frame Langstroth hive. Forty-two the eight frame. Only one had changed from the eight to ten frame, twenty-four had changed from the ten to the eight frame hive.

The rule advised was to crowd a few queens in the brood chamber rather than give a good many queens too much room. Next, to avoid giving the queen much space at a time when the young bees produced are likely to be of no use for the honey flow.

Brantford, Ont.

(To be continued.)

R. J. HOLTERMAN.

FOR OLD BUILDINGS.—A cheap and a very useful article to paint old buildings with is crude petroleum, especially for the priming coat; and any of the cheap dry paints may be mixed with it in order to give a satisfactory color.



The Canadian Horticulturist

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

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

Notes and Comments.

ERRATA.—On page 404 in Ontario's apple exhibit for 1892, read 111 instead of 52.

OUR WINTER MEETING, will be held in Peterboro', beginning Tuesday, 5th December, at noon. The change of date was made after carefully consulting the Association at Peterboro'. Write for programme.

THE EDITOR of this Journal will be at his office at Grimsby early this month, where he will be able to give better attention to the subject matter of this Journal than he could do in the evenings of busy days of duty at the World's Fair.

STORING IMPLEMENTS.—Some sensible hints on this point are made by the American Agriculturist, who advises not only putting tools away carefully under cover for the winter, but cleaning them thoroughly, and oiling all metallic parts with kerosene or melted beef-tallow. For the wood part boiled linseed with some mineral paint is recommended.

THE BUSINESS OF FRUIT GROWING.

It is a remarkable fact that most people not engaged in fruit growing, think that no previous training, either of a practical or theoretical nature is required, for success in it. They would not for a moment expect success in the dry goods business, or in any trade or profession without years of preparation, but they seem to think that any man who fails at other things may at once step into the growing of fruit, and make money. Others again, who have some knowledge of

fruit growing in England, or some other foreign country, think they can at once enter into the successful pursuit of this business in Canada. A subscriber writes :

"A friend of mine in England, who has been in Australia, and has some knowledge of gardening, wishes to engage in fruit growing in this country. What could a small fruit farm of five or ten acres, partly planted, be purchased for?"

Now there is so much difference between fruit growing in Canada and in Australia or England, the methods, conditions, suitable varieties are so unlike, that should such a person purchase a fruit farm in Canada, and begin planting and running it, without first spending at least a couple of years studying the business in Canada, he would be almost certain to make a conspicuous failure. Why the most experienced fruit grower in the Niagara district find seasons when, with all their knowledge of their business, the income from the fruit farms does not meet expenses ; what then would be the loss to an inexperienced man in such a season? The probability is he would become bankrupt. There are good profits from all well managed fruit farms, most seasons, but good management is most essential nowadays, when prices of fruits are so much lower than formerly. Twenty years ago, we seldom sold a quart of strawberries below ten cents, now we often sell two quarts for that sum. Grapes then were worth eight and ten cents a pound ; now two cents is an average price, and tons are sold even as low as one cent a pound. In noticing the low prices the Vineyardist says :

"Grapes of good quality, packed in baskets, that sell in the cities for less than two cents per lb return no profit, and are sold at an actual loss to the producer. Four and one-half pound baskets, sold at ten cents each, or \$10 for a hundred baskets containing 450 pounds of grapes. These would cost for baskets \$2, for transportation about \$1.50, commission not less than forty cents ; total \$3.20, which, deducted from \$10, leaves the pitiful sum of \$6.10—less than one and a half cents per pound, which means ruin to the producer, as the balance of his crop, if sold at all, for wine, must be 'sold for a song.'"

And so many vineyards have been planted of late years, giving us each year such an increase of the total production of our country, that the business is in danger of being swamped entirely, True the demand increases yearly, but not so fast as the supply.

Another man seems to think fruit growing such a profitable undertaking, and so easily conducted, that he can simply buy trees for a tenant and await his golden harvest. He writes :

"I understand you edit a fruit growers' journal. I have a one hundred acre farm, on the mountain, near Grimsby, which neither pays the tenant or myself. Could I not set it out to fruit, with a prospect of better returns. Is a fruit farm a success under a tenant?"

In reply to the last question we say decidedly, no. If any kind of farming needs the personal supervision of the owner it is fruit farming. It needs the best training possible in the practical work of the garden to qualify a man for the work, and the constant attention that only comes from personal interest. We are persuaded that the circumstances would need to be exceptional, under which a fruit farm would pay at all, under the circumstances described.

↪ Question Drawer. ↩

The Apple Tree Borer.

588. SIR.—Some fine trees in my orchard have been nearly destroyed with the borer. Can you give me a remedy?

C. J. LISTER, *Bowmanville.*

A remedy now is almost like "locking the stable door when the horse is stolen"; however, if the track of the borer is found, he may be destroyed by thrusting in a wire without cutting the tree very badly. Then cover the wound with wax or varnish, and the tree may possibly recover.

The best remedy is prevention. Apple trees should be washed with soft soap and water once in June and once in July of each year, if the borer is about, and this will effectually save them from this insect enemy. The parent beetle flies during these months and deposits her eggs in the bark of slow-growing trees, where they remain boring farther and farther into the interior for two or three years before pupating.

Best Artificial Fertilizer.

589. SIR.—I would be much obliged if you would let me know through the CANADIAN HORTICULTURIST the best artificial fertilizer for young apple trees; age four years and under. Also when should it be applied?

S. J. RUTHERFORD, *St. Hilda, Gaspereau, N.S.*

Reply by Prof. Craig, Ottawa.

It is difficult to reply to a question so general in its extent and character. It must not be expected that fruit trees can be grown successfully, and the best results obtained from the application of a single fertilizer, as nearly all plants require a combination of the three principal elements taken from the soil which enter into the plant growth, viz: Phosphoric acid, nitrogen, and potash.

In a general way it may be said that nitrogen stimulates the development of woody tissues in trees, while potash and phosphoric acid have a more direct effect upon the productiveness of the tree as well as the thorough and complete ripening of the wood.

For young trees a fertilizer compound of 25 bushels of wood ashes, 100 lbs. of crushed bones, and 150 lbs. of sulphate of ammonia, or nitrate of soda, should furnish the principal elements of plant food required for the growth of a healthy tree. Of course, very much will depend upon the character of the soil.

Nitrate of soda, or sulphate of ammonia, will furnish the nitrogen. The phosphoric acid may be purchased in crushed bone or as dissolved bone black, and the potash may be secured in wood ashes, muriate of potash or kainit.

In using mixed fertilizers the best results are usually obtained when they are applied in the spring.

Parasite of the Tomato Sphinx.

590. SIR,—I send to your address a specimen of a tomato worm, which I believe to be a female, with some of the eggs attached. From their appearance under the glass, I am led to suppose that after a certain time these eggs are deposited in the ground, where they hatch out the following season to pursue their destructive work among the tomato plants. Kindly give through the Journal any information you can command on this subject and favor

GEO. C. MOORE, *Eglinton, Ont.*

Reply by Prof. Fletcher, Entomologist, Central Experimental Farm, Ottawa.

The objects taken by Mr. G. C. Moore for the eggs of the Tomato Worm are really the cocoons of a beneficial parasite belonging to the same class as the Wasp and Ichneumon flies. The eggs from which the tomato-worms come are laid by a large moth. It is sometimes very abundant, but when this is the case, many of them are usually destroyed by this parasite, which is known by the name of *Apanteles congregatus*. The eggs of this insect are laid by the female fly within the body of a caterpillar by means of a needle-like ovipositor, with which she pierces the skin. Sometimes as many as 200 eggs are laid in a single caterpillar (207 cocoons of this parasite were actually counted on a large specimen of the Tomato Sphinx found in London, Ont.) The young maggots upon hatching feed upon the fatty parts of their victim and, when full-grown,



FIG. 408.—Cocoons of *A. congregatus* on Sphinx caterpillar.

I may mention that it is a common mistake for those not acquainted with entomology to take these cocoons for eggs, but eggs are only laid by insects in the perfect state.

force their way through its skin, and work themselves out as far as the last joint of their bodies, when they begin spinning their small white cocoons, which stand on end and present the appearance of the figure. From these eventually the small active black four-winged flies emerge.

The Fertilizing Value of Spent Hops.

591. SIR,—Would spent hops from breweries be good on heavy clay land, cultivated as a vegetable garden; also in a plantation of apples, pears and small fruits? If so, how would you apply it, and in what quantities?

FRED HOSKIE, *Port Colborne.*

Reply by Prof. Shutt, Chemist, of Central Experimental Farm, Ottawa.

In hop refuse the more valuable constituents of plant food, viz., nitrogen, phosphoric acid and potash, are present in such small quantities that, considered as a fertilizer, this material cannot be looked upon as possessing any commercial value.

Hitherto, we have not been called upon to examine this refuse in our laboratory, but according to Dr. Goessmann, of Massachusetts, they have the following average composition :

ANALYSIS OF WASTE HOPS.

Water	8.98
Nitrogen98
Potash11
Phosphoric acid20
Lime27
Magnesia10
Insoluble matter63

The amounts of phosphoric acid and potash closely approximate those in average soils, though somewhat less than those in the best soils. In nitrogen it is somewhat richer. This may be rendered available by first composting the refuse hop, thus insuring fermentation, converting the nitrogen into compounds more or less soluble. Very little good would result from the application to the soil of the unfermented material.

Incidentally, such fermented refuse would improve the soil by its decomposing organic matter, which is of value apart from its contained nitrogen. Since this material cannot in any sense be considered a rich or concentrated fertilizer, its cost at the farm must be carefully considered before decision can be arrived at as to whether it is an economical manure to use or not.

Spraying and Spraying Pumps.

592. SIR.—Will you kindly inform me through your valuable journal which is the best spraying machine to use: also, the best liquid preparation for general spraying for apple scab, woolly aphis, etc.

N. BUTCHERAT, *Fort Moody, B. C.*

Reply by Prof. J. Craig, Central Experimental Farm, Ottawa,

Probably the best and most useful liquid for spraying is that known as Bordeaux mixture. This has the advantage of being useful both for insects and fungous diseases; being a combination of copper sulphate and lime, and, when used for insects, Paris green may be added with safety. It has some disadvantages, in that it is more difficult to apply than the ammoniacal copper carbonate, which does not clog the nozzle to the same extent, and it can also be applied later in the season without fear of staining the fruit.

The best spraying machine to use will depend somewhat on the amount of work required of it. For a large orchard it is desirable to purchase a machine operated by horse power. These are offered for sale by a number of pump makers; among them the Field Force-Pump Co., Lockport, N.Y., and the Nixon Nozzle Co., Dayton, Ohio, and others. For ordinary field work, where the area

to be covered does not exceed 8 or 10 acres, a force pump attached to a barrel, and fitted with two discharge pipes with a Vermorel nozzle attached, will serve the purpose very satisfactorily. Advertisements of pumps of this kind appear in the CANADIAN HORTICULTURIST.

Green and wooly aphid are treated, not with poisonous substances, but with oily mixtures which will kill by contact. The best of these is the kerosene emulsion made according to the following formula :

Kerosene (coal oil),	- - - - -	2 gallons.
Rain water,	- - - - -	1 gallon.
Soap,	- - - - -	half pound.

Boil the soap in the water till all is dissolved ; then, while boiling hot, turn it into the kerosene, and churn it constantly and forcibly with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. If the emulsion be perfect it will adhere to the surface of glass without oiliness. As it cools it thickens into a jelly-like mass. This gives the stock emulsion, which must be diluted with nine times its measure of warm water before using on vegetation. The above quantity of three gallons will make 30 gallons of wash. Insects breathe through small openings along their sides. The effect of kerosene emulsion is to suffocate them, by stopping up these breathing pores.—*Fletcher.*

Sun Scald or Bark Blister.

593.—SIR,—I would like to ask your opinion in regard to a disastrous disease, known here as a black spot or dead spot, that is fast destroying our fruit trees, principally apple. It makes its appearance on the bark of the tree, both on the stock and limbs of the young trees, and on the smooth bark of the limbs of the other trees. I think you have made an investigation before, but had not found out any cause or remedy.

N. BUTCHERAT, *Port Moody, B. C.*

Reply by Prof. J. Craig, Central Experimental Farm, Ottawa.

Sun scald, or bark blister, or canker, as it is variously called, is a malady which seems to be somewhat peculiar to the region of British Columbia. Its cause has not been satisfactorily determined, although it is supposed to be a disease which owes its origin to some member of the lower order of plants included in the general group fungi.

Sun scald in the colder region of the Dominion seems to be directly attributable to climatic changes, and to be more characteristic to some varieties than others.

Shading the trunks of the trees from the rays of the sun during winter and spring, has been very successfully tried.

It might be worth while to try this remedy on a small scale, although indications of its beneficial effects are not encouraging.

THE BRITISH APPLE MARKET.

After all it would appear that the apple markets of Great Britain are governed chiefly by the supply from Canada and the United States. A little while ago, the market reports of Great Britain led us to suppose there was such a heavy home crop, that there would be no opening for our apples. Now, the November reports have come to hand it appears that the supply of home-grown apples is about exhausted, and that there is a sharp demand for Canadian apples at high prices, for first-class stock. Inferior stock is always cheap in every market, and should not be sent over under any circumstances.

James Adam, Son & Co. write, under date of 28th Oct., as follows :—

For the few Canadian apples yet to hand, we are pleased to report a very strong demand, with sales mostly at the following satisfactory prices: Kings (the so far favored variety), 25/ to 33/, Baldwins 20/ to 23/6, Greenings 15/ to 21/, Blenheim and Ribston Pippins 15/6 to 23/6, and 20oz. 25/ to 31/6 per barrel. The English growths are now greatly diminished, and the bulk of present stocks being of greenish varieties, fruit of good quality and color is wanted, and, provided supplies are not excessive, we think satisfactory returns may be looked for, from now until about the middle of December. About this time demand invariably falls off, and it will then perhaps be advisable to stop shipments until say the beginning of January.

And again, under date of 4th of November :—

Offerings this week have been in excess of last, though, as will be seen by figures below, arrivals altogether thus far are remarkably light. With the exception of a few Newtown Pippins, there have been no American, and of the Canadian, we are sorry to say the stock was not by any means good, having we suppose been put up in the orchard. In consequence of this, together also with the fact that green varieties predominated, prices are a shade easier, home growths yet offering plentiful supplies of these, as intimated in our last issue; but all things considered fair values have ruled, anything of color being again well competed for. Kings brought from 18/3 to 29/, Baldwins 15/3 to 21/, Spies 16/3 to 22/, Canada Reds and Ribstons 18/ to 20/6, and Greenings 9/3 to 17/9 per barrel, these latter having varied considerably in quality, as quotation indicates.

Newtowns, as was to be expected, are also cheaper, prices for first shipments being too high for this period of the season. Latest sales have been from 15/ to 30/ per barrel.

Prospects for good stock are still encouraging, provided supplies are not excessive, and it is to be hoped shippers will not be induced to send forward inferior stock, as this we feel sure will only lead to disappointment.

Arrivals from 1st September, 1893, to 28th October, 1893	2,238 barrels.
“ during the past week	6,678 “
Total to date	<u>8,916</u>

To same date last year.	<u>248,277</u>
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Messrs. Woodall & Co., of the same market, write under the same date :—

Of the arrivals up to date, 6,586 barrels were received during the present week, those received previously being insignificant and spread over a considerable period. About three weeks ago it became apparent that the enormous English crop was getting exhausted, which was confirmed by a small arrival of Canadian realizing up to 33/ for Kings, clearly showing that good qualities were wanted. The bulk of supplies, so far, are from Canada, and what were offered this week of good quality were eagerly competed for and sold at very full rates. A somewhat adverse element was produced by a shipment of false-packed fruit which brought very little, and made a quotation for Canadian that should not exist, and it is to be hoped the cause of it will not be repeated, as it gives a want of confidence

all round. The small arrivals from New York are almost entirely Albemarle Pippins, which are excellent quality and appearance, and have sold readily from 15/ to 38/, according to quality. The future prospects may be fairly gauged from this week's sales, and there is every probability that shipments of good sound stock up to Christmas will come to a satisfactory market.

QUOTATIONS FOR SOUND.—Albemarle Newtown Pippins, 15/ to 38/; half-barrels, 15/.

CANADIAN.—Baldwins, 18/ to 23/6; do. seconds, 15/ to 17/6; Ribston, 20/ to 28/; C. Red, Phoenix, Spy, Cranberry Pips, 14/ to 24/; 20oz. 28/ to 31/6; Greenings, 17/ to 21/; do. seconds, 10/ to 14/; Kings, 25/ to 33/. Slacks sell 2/ to 4/ below above quotations.

Messrs. M. H. Peterson & Co., of Colborne, Ont., give following statement of apples exported from Canada to the British markets, week ending November 11th :—

Montreal.....	12,916	
Nova Scotia.....	3,945	
Boston.....	160	
New York.....	2,383	
<hr/>		
Week's total.....	19,404	Same week last year..... 80,680
Total so far this season.....	55,379	Last season..... 627,651

Cable from Messrs. J. Adam, Son & Co., Liverpool, 13th Nov., 1893 :—“Market dull—quality very common. Baldwins, 12/ to 18/6; Greenings, 9/ to 14/; Spies, 12/ to 19/.”

DEAR SIR,—Messrs. James Adam, Son & Co., Liverpool, this day cable :—“Market firm, with good demand. Baldwins, 16/6 to 20/; Greenings, 15/ to 18/6; Spys, 16/ to 21/6; Russetts, 13/ to 15/.”

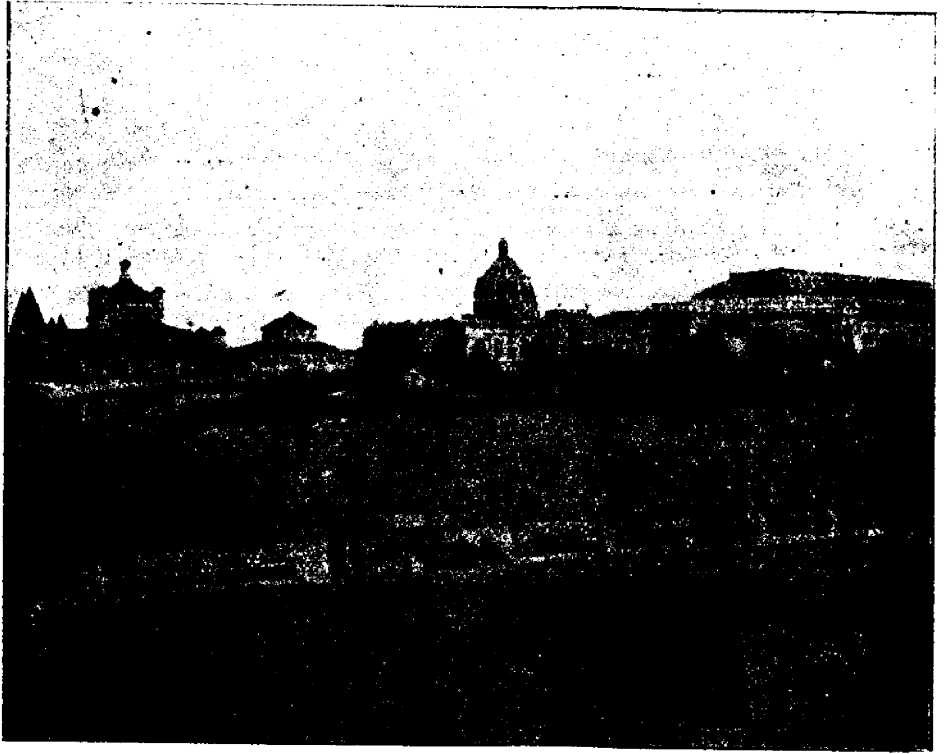
Yours truly,

M. H. PETERSON & Co.

Colborne, Ont., Nov. 24th, 1893.



IN THE ANNAPOLIS VALLEY.



FISHERIES.

GOVERNMENT.

MANUFACTURES.

A PARTING GLIMPSE OF THE VANISHING "WHITE CITY."

