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ROBERT B. WHYTE.

THE
CANADIAN HORTICULTURIST.

VOL. XX. 1897. No. 5.

ROBERT B. WHYTE.

THE subject of this sketch, who has well represented district No. 2 since December, 1893, was born at Perth in 1850. His father, J. G. Whyte, came from Scotland some time prior to that date, and has ever since been closely identified with and deeply interested in the development of the agricultural and industrial interests of the Ottawa Valley. J. G. Whyte has always, like many Scotchmen, been a student and reader. He educated his children principally (Robert entirely) in their own home. His system, while unique, had the effect, at least, of making self-reliant men with a decided leaning towards and a love for the natural sciences.

Our friend began to take an interest in gardening, and also began to make a study of the flora of Ottawa in 1866. This latter work he pursued very perseveringly, and his private herbarium is now one of the most complete in the City of Ottawa, and probably Eastern Ontario. With systematic botany, Mr. Whyte took up the study of geology and chemistry. It was, therefore, to be expected that he should be a prime mover in the formation of a Field Naturalist Club in Ottawa. The Club was organized in 1879, and is now recognized as one of the leading Natural History Societies of the Continent. Mr. Whyte was one of its first presidents. In 1875 Mr. Whyte purchased his present residence in that portion of Ottawa city known as Sandy Hill, and with an acre of ground at his disposal, seriously laid himself out to satiate his gardening desires. For twenty years afterwards the entire manual work of the garden was done by himself; unfortunately two years ago an accident incapacitated him to a certain extent, and he has been since then unable to do the same amount of work as in former years. We sincerely trust that he will soon be restored to his wonted activity. Mr. Whyte's specialties have been raspberries, gooseberries and currants and plums, of which he has had large collections, although at the same

time he has tested a remarkably large number of the tree fruits, considering his limited space. Latterly, perennials and bulbs have replaced some of the fruits and vegetables in his garden, and the interesting series of articles just concluded in the HORTICULTURIST from the pen of Mr. Whyte, giving notes on perennials, are the result of personal experience and observation, therefore all the more valuable. Mr. Whyte's garden is well known to the Ottawa public, especially during raspberry and gooseberry season. Information is always freely given, and fruits and plants as freely available to the interested and the would be fruit grower. Mr. Whyte's connection with O. F. G. A. began with the first year of the publication of the HORTICULTURIST. In 1892 he took an active part in the organization of the Ottawa Horticultural Society (membership 165) of which he is at the present time First Vice-President. As an amateur photographer, Mr. Whyte has also won considerable distinction. He was instrumental in organizing the Ottawa Camera Club, and filled the President's chair for two years. Thus far, Mr. Whyte, although a ready speaker, has not contributed largely to Horticultural or Scientific journals, but now that he has made such a good beginning, we trust his name will be seen frequently among those who contribute to the columns of the HORTICULTURIST. It is somewhat remarkable that many of our greatest enthusiasts in fruit culture, and many of those who oftentimes exercise the widest influence upon their fellows in this connection are men whose daily avocations lead them in channels quite different from that of fruit growing. Mr. Whyte owns and carries on successfully the business of J G. Whyte & Son, wholesale stationery. That he has been able to do so much work in gardening and in studying natural sciences is due to his untiring energy and diligence, and also to the encouragement accorded him by his wife and children, who are all lovers of plant life We trust he will be spared to advance the Horticultural interests of Eastern Ontario, and to represent this section in the Councils of the Association for many years to come.

BABY ROSES.

NOTICING a very instructive article in your valuable Monthly in your issue for February, on "The Amateurs' Rose Garden," by O. G. Johnston, of Kingston, the only part of that interesting article that I think is open to criticism, is where it treats on "Baby Roses." In the spring of '96 I purchased from Webster Bros , Hamilton, 20 roses for $1. I had them sent by express, with soil on roots as taken out of thumb pots. No $1 worth of plants gave me more satisfaction than those 20 bantling roses. They all flowered during summer and fall up till frost came. I had some fine blooms on Viscountess, Zolkstone, Kaiserin, Augusta, Victoria, etc.

And when I covered up my 20 "Babys" for the winter, I had nice stocky plants. I agree with Mr. Johnston that 2 year old plants will give more and better bloom, but still I would not give Mr. Johnston my 20 "Babys" for one of his honest grown 2 year olds. I would say to all amateurs, don't be afraid to invest $1 in 20 of the bantling roses, as the attending and caring for these 20 "Babys" will be an object lesson to them in horticulture.

With your permission, I may have reason to refer to my 20 "Babys" when I take their winter clothing off.

WM. MCCREACH.

The Cemetery, Kincardine.

MR. JONATHAN CARPENTER'S FRUIT FARM.

IN Mr. Carpenter we have a representation of the first settlers in the Winona section. The family came to America in 1638, and in 1776 to Canada, being one of the well-known U. E. loyalists, and for that reason given a grant of land, near the present site of Mr. Carpenter's home.

Until quite recently Mr. Carpenter counted far more upon his large stock of fine cattle and horses than upon his fruit for an income. Even yet, he has about sixty head, but every year he devotes more and more attention to his fruit, and less and less to stock raising. The house was built in 1840 (Fig. 1106), and is still in excellent condition. It is in the old Colonial style in which so many of the early houses in Ontario were built. The large tree, on the right which overtops the house is a magnificent specimen of Catalpa. Nearer the house is a fine Mountain ash and a large Juniper; also a fine sample of Box, about five feet in height and nearly as much in diameter. The long avenue of Norway Spruce (Fig. 1107), by which one approaches the house, is also very pretty, and suggests a style of ornamentation of the home grounds quite easily worked out, but after all seldom thought of by our country people.

FIG. 1106.—RESIDENCE OF MR. JONATHAN CARPENTER.

As we remarked above, Mr. Carpenter has of late become much interested in fruit culture, especially in the peach, and in planting out an orchard of thirty-five acres, he devoted the greater portion to this queen of fruits. His situation, on a point jutting into Lake Ontario, with water on three sides, is unusually free from frosts, while its isolation perhaps explains its immunity from Yellows.

The varieties are chiefly as follows in

FIG. 1107.—AVENUE OF NORWAY SPRUCE.

order of ripening: — *Alexander and Rivers*, varieties that succeed well, and give a crop almost annually; *Yellow St. John*, one of the finest of early peaches for Southern Ontario, more productive than Alexander or Crawford. Six year old trees have borne three crops, and in 1896 averaged five baskets per tree; they also command a higher price than even the Crawford, probably because earlier. *Early Crawford* does finely, six year old trees average four or five baskets per tree annually, of magnificent samples; *Crosby* and *Longhurst* and *Bowslaugh's Late* come next, and are excellent varieties. The two latter are, however, so much alike that Mr. Carpenter does not see any choice between them. The Crosby sells the best of the three in his experience. *Smock* is his best late variety.

The secret of Mr. Carpenter's success with his peach orchard, aside from his soil, is manure and cultivation: he applies a heavy dressing of barnyard manure and ashes annually, and gives his orchard constant cultivation, until the fruit is nearly ripe.

Besides his peaches, he has about 600 pear trees, 300 plum trees, and a small vineyard.

PALMS.—The cooler varieties, usually grown in houses, like a night temperature of 55 degrees or ten degrees higher; a north or east window is best; Repot only when ball is crowded with roots, and only in spring or summer. Sponge foliage frequently with clean water.

NARCISSUS IN THE WINDOW.

THE Narcissus is a very popular flower; and justly so, as it is extremely pretty, is easy to cultivate, and its price is within the reach of all. But the time during which it can be had in bloom out of doors is quite short. It is only about a part of the winter, as Paper White can be had in bloom by Christmas, and there is an almost unlimited number of varieties to flower between its season and that of Poeticus, which is quite late. They are very easily grown in the house, and flowers last much longer than when

FIG. 1108.—NARCISSUS HORSFIELDII.
(From Photograph by H. Johnson.)

month from the time the earliest one comes into bloom until the last to open its beautiful flowers is gone. And then sometimes we have a few days of hot sunshine that completely ruins the flowers; for this lovely flower cannot endure much hot sunshine. But there is no reason why we cannot have them blooming in-doors during the greater in the garden. I have tried a number of varieties in the window, and all with one exception were successfully grown. We generally plant them in ordinary soil from the garden, which is a sandy loam, leaving about one-third of the bulb above ground. They are then well-watered, and put away into a dark place where they are not allowed to get

dry. The bulbs can be planted quite closely—four or five in a six-inch pot, according to size; there are five in the pot of Horsfieldii shown in the picture. In about six weeks they are nicely rooted, and can then be brought to the light, as required. We always keep them in a cool window, and they are liberally supplied with water. No attempt whatever is made to *force* them to grow; they are simply left to start when they are ready. After the flowers are out they should be kept as cool as possible; by doing so each bloom will last for about two weeks and a-half.

Simcoe. HENRY JOHNSON.

AN ITALIAN VILLA.

THIRTY or forty years ago the Italian style of architecture was quite popular, and some of the finest houses in Toronto and Hamilton, and probably in most other cities in Ontario, were built in this style. It had many points of excellence, for additions can easily be made to the building without marring the unity of the design; while the arcades, balconies and projecting eaves gave character to a style which was deservedly popular for country residences, because harmonizing so well in picturesque beauty with the rural landscape.

Our illustration shows an Italian villa, with charming surroundings, chief among which is the river bank, along which a delightful walk leads you along to the artistic summer house, so situated as to command a charming view of the whole surrounding scenery. Such a river or lake bank is just an ideal situation for building a beautiful home. The house itself is not everything; its surroundings are of still more importance, and should always be made the most of, never hiding a beautiful landscape with trees or shrubs. And yet we have often noticed the most charming scenery shut out from view by Norway spruce trees, or, still worse, by ugly barns; or a beautiful and expensive house set down between small houses or ugly rookeries, making it unattractive by reason of its companionship.

In the yard before us we admire the few trees shading the sides of the house and bordering the lawn, and also the beautiful shrubs set where they will show to best advantage; still we think a large stretch of green sward before the house the ideal arrangement, and would favor placing even the choicest flowering shrubs at the side, or in groups along the borders of the walks or drives.

SPRAYING FOR PEACH AND PLUM ROT.

Peach and plum rot are among the greatest evils which face the grower. Many seem to think this evil entirely the effect of damp weather, but investigation shows it to be a fungus (Monilia), which develops more rapidly in wet weather than in dry, and which lives over the winter in the mummified fruit, so often left hanging on the trees. These ought to be collected and burned, and that which falls ploughed under.

The Delaware station advises spraying peach trees three times with Bordeaux mixture for rot, viz.:—(1) before blooming; (2) after bloom has dropped, and (3) at the beginning of coloring. For the 3rd application copper acetate solution, 8 ounces to the barrel, is recommended. Such treatment has been found to increase the yield fourfold.

FIG. 1109.—AN ITALIAN VILLA.

THE YELLOW RAMBLER ROSE.*

FIG. 1110.—YELLOW RAMBLER.

A YELLOW climbing rose is something that has always been denied our northern gardens, because of the severity of our winters and the tenderness of all climbing roses having yellow coloring, for the combination of yellow color, climbing habit and hardiness in a rose was one which it seems impossible to obtain, although the efforts of many hybridisers were directed to that end, and repeated crosses were made in the hope of securing it.

Mr. Peter Lambert, the German rosarian, is the man to whom the honor of the greatest success belongs. In his new rose, Yellow Rambler, we have yellow color, climbing habit and very considerable hardiness. It has withstood unprotected and without injury a continued temperature of from zero to two degrees below, and although it has not yet been fully enough tested to know positively about its capability for undergoing still lower temperature, yet there is no reason to think that it will not also withstand a much greater degree of cold. In any event we need no longer deny our northern gardens climbing roses of that most attractive color of all, yellow, for if given a very little protection in the winter, the Yellow Rambler should do well anywhere that other roses succeed.

To those unfamiliar with such things, it seems strange to talk of crossing roses, or rather breeding them, which is exactly what is attempted in hybridizing. It is, or should be, gone at with a definite end in view; with a clear idea of what qualities are wanted in the proposed new rose, so that a judicious choice of varieties for the parents can be made, the same as one would do in breeding horses or cattle. In producing the Yellow Rambler, Mr. Lambert selected for the mother the Japanese Polyantha Sarmentosa, a wild rose that is native to Japan, and which is a vigorous climber as well as very hardy, both of which qualities were especially wanted in the hybrid. Flowers of this Polyantha Sarmentosa were then fertilized with pollen of a yellow rose called Reve d'Or, which, on account of its having somewhat greater hardiness than most yellow roses, was a suitable variety for the purpose. The seed resulting from this hybridizing was planted, and the Yellow Rambler is the result.

It all seems easy and simple enough to read about, but where success is met

* This article was written by the introducer. We have not seen this rose, Ed.

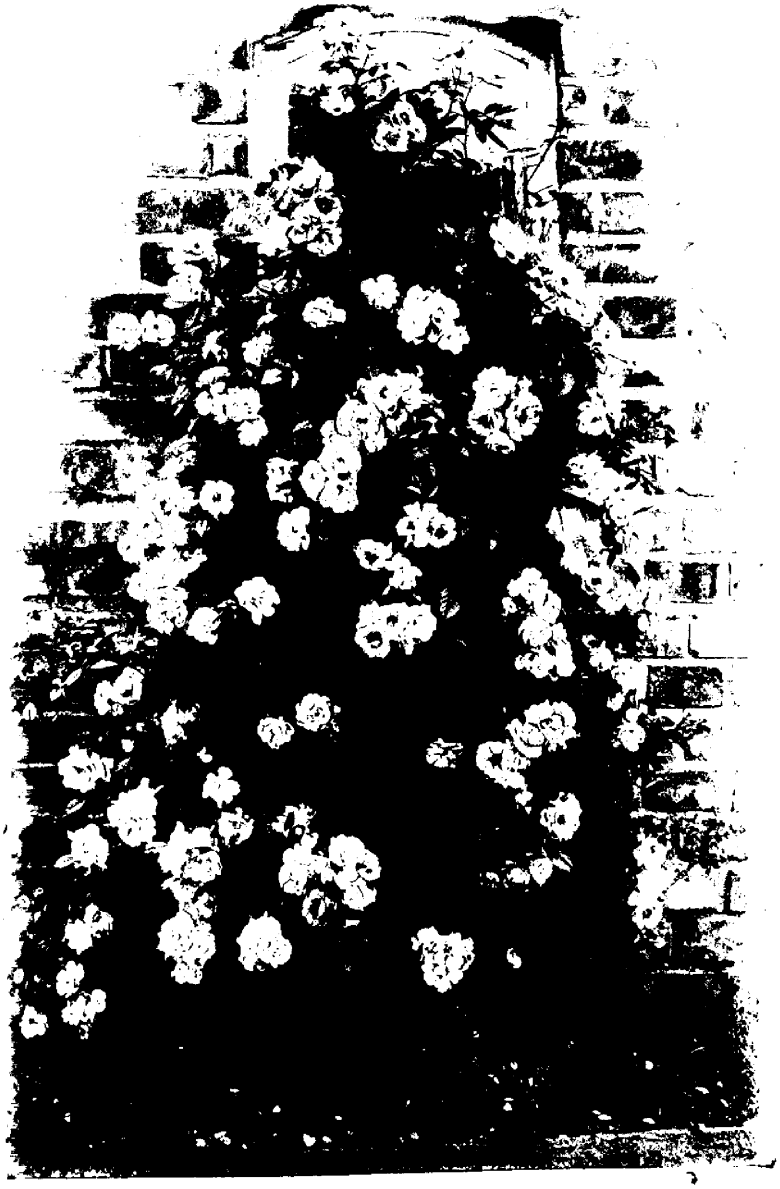

Fig. 1111.—

with once, failure comes hundreds of times. The hybridizing has to be done when both the pollen of the one flower and the stigma or fertilizing surface of the other are in just the right stage, or else no cross will be effected; insects or the wind may spoil the work by introducing the pollen; seed may not be formed, or if formed at all, may not germinate, or if germinated may not have combined the qualities desired, so many more failures than successes must be expected.

Mr Lambert has tested the Yellow Rambler for eight years, which shows a very commendable caution upon his part about distributing a new variety. If all originators would but follow this example, and carefully test the value of their new things, the number of doubtfully meritorious novelities that are yearly foisted upon the public would be greatly diminished.

It is interesting to note that there is a very strong probability of blood relationship between the Yellow Rambler and a rose that was introduced some three years ago, the Crimson Rambler The Crimson Rambler was first found growing wild in Japan, and from its foliage, growth and manner of blooming is thought to have been produced from the Japanese Polyantha Sarmentosa, which was the seed parent of the Yellow Rambler. If this is the case it would make the Yellow Rambler and the Crimson Rambler first cousins. This supposed relationship is rendered still more probable by their very considerable similarity in foliage, habit of growth and manner of blooming. The flowers of the Yellow Rambler are borne in immense trusses, like those of the Crimson Rambler, are very sweetly fragrant, and last a long time without fading.

THE accompanying cut of the Star strawberry comes from E. W. Reid, Bridgeport, Ohio., who claims for the plant vigor, productiveness, and great power to resist the drouth, and for the fruit great size and high quality.

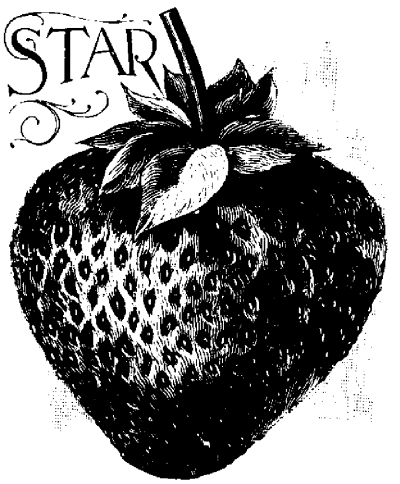

FIG. 1112.—

OLD peach orchards may be made young again by severe cutting back. A good many will hesitate to do what may be safely done in this direction. I once heard a practical and successful peach grower relate his experience in cutting back large trees. The buds were winter-killed, so there was no hope of a crop that year, so in March he cut the trees back to within five or six feet of the ground, leaving stubs of branches, some of which were nearly two inches in diameter. Instead of killing the trees, as his neighbor peach-orchardists prophesied it would, they made a magnificent new growth, and the autumn being favorable, matured a nice lot of fruit buds. The following year more than a bushel per tree of fine fruit was gathered, and the trees instead of being long and straggling had taken on heads somewhat like young trees. This severe pruning must be done in March, as soon as the weather becomes warm enough to thaw the frost in the wood. It will not do to do it after trees are in leaf.—Green's F. G.

SMALL-FRUIT GROWING.

CULTURE IN FARMERS' GARDENS.

FIG. 1113.—MR. B. GOTT.

Mr. B. Gott was the eldest son of a family of nine, and who emigrated from across the Atlantic in the year 1845, being then 12 years of age They first settled in the township of Southwold, near St. Thomas, but in 1852 the family took up a lot of some 200 acres in the township of West Williams, Middlesex Co., and came there into the unbroken forest to make their future home. But the eldest son started off in another direction and, after engaging with the Upper Canada Book and Tract Society, Toronto, was appointed to the Co. of Wentworth, Ont., as travelling agent or colporteur, in the autumn of 1856. After following this work for some two years, he put himself to the so-called Grammar School of those days in Ancaster, and so fitted himself under the efficient tuition of James Regan, M.A., for the work of Common School teaching in Canada, and made his first efforts in this line in the township of Oneida, Haldimand Co., on the Grand River near Cayuga, and then in Ancaster near Ancaster village. In January, 1861, he attended the Provincial Normal School at Toronto for one session, and after passing, came to Arkona, Lambton Co., to begin his work as teacher of their public school. Continuing teaching in Watford, Thedford, Corunna and other places for some eight years, and finding it not to agree with his health, he decided upon a change. He then bought a small farm near Arkona and thenceforth determined to devote himself to practical horticulture and to be known as a practical nurseryman and fruit grower, a life-long desire for which he had been secretly eying and preparing himself from the first.

In 1862 the Arkona Nurseries were established, where they exist to this day and have been very serviceable in these lines to the whole surrounding country. There he took great pleasure to make it his especial business in life to introduce, produce and grow new and valuable fruits and fruit trees and plants in our midst, and took great pains to so teach and educate the people of all ranks in the beauties and great values of good fruit and to grow them for themselves.

In this he has been eminently successful, although it is commonly said "the way of the pioneer is hard." To-day he has the great satisfaction of knowing that the whole region of country for many miles around Arkona has come to be one of the greatest and best regions for fruit growing in Western Ontario, and especially so in strawberries and raspberries.

Mr. Gott has been fully interested in the good work of the Ontario Fruit Growers' Association for many years. He was appointed on the Directorate of the Association during the presidency of the much esteemed Dr. Burnet, at their annual meeting at Hamilton, February 6th, 1878. This is esteemed as one of the most valued relationships of his life and was what gave direction, tone and vigor to all his operations.

In 1893 Mr. Gott, well-worn and tired from his labors, determined to leave the work to other and younger hands and heads, and so, placing the whole matter in the hands of his sons, retired to the thriving town of Strathroy, where he at present may be seen interested in his own small garden and the welfare of the people and the town where he lives. May the labor of his hands greatly redound to the best interests of his beloved country.

BLACKBERRIES.

BY Blackberries we would at this time mean and designate *Rubus Fruticosus*, ord. *Rosaceæ*, otherwise known as Brambleberries, as distinguished from Black raspberries or Black caps, *Rubus Occidentalis*, of which I have before treated. But many of our most valued sorts have come directly from the native American wild Blackberry, *Rubus Villosus*, found all over this northern continent, and propagated by judicious crossings and selections, etc. This

form of berry is one of very great value not merely to the farm garden, but also to the larger professional fruit grounds, and to all cultivators in general. But on account of some public prejudice against its large straggling growth and its very disagreeable hooked thorny appendages, we find it very much neglected and not nearly so generally grown and enjoyed as its great merits and lovely qualities as a table and preserving fruit properly demand it should be. These prejudices against its growth very largely arise from a misunderstanding of better methods of treatment, or from an entire ignorance of good methods on the part of the cultivator. I will therefore attempt very briefly to describe a method of growing and managing the blackberry that has been adopted by some very successful growers and has been quite satisfactory all round.

FIG. 1114.—BLACKBERRY.

In the first place, as to the soil and climate; it is known to be somewhat sensitive, for these must be exactly suitable to its needs and requirements to attain the best results. Just here I may be excused, should I embody a little personal observation of my own, bearing on the questions of the case.

During the very pleasant season of

our Canadian year, known as August, last, I was completely delighted by a few weeks' visit to some dear friends living in the far-famed fruit regions near Leamington, Co. of Essex, on the north shore of old Lake Erie, about eight miles east of Kingsville. This fine fruit region is known as one of the most favorable spots of Ontario for the most successful growth and production of peaches and strawberries and grapes, etc., and it also possesses those essential qualities in soil and climate for the proper development of the finest blackberries, and that to an extent I never before saw in this country It may be that similar qualities may be found in other parts of our country, but I am not personally acquainted with them. Before this opportune visit, I never before knew what blackberry growing properly meant, or its products counted for amongst our cultivated fruits. Both the soil and the climate here seemed conjoined to produce the largest sizes and the fullest and highest perfections attainable in the fruit, and these were something far beyond my feeble powers of description to properly convey to you. This soil is a rich mixed gravelly loam, apparently so made by the action of deep overflowing waters during past geologic ages. The climate is that fine quality of pleasant and enjoyable balmyness, with a certain admixture of moisture in it that is so characteristic of this whole extent of shore of old Lake Erie. In these fine conditions the finer sorts of cultivated blackberries, planted in large fields of great extent, made a most surprising growth and produced fruit of the most surprising size and rich shining blackness and most delightful genuine blackberry flavors that would defy competition.

The pickers here had what we might most properly call a *snap*, for the way they could fill the baskets and crates, it was something quite astonishing. This led me to understand the essential requirements and proper conditions necessary to successful blackberry culture, as so grown and so perfected, they were the very climax of blackberry fruit products.

The growers in that region, after carefully preparing their soil, selected good strong one-year old plants of the variety most desired, and carefully planted them any time in the early spring and kept them well cultivated throughout the season. They plant in long straight rows, 6 feet apart and 3 or 4 feet in the rows ; that is 2,610 or 1,815 plants per acre, these making a fine strong growth they cut back the following spring to about 18 inches. This summer the growth is very closely watched and as the young canes are pushing forward, some three or four of them are allowed to grow to the height of about 3 feet and then the lead is pinched out and all other shoots are cut out clean. This causes a vigorous growth on the side shoots, which also may be checked should they become too strong before autumn. The following spring the whole is cut close to about 3 feet and all dead wood is removed, and even the side shoots trimmed in snugly, so as to ease the work of the pickers.

This year there will be a full and beautiful crop, and in this way blackberry growing may be made a very pleasant and paying success in almost any good fruit section. The plantation so put out and so cared for is expected to be good and yield good crops of fine fruit for fully ten years or longer.

After the fruit is all cleanly gathered, the old bearing wood is carefully cut out and removed, to make good room for a strong and rampant growth for

next year's fruiting. I cannot just now state exact results, but I remember they were very large in quantity, and usually they realized very satisfactory results from them when put on the market.

The variety they mostly planted was the old well-known variety, Kittatinny, which seemed here to be perfectly at home, as I never saw anything like them before. For general planting, I may say that perhaps the old hardy reliable sort, Snyder, is the best for not very favorable locations, or for our strong clay soils. The plant is very hardy and very productive, and the first is, though not the best, yet fairly good. Wilson's Jr. and Wilson's Early are both large, handsome good blackberries, and in favorable locations and soils may be made very serviceable in a large product of very fine beautiful fruit.

Wachusetts is a newer and very excellent blackberry and will do well if planted on good loamy soil. For kitchen purposes during our long winter months, there is nothing better for family use than a good large supply of these most luscious blackberries. They can be made up into almost all forms of pastries and are first-class for jams, jellies, dessert, etc.

B GOTT.

Strathroy, March 10th, 1897.

OSBAND'S SUMMER PEAR.

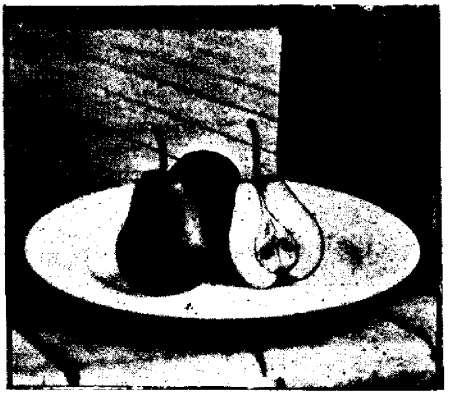

FIG. 1115.—OSBAND'S SUMMER PEAR.

AMONG the early summer pears of fine quality for the dessert table is the Osband's Summer, which ripens early in August. It is an American pear, which originated in New York State, so that it is in its own altitude when grown in Southern Ontario. The tree is fairly vigorous, and a good bearer, but the fruit is rather small for a market pear. For home use as a summer dessert pear it is excellent, and a tree or two should be planted in every garden. The form is well shown in the accompanying photogravure, which of course is much reduced. The quality is very good, being rich and sweet, with agreeable aroma.

At Maplehurst we have had this variety many years in bearing, but cannot advise it for planting in the commercial orchard, not only on account of the small size of the fruit, but also because the tree is somewhat subject to blight.

CLEFT-GRAFTING.

CLEFT-GRAFTING is probably in more general use than any other kind. It is commonly performed to change the bearing of apple, plum and various other trees and plants. It may be used on very small branches or stocks, but is the form that is best adapted to large branches. The tools used on stocks of larger size are a sharp, fine saw for cutting off the stems or branches and a grafting-chisel for splitting the stock and holding open the cleft. On small stocks a sharp knife is used for all the purposes of saw and grafting-chisel.

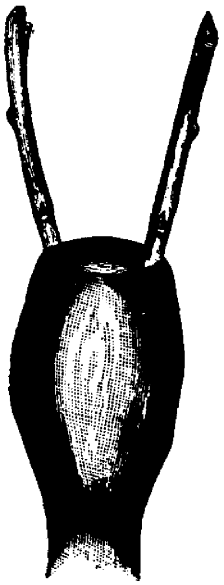

FIG. 1116.

The work is done as follows: The place selected for the insertion of the scions should be where the grain is straight. The stock is then cut "square" off, and is split through its center to a sufficient depth to allow the scion to be put in place. The cleft should be held open by the wedge-shaped part of the chisel (a large nail will answer the purpose in a small way) until the scions are inserted, when the wedge is withdrawn, allowing the stock to spring back and hold the scions in place. If the stock does not spring back into place, it should be drawn tight against the scions by a piece of string. The number of scions put into each stock will depend on its size, but generally only two were inserted, and on small stocks only one. The inner bark of both scion and stock should come together, as shown in Fig. 1118. When inserted the scions should appear as in Fig. 1117. The scions should be made wedge-shaped for about one and one half inches where they go into the cleft,

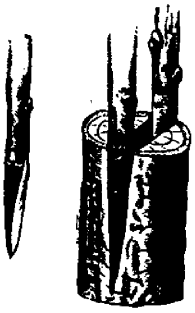

FIG. 1117.

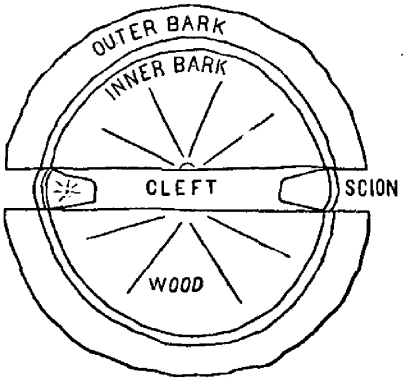

FIG. 1.

FIG. 1118.

and also be wedge-shaped crossways, as shown in Fig. 1117, so as to bind the inner bark of scion and stock securely together. They should each have two or three buds above the cleft. The scions must be wood of the preceding year's growth and no older. It is important to use a sharp knife for making the cuts. When the scions are in, all the cut surface should be covered with grafting-wax, as in Fig. 1116, or with a ball of stiff clay and cow dung mixed; but grafting-wax is most convenient.—*Farm and Fireside.*

BUILDING AND HEATING SMALL CONSERVATORIES.

NOW, that greater interest is taken — mainly through the efforts of the Fruit Growers' Association—in improved horticulture in this province, many inquiries may be expected similar to No. 917, in the March number of the Journal, page 118, respecting the construction and the fittings of small greenhouses or conservatories attached to dwelling-houses.

The replies by Prof. L. R. Taft, Michigan Agricultural College, to the three questions in part 2, *(a)*, *(b)* and *(c)* in Question No. 917, were not satisfactory. He says, *(a)* "Four would be ample and three would answer if the coil is at least thirty feet long, provided the temperature does not fall below 25 degrees." But with us the temperature sometimes falls fifty degrees or more below that point. What might the result be in that case? Sometimes, for several weeks, the temperature may seldom rise to 25 degrees. *(b)* "Four or five lengths, three or four feet long, should supply sufficient fire surface." This 15 or 16 feet of 2-inch pipe, if properly placed, would be ample for four times the length of pipe mentioned. *(c)* "If properly arranged, the pipes should work all right, as the entire circuit will not be more than 50 or 60 feet." The working of pipes does not depend on their length, but on the height of the upper surface of the coil above the point where the return pipe enters the furnace. Mr. German did not give this most important measurement.

Below, I submit a few pointers, which intending builders of such additions to their dwellings may do well to make a note of.

(1) The building should be constructed of the best available material (especially the glass), the workmanship first-class in quality (not necessarily ornamental), and the overseer of the work should have had some practical knowledge of the difficulties to be encountered in conservatory management.

(2) There should be no glass at the sides or ends of the building above the level of the benches, and a wooden or metal strip about 2 feet wide can be placed (nearly level) advantageously at the top of the roof next the house.

(3) The roof should have a pitch of 45 degrees and a southern exposure.

(4) The cheapest building is that one, the cost of maintenance of which, *i.e.*, the yearly cost of fuel, repairs, insurance, etc, being capitalized, will be the least sum.

(5) Such buildings can be heated cheaper, with less labor and attention and more satisfactorily, with water, than by any other means

(6) The power of its heating arrangement should be easily capable of maintaining a temperature of not over 90° to 95° by day and not less than 45° by night, even if the temperature of the outer air should fall to 25° or 30° below zero.

(7) The measure of the heating power is the quantity of water necessary to maintain this temperature under all possible variations of temperature of the outer air.

(8) It is found in practice that 20 gallons of water for each 1,000 cubic feet of space is sufficient for this purpose, and as

(9) It requires 147 feet 3 inches (nearly) of 2-inch pipe to contain 20 gallons of water, therefore, either of

these factors can be used in estimating quantities for a similar building of any size.

(10) It has been found by practical experience during the past six years, that 11 feet of 1½-inch pipe (equal to about 6 feet 2 inches of 2-inch pipe) is ample fire-surface for a greenhouse of a little over 1,000 cubic feet; *in addition* to heating a dwelling-house measuring about 15,000 cubic feet.

(11) The difference in weight between two columns of water 6 feet high, contained in 2-inch pipes, with a difference in temperature of 6°, is 114.6 grains, or less than the weight of one-half of one cubic inch of water (in practice, neither this altitude of the coil above the fire-box in such buildings, nor the difference in temperature of the two pipes is often exceeded); therefore every means should be used to get the level of the upper part of the coil as high as possible above the level where the return pipe enters the furnace, as the convection of the heat is produced by the difference between the weight of the two columns of water.

THOS. BEALL.

Lindsay, March, 1897.

SOME OF THE NEWER FRUITS.—I.

BY E. MORDEN, NIAGARA FALLS SOUTH.

Japan Wineberry.—The bush of the Japan Wineberry resembles a black-cap in its mode of growth, and like it propagates from the tips. The entire surface of the drooping canes is covered with red spines or soft bristles which give a peculiar and ornamental appearance to a plot of these bushes. The fruit is like a sour red raspberry, but smaller. Up to the time of ripening it is enclosed in a capsule which resembles that of a moss rose and the fruit becomes visible as it ripens. It appears in bunches like berries, but from a considerable thicket of it I got very little fruit. As a bit of novel shrubbery with chances of some small edible fruit it answers very well.

Dwarf Juneberry.—This has several merits. It is a dwarf grower, reaching three or four feet in height. It is very hardy. It produces a great mass of white bloom very early in the spring. It produces a full crop of edible berries about July 1st and continues to ripen its fruit for two weeks or more. The fruit resembles huckleberries closely but not so good in quality. Nearly every one likes to eat it from the bushes. When canned and cooked it is sweet. It would answer nicely mixed with currants. With us the birds do not eat many of the berries, which shows that the birds are not properly posted.

The people too need posting. We sent two crates to the Niagara Falls market. Many asked questions, said the berries were very nice, but they forgot to buy any of them. They were therefore entered for home consumption and we are consuming them.

A few nice clumps for ornament and for home use would be interesting and useful to any one who likes to try a new fruit. In more northern localities I think they should be found in fruit gardens. In the present state of public opinion I can scarcely recommend any one to plant them largely for market purposes.

The Orchard and Fruit Garden.

ABOUT JAPAN PLUMS—ARE THEY HARDY?

I AM frequently asked the question, "What about Japan plums, are they valuable and hardy enough for Canada?" There is no question about their value if they are hardy, at least many of them. They are early, of good quality, and much less subject to rot and fungus disease than our varieties and European varieties. I have been a little skeptical about their succeeding farther north than our peach belt, as my own experience with them has been that when the fruit buds of the peach were destroyed by extreme cold, they were also injured, though I know the trees will stand more frost than the peach, without killing back. I have lately received a communication from Dr. A. B. Dennis, of Cedar Rapids, Iowa (a gentleman who is testing a large number of varieties of plums there), upon this subject, and as I think it will be of interest to the readers of the HORTICULTURIST, I will give you some extracts from it. He says, "Among the best commercial plums here of the Japs are Burbank, Normand, Boton, Ogon, Chabot, etc. I have not found any of these plums extremely tender except the Kelsey, which killed down to the ground. The thermometer has been down to 28 below zero, and yet trees were ladened. I am aware Prof. Budd has persisted in stating the Japan plums will not do in any part of Iowa, but my experience has demonstrated that some of them are valuable in our severe climate. We are considerably out of the peach belt, and but very few ever fruit here except a few hardy seedlings. Some of my Jap trees are eight years old, yet all are as healthy as my natives. Prof. Budd assured me ten years ago that Japan plums were tender as weeds, so I commenced with one or two trees, and when it went 20 below zero, and these little trees were ladened with fruit it surprised me. One winter it went 30 below, and killed many of Prof. Budd's Russian sorts, and not even a tree of the Japs were killed nor were the fruit buds injured. Of course I can not say what they will do with you, but the facts I state and the 25 bushels of plums of Japan type raised the past season, speak better than I can write."

From this letter I am encouraged to believe that these valuable plums may be grown over a large portion of Ontario. We are having them tested at some of our Experimental Stations, and I trust others who have tested them will give us their experience through the HORTICULTURIST, so we may know their true value and where they will succeed, in the near future. In the meantime planters living within the peach belt need not hesitate to plant largely of them.

A. M. SMITH.

St. Catharines.

GOOSEBERRIES.

THIS is a good fruit to grow for sale, as they can either be disposed of ripe or green—in which state they often give the best returns—or they may, in the case of the red varieties, be left until ripe. In Kent, England where large quantities are grown, they are generally gathered by women and girls, who earn good wages at the rate of 4d. per half sieve for green ones, and 2½d. to 3d. for ripe fruit.

Planting.—The best time for this as for all fruits, is when the leaves begin to change color; but any time between October and May will do if there is no severe frost or snow at the time. Gooseberries may be raised from cut tings in a similar way to black currants, except that gooseberries are best grown with a stem, from 6 inches to 1 foot high, to allow of digging, etc., underneath, and to keep the fruit from the ground, also to prevent so many strong shoots growing in the centre of the tree. The cuttings should, therefore, be not less than 9 inches in length, as 3 inches should be put into the ground and trod den in firmly. All the buds should be cut off gooseberry cuttings except three or four at the top, to prevent suckers springing up from the root. The distances for planting should be the same as for black currants. The gooseberry will thrive in a stony soil better than currants. The cost of planting per acre will be about the same as for currants.

Pruning.—For young bushes this consists in selecting six or eight main branches springing out evenly not far from the top of the stem. Thus, if the cutting throws out three or four shoots the first year they may be cut back to within 4 inches at pruning time, when each one will throw two or three good shoots the next season, and enough may then be selected to form the future tree, keeping the centre open and cutting always to buds that point in the right direction for the branch to grow. Some varieties, and especially Warrington, persist in bending over towards the ground, and require pruning back well to get the main branches as upright as possible. All strong roots in the centre of the tree should be cut clean out and the small side branches cut off within an inch of their base, leaving one almost full length occasionally in the thinnest parts of the tree, and always leaving a good leader at the point of the main branches until they get 4 feet in height. Summer pruning is also of great benefit to the gooseberry. This consists in cutting out all young shoots in the centre of the tree and elsewhere which would otherwise be cut out at the winter pruning. By cutting them out in summer as soon as the fruit is gathered the remaining buds on the main branches get a better chance to ripen and store up nourishment for the next year's crop. The work is also much better done in mild weather than in the winter. In the Kent plantations gooseberries are pruned by the "tree cutters" in "piecework," during the short days of winter at about 1s. 6d. per 100 trees, according to size

Cultivation and Manuring.—Like all other bush fruits, gooseberries pay well for an application of manure about once in two or three years. Night soil is often given to them in Kent, and materially assists in bringing very heavy crops of fruit to perfection. The soil is removed from under the bushes early in the spring, forming a basin-shaped cavity into which half a pailful of night soil is poured, and the next day the earth is put back again which had been removed.

Large quantities of London manure is also brought down the river in barges, and after partial decay is applied during the winter months before the plantation is dug over, but there is no manure so good as that from a cowyard when it can be got. The plantations should be kept perfectly clean by hoeing and hand-weeding if required, and the ground should always be dug roughly in the winter after the bushes are pruned.

Varieties.—Whitesmith for gathering green, Crown Bob either green or red, Warrington for late red fruit. A new variety called Early Kent has lately been very highly spoken of for its earliness, which is a great consideration in gooseberries for market.

Gathering and Marketing.—Gooseberries, if *early*, pay well for gathering and sending to market green, and for this purpose Whitesmith is the best among the older varieties for early work. But Early Kent is said to be much earlier. The early sorts should be planted in the warmest part of the ground, in order to get the full advantage of the early prices, and all of the "White" Gooseberries should be gathered in a green state for market, as they do not sell well when ripe. Some of the Crown Bobs may also be gathered green, or all of them if prices are good. Warrington generally pays best when ripe. I say *ripe*, but ripe gooseberries for market must only just be red If allowed to get quite soft they are apt to split in damp or showery weather, and there is thus a risk of great loss, which is avoided by gathering earlier. Also they will not stand handling at the market if over-ripe; neither will they travel so well; but if required for sale near home, the wishes of the buyer must be considered. Green gooseberries should realize from 2s. to 3s. per stone at the market, ripe fruit 1s. 6d. to 2s. 6d. An acre planted 5 feet apart each way should yield the first year about 40 stones of green fruit, or 60 stones when ripe, worth £4 to £5 clear of expenses, and this will increase yearly as the trees grow (if the crop is not spoiled by frost), until at six or seven years after planting they should have reached a full size, and give a crop of 5 tons per acre, worth £50 at a low estimate clear of expenses. It is possible to have double this amount occasionally by high cultivation and getting the best prices in the market. As gooseberries may be grown among standard apples and other fruits, they will add considerably to the returns, although it is not possible to grow such large crops of under fruit in mixed plantations. They should be packed for market in half sieves containing 2 stones, or 28 lbs. nett, and finished off as advised for black currants.

Enemies.—Birds are very troublesome to the gooseberry grower, both when the fruit gets ripe (at which time they must be scared off by shooting), and also by eating the buds off when the trees are in a dormant state. It is at this stage when most mischief is done, as every bud eaten then means the loss of two or three gooseberries. Strings of white cotton crossed in various ways over the trees by twisting them round four of the most prominent branches is one of the best methods of frightening them away. When damage from this cause is expected the trees should be pruned, and cotton put on them before January, as pruning is not easily done after the cotton is on. Bullfinches and sparrows are the most destructive among the buds. All of the former should be destroyed, as they do no good to the fruit grower to counterbalance the mischief. Sparrows do some amount of good in summer by devouring caterpillars, and must not all be destroyed, or the remedy may

be worse than the disease. The gooseberry caterpillar often does a vast amount of damage if not destroyed as soon as it appears. Handpicking is the best and safest remedy for these. Dusting the bushes with white hellebore powder is often recommended, and is very effectual.—Journal of Horticulture (England).

NOTES ON APPLES.

THE Red Bietigheimer Apple, which was so favorably noticed in Garden and Forest for September 25th, page 390, has fruited here several years. While it has valuable qualities for culinary and market purposes, its flesh is rather coarse, and it would not be called a good dessert fruit except by those who like a brisk subacid flavor. On account of its symmetrical form, large size and handsome color no apple in the station collection attracts more attention than this at fairs and exhibitions. Under good cultivation it is a free grower and a regular and abundant bearer. The fruit is very large, and quite apt to drop before it is well colored. This fault is more serious with the Red Bietigheimer than with Wealthy, Alexander or Gravenstein, and probably will prevent its being planted extensively in commercial orchards.

Among the comparatively new or little known varieties of considerable merit is the Sharp. The fruit resembles Maiden Blush somewhat in shape and color, and it is better for dessert use than that variety. Its flesh is nearly white, fine-grained, tender, moderately juicy, nearly sweet, of mild pleasant flavor and very good quality; season, October. The tree has fruited here but three years, but it appears to be a good bearer.

One of the handsomest late August and early September apples in the station collection in the Stump, which is excellent for market or home use. It begins to ripen soon after Chenango Strawberry, which it resembles in shape. The tree is upright and productive. The fruit, borne on short spurs close to the limbs, is pale yellow, beautifully striped and shaded with red. Flesh firm, crisp, tender, subacid, mild in flavor.

Switzer is a very handsome German apple that begins to ripen about the first of August. The fruit, which is of medium size, is nearly white, with a beautiful blush. It is very good in flavor and good in quality either for dessert or for culinary use. The tree is productive.

Williams' Favorite, is a dessert fruit that should be more widely known. Its symmetrical form and deep red color make it an attractive apple in market. It is also desirable for home use, as it is good in flavor and quality. The tree makes moderate growth and is a good bearer.

Among the October apples desirable for culinary use may be mentioned Cox's Pomona. It is an old variety of English origin. The fruit is large, highly colored with crimson on a clear, very pale yellow ground, making it an attractive market fruit. The flesh is white, crisp, subacid. It cooks evenly and ranks good in quality.—S. A. BEACH, in Garden and Forest.

TOMATOES FOR ENGLAND.

THERE have already been several attempts to place our Canadian tomatoes on the English market successfully. There is little doubt that the fruit would bring remunerative prices if it could be placed on the British market in proper condition, because the English tomatoes have to be grown under glass, and are sold at high prices. If we could get 3 or 4 cents a pound net for our tomatoes in the month of September, we would find tomato growing very profitable, but very often we cannot realize one cent a pound for them in our own markets.

Shipping them to Great Britain under ordinary conditions is not a safe undertaking. A report is before us of 764 cases of tomatoes shipped by Mr. E. P. Ainsworth on September 4th, 1896, which turned out disastrously. They arrived in such a bad state that they could only be sold for a mere trifle, and left a bill of expense to be paid the steamship.

It is recommended that tomatoes for such distant markets be packed in little cells, as eggs are packed, or in sawdust, to prevent their being crushed one on another.

But the great hope for a successful export trade in tomatoes is in the cold storage scheme, now being worked out for us by the Dominion Department of Agriculture. Messrs. Elder, Dempster & Co., of 23 Scott St., Toronto, on whose line of steamships cold storage accommodation is being provided, are disposed to make an effort to encourage the export of Canadian tomatoes.

Mr. John Craig, whose bulletin appeared in our last issue, writes that he believes tomatoes may be exported with profit after September 1st, when there is little demand for them in the home market. Whether or not it will pay to export them during August, when the demand in Canada is fairly brisk and the prices remunerative, is a question that can be decided only by actual trial.

The small case proposed for use in the export of tomatoes, in our last number, would hold about four dozen medium-sized tomatoes. Each tomato should be wrapped in tissue-paper, or in a light cheap grade of printers' paper. They should be carefully packed stem-end down, in such a manner as to have them firmly in place when the case is filled. Each case should bear the shipper's name, with the quantity, or the number of tomatoes which it contains.

Intending shippers who may desire further information may apply to Prof. Robertson, Agricultural and Dairy Commissioner, Ottawa; Messrs Elder, Dempster & Co., Montreal; or to R. Dawson Harling, steamship freight agent, 23 Scott St., Toronto

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THINNING FRUIT BY SEVERE PRUNING.

A NOTED pear grower in Toledo, O., who takes many premiums at the State Fair, gives very high culture and then prunes severely in March. In this way he gets a strong, vigorous growth, and the vigor being thrown into the portion of fruit buds left after pruning gives very fine fruit, which commands a ready market, even when ordinary fruit is rotting in the dealer's store. I asked him once if such high pressure system would not shorten

the life of his trees. "O, yes, I suppose so, but for a pear tree a short life and a merry one is the most profitable. What use is a tree of any kind if it does not give regular crops of saleable fruit? If by this method, I can get a crop that will more than pay for high-priced land every year, what matters it if my trees do die twenty or thirty years sooner than those of some man who is coddling a lot of barren trees? What I want is more results while I live."

At the recent Western New York Horticultural Meeting, President Barry showed some very fine winter pears. He has done the same thing for many years, and this year I asked him to tell the Society how he managed to grow Winter Nelis to about four times the size that it commonly reaches under ordinary management.

His answer (somewhat abbreviated) was that trees growing in rich ground were severely pruned in late winter, and the fruit thinned somewhat, if necessary, when partly grown. The latter, however, under his man's severe pruning, was rarely necessary. His man pruned more severely than he himself would if he had it to do, but the results certainly were all that could be wished for. The same results may be reached by thinning the canes of red raspberries and blackberries.—*Green's F. G*

GOOSEBERRY MILDEW.

IT has been a theory of mine for some years that all one requires to produce a perfect gooseberry is to give them plenty of sunlight, a free circulation of air, and keep the soil about them well mulched with hardwood ashes. Whether this theory is sound and to be depended on in all seasons I would not like to give a voucher. But I will say with positiveness that gooseberry mildew cannot be prevented by the use of Bordeaux mixture.

Three years ago I gave up the use of ashes. Two years ago I saw indications of mildew on the leaves of my bushes, the fruit all having been killed by the spring frosts. I at once sprayed with Bordeaux mixture, it being then in the month of August. Last year I prepared early and while the buds were opening I gave the first spraying. Another application was given when the blossom was fading, and a third about ten days later, when the fruit was forming. The last application was a very thorough one, as I saw indications of mildew on the tender shoots. In less than three weeks the ground was covered with fruit, and there was scarcely a clean berry to be found on the bushes. One side of the fruit would be coated with the mixture and the other with mildew, and the many cases the mildew had developed under the coating of the mixture.

My neighbor, Dr. Hurlburt, had an experience with Bordeaux mixture precisely similar to mine; but on his bushes, which he had treated early in the spring with an application of ammoniacal copper corbonate solution he had a clean handsome crop.

I still believe had I continued my system of cultivation with the annual application of ashes, I would have had no mildew; but the disease once in it requires a more radical remedy than air, sunlight and ashes, though all are good. What that remedy is I would like to know That it is not to be found in Bordeaux mixture I am now satisfied.

T. H. RACE.

Mitchell.

WHEN TO PRUNE STREET TREES.

PASSING along one of the streets of our city to-day, I noticed a man trimming some very fine shade trees of about twelve years' growth, consisting of maples and elms.

From every cut on the maples the sap was dropping almost a stream, in some cases it was oozing out and spreading over the bark of the tree; the elms, of course, were not bleeding so freely.

I ventured to remark that I did not think it the proper time to trim shade trees, giving as my reason that at this season of the year there was a great loss of sap, especially in maples, and that I did not think that a cut made now would heal over as quickly as if cut in June, after the sap had gone up and the foliage was out. The trimmer stated that so far as he was personally concerned, he did not know much about that, but said he had been told that March was a good time in which to trim such trees. And I have noticed that our City Park Commissioner is busily engaged with a staff of men trimming the city shade trees.

Now, Mr. Editor, I write for information in reference to this matter; for my own part I do not consider that shade trees, or any other trees, should be trimmed at this season of the year.

I would like very much if you would give your opinion on this subject, as you no doubt have had actual experience in trimming, both shade and fruit trees. I should also like to have the opinion of others, through your valuable Journal, especially on the trimming of shade trees, such as maples, elms, etc., and what is the best time to trim.

Will a large limb, say, from one to three inches in diameter, cut now, heal over as quickly as if cut in June? or do you think a cut made now will heal over at all? Is a tree not injured more by the sap running from a cut made now, than by the loss of vitality in producing the foliage on these limbs, if taken out in June?

I trust my enquiries are not out of place, and that anyone who may have studied this important matter of trimming street trees, may give the result of their experiments, or knowledge, through your paper.

A CONSTANT READER.

Toronto, March, 1897.

HOUSE PLANTS.

Dust, insects, dry air and over-watering are the principal difficulties that they have to contend with. By arranging some light covering to put over them while the room is being swept, and an occasional syringing in the bath-tub, kitchen sink or elsewhere supplemented by a sponging the leaves of all *smooth leaved* plants, this great enemy to plant health, may be kept under.

Insects may be mainly kept off by hand picking and a brush; if needed apply tobacco water, or arrange a box or barrel in which they may be thoroughly fumigated with tobacco smoke.

Over watering kills many plants; pots in the house, especially the handsome glazed ones, should be provided with abundant drainage—broken pots, cinders, oyster shells, anything to make open layer at the bottom; then a layer of moss to keep the earth from washing down, and then a soil made so open by sand that it will allow the water to pass through. With these precautions there is no danger, but where the surface of the soil is muddy an hour after watering, there is something wrong and plants will not thrive. A. H. CAMERON.

Tiverton, Ont.

SPRAYING FRUIT FOR SCAB AND ROT.

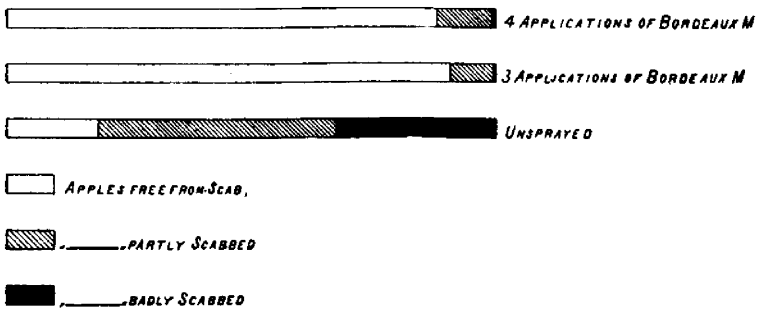


DIAGRAM V. Showing the Percentage of apples of different grades. From sprayed and unsprayed trees.

FIG. 1119.—

THE Report of the Supt. of Spraying for Ontario will soon be issued, in connection with our Fruit Growers' Report, and, notwithstanding the comparative immunity of apple scab generally last season, it will still show plain and positive proof of the benefits of spraying. The real question for our experiment stations to consider is not how many applications may be given with benefit, but how many will give sufficiently better results to warrant the expense. Six applications are too many for the ordinary farmer, if half that number will give approximately as good results. Experiments in Delaware Experiment station gave results as shown in accompanying table in which the unsprayed gave very few perfectly free, and those sprayed with Bordeaux mixture very few scabbed ones. It is noticeable that there is very little difference between the results from three and four applications. It appears that the early spraying is what counts, and that which is done after the fruit is the size of peas does not always give sufficiently better results to warrant the expense. In one instance three applications of the Bordeaux were found to give an increase of first grade fruit of five fold over the quantity from trees not sprayed. These three applications should be made as follows :—(1) Before blooming, (2) after bloom drops, and (3) when fruit is size of peas.

We are speaking only of the scab and rot in the remarks above made.

RICHARDA OR CALLA LILY.

The bulbs are planted in the fall in a 7-inch pot, the soil used being a mixture of sand, loam and well-rotted manure, in which place the bulb, and after watering freely, place the pot under a table or bench in the conservatory, not necessarily excluding the light entirely. They will appear not to make any progress for at least five or six weeks, just as in the treatment of hyacinths, tulips and other winter-flowering bulbs. After having remained under the bench for the required time, they may be brought to the light and freely watered until they have finished flowering. Previous to blooming a liberal amount of liquid fertilizer may be applied, which will greatly improve the flower, as well as brighten the white spots on the leaves.

After flowering allow the plant to grow for at least six or eight weeks longer, when the bulb may be taken out of the pot and exposed to the sun until thoroughly dried, when they will be in proper form for replanting in the fall.

SPRAYING CALENDAR, 1897.

ISSUED BY CENTRAL EXPERIMENTAL FARM, OTTAWA.

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.	5TH APPLICATION.	6TH APPLICATION.
APPLE. Apple spot fungus, codling moth, bud moth, oyster shell bark-louse.	*Copper Sulphate and Paris Green.* Before buds start. (*Important*).	*Bordeaux and Paris Green.* Just before blossoms open. (*Important*).	*Bordeaux and Paris Green.* Soon after blossoms fall. (*Important*.	*Bordeaux and Paris Green.* 10-15 days later.	*Bordeaux.* 10-15 days later if spot disease is severe when hatched.	
	Kerosene Emulsion before buds start.			*Kerosene Emulsion* for bark lice.		
CHERRY. Rot, leaf diseases and injurious insects. Cut out and burn Black Knot	*Bordeaux.* Before flower buds open. *Kerosene Emulsion.* For aphis.	*Bordeaux and Paris Green.* When fruit has set. (*Important*).	*Bordeaux and Paris Green.* 10-15 days later. (*Important*).	*Ammoniacal Copper Carbonate.* 10-15 days later. (*Important*).	If a late brood of the "slug" appears spray with *Paris Green* or dust with fresh slacked lime. (*Important*).	
CURRANT. Fungous diseases, "currant worm."	*Paris Green.* When worms appear.	*Hellebore.* When fruit is fully formed.	*Bordeaux.* After fruit is picked.	*Bordeaux.* 10-15 days later.		
GOOSEBERRY. Mildew, "currant worm."	*Bordeaux and Paris Green.* As soon as leaves expand.	*Bordeaux—Hellebore.* (applied separately). 10-15 days later. (*Important*).	*Ammoniacal Copper Carbonate.* 10-15 days later.			
GRAPE. Mildew, rot, anthracnose, "thrip" (or leaf-hopper).	*Copper Sulphate.* Before buds start.	*Bordeaux* When first leaves are half grown.	*Bordeaux.* When fruit has set. *Kerosene Emulsion.* For leaf-hopper.	*Bordeaux.* 10-15 days later.	*Bordeaux.* 10-15 days later. If disease persists.	*Ammoniacal Copper Carbonate.* If disease persists.
PEACH, APRICOT, NECTARINE. Rot, leaf-curl, curculio, bud moth.	*Copper Sulphate and Paris Green.* Before buds start.	*Bordeaux.* 3 lbs. copper sulphate. 3 lbs. lime. 50 gals. water. *Paris Green* (3 oz.) Just before blossoms.	*Bordeaux and Paris Green* (3 oz.) Soon after fruit has set.	*Bordeaux and Paris Green* (3 oz.) 8-12 days later.	*Bordeaux.* 8-12 days later. If rot is prevalent.	*Ammoniacal Copper Carbonate.* 10-15 days later if rot is prevalent.
PEAR. Spot, cracking, leaf blight, codling moth, "slug."	*Copper Sulphate.* Before buds start. (*Important*).	*Bordeaux.* Just before blossoms open. (*Important*).	*Bordeaux and Paris Green.* Soon after blossoms fall. (*Important*).	*Bordeaux and Paris Green.* 10-12 days later.	*Bordeaux.* 10-15 days later.	*Paris Green.* If late brood of "slug" appears.
PLUM. Rot, shot-hole fungus, bud moth, curculio. Cut out and burn Black Knot.	*Copper Sulphate and Paris Green.* Before buds open.	*Bordeaux and Paris Green.* Soon after blossoms have fallen. (*Important*).	*Bordeaux and Paris Green.* 10-12 days later. *Kerosene Emulsion.* For Aphis.	*Bordeaux and Paris Green.* 10-15 days later. *Kerosene Emulsion.* For aphis.	*Ammoniacal Copper Carbonate.* 10-15 days later if rot is prevalent.	*Ammoniacal Copper Carbonate.* 10-20 days later if rot is prevalent.
QUINCE. Red rust of fruit and leaf.	*Bordeaux.* Just before blossoms open.	*Bordeaux.* When fruit has set.	*Bordeaux.* 10-15 days later.	*Bordeaux.* 10-15 days later.		

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.
ROSE. Blackspot, mildew, "rose thrip," rose slug."	*Mildew in Greenhouse.* Paint heating pipes with *paste made of equal parts* of sulphur, lime and water.	*Black Spot.* *Ammonical Copper. Carbonate.*	*"Rose Thrip."* *Kerosene Emulsion.* When "thrip" appears.	*"Rose Slug."* *Paris Green*—1 oz. in 12 gals. water, or *Hellebore*—1 oz. in 2 gals. (This may also be applied as a dry powder.
RASPBERRY, BLACKBERRY, DEWBERRY. Anthracnose, rust.	*Copper Sulphate.* Before buds burst.	*Bordeaux.* 10-15 days later.	*Bordeaux.* Soon after old canes are cut out	
STRAWBERRY. Rust.	*Bordeaux.* After first blossoms have fallen.	*Bordeaux.* Soon after picking season or burn foliage.	*Bordeaux.* 10-15 days later.	
BEAN. Anthracnose.	*Copper Sulphate.* ½ oz. to 1 gal. water. Soak 1 hour.	*Bordeaux.* When rough leaves appear.	*Bordeaux.* 8-12 days later.	
CABBAGE. Caterpillars.	*Paris Green and Flour.* For flea beetle while plants are in hot-beds.	*Pyrethrum and Flour.* (1 to 4) dry. For cabbage worms.		
POTATO. Scab, rot, insects.	*Corrosive Sublimate.* For scab. 2 oz. to 16 gal. water. Soak 1½ hours. (*See Formula*)	*Paris Green.* For Colorado potato beetle. *Bordeaux* for flea beetle.	*Bordeaux.* For rot. From 1st August till end of season. 2 weeks apart.	
TOMATO. Rot, blight.	*Bordeaux.* First appearance of rot.	*Bordeaux.* When necessary.	*Bordeaux.* When necessary.	

Below are given formulas for the more important fungicides and insecticides. Should further information be needed concerning attacks upon crops by fungous diseases or insects, inquiries may be sent to the above address and will receive prompt attention.

FUNGICIDES.

DILUTED BORDEAUX MIXTURE.

Copper Sulphate	4 lbs.
Quick Lime	4 lbs.
Paris Green (for leaf-eating insects)	4 oz.
Water (1 barrel)	40-50 gals.

Dissolve the copper sulphate (bluestone) by suspending it in a wooden or earthen vessel containing 4 or 5 or more gallons of water. Slake the lime in another vessel. If the lime, when slaked, is lumpy or granular, it should be strained through coarse sacking or a fine sieve. Pour the copper sulphate solution in a barrel, or it may be dissolved in this in the first place, half fill the barrel with water, add the slaked lime, fill the barrel with water and stir thoroughly. It is then ready for use.

Stock solutions of dissolved copper sulphate and of lime may be prepared and kept in separate covered barrels throughout the spraying season. The quantities of blusestone, lime and water should be carefully noted.

COPPER SULPHATE SOLUTION.

Copper Sulphate (bluestone)	1 lb.
Water	25 gals.

As soon as dissolved it is ready for use. *For use before the buds open only.*

AMMONIACAL COPPER CARBONATE.

Copper Carbonate	5 oz.
Ammonia	2 qts.
Water (1 barrel)	40-50 gals.

Dissolve the copper carbonate in the ammonia. The ammonia and concentrated solution should be kept in glass or stone jars, tightly corked. It is ready for use as soon as diluted with the 50 gals. of water. To be used when Bordeaux cannot be applied on account of staining the fruit. Full particulars given in Experimental Farm Bulletin No. 23.

CORROSIVE SUBLIMATE.

For potato scab soak the tubers for 1½ hours in a solution of 2 oz. in 16 gals. of water. When dry cut up for planting.

Corrosive Sublimate is a fatal poison if take internally. It also corrodes metals. The solution should therefore be made in wooden vessels. All treated seeds should be planted, and any solution left over should be poured into a hole in the ground.

INSECTICIDES.

KEROSENE EMULSION.

Kerosene (coal oil)	2 galls.
Rain Water	1 gall.
Soap	½ lb.

Dissolve soap in water by boiling; take from fire, and, while hot, turn in kerosene and churn briskly for 5 minutes. To be diluted before use with 8 parts of water.

For bark lice and other sucking insects.

PARIS GREEN.

Paris Green	1 lb.
Lime (fresh)	1 lb.
Water	200 galls.

For dry application.—1 lb. Paris Green with 50 lbs. land plaster, slaked lime or any other perfectly dry powder.

For insects which eat foliage.

HELLEBORE.

White Hellebore	1 oz.
Water	2 galls.

Or to be dusted undiluted over attacked plants.

PYRETHRUM (or Insect Powder).

Pyrethrum Powder	1 oz.
Water	3 galls.

For dry application.—Mix thoroughly 1 part by weight of Insect Powder with 4 of cheap flour, and keep in a close vessel for 24 hours before dusting over plants attacked.

Flower Garden and Lawn.

CYCLAMENS.

SIR,—Will you kindly give treatment of Cyclamen. I see by a late number of this paper that the bulb should never be allowed to dry off, and looking up instructions in catalogue, I am told to dry them off. I have followed the latter plan, and have never succeeded well.

A SUBSCRIBER, *Seaforth*.

It was formerly thought a good plan to dry off the young Cyclamen bulb in summer; but the best cultivators have now abandoned the custom and better success is obtained. After blooming, they may be grown a second year by drying moderately and resting and repotting. The second year the flowers are earlier and smaller, after which it is not advisable to save the plants, as young seedling plants will give so much better results. A writer in *Vick's Magazine* writes:

I last year resolved to try Persian cyclamens in the same way we treat callas, eupatoriums, and a host of other things, viz.: planted out in the open ground in May. We selected a border close to a wall, and having dug it deeply and given it a good dressing of manure, the cyclamens were planted out about one foot apart each way; and, beyond keeping them free from weeds, they received no attention whatever until September. Then they had produced fine heads of young foliage, and many were showing flowers. They were therefore carefully lifted with good balls of earth, and the way in which the roots clung to the manure, and their healthy, vigorous look proved that they liked a good rich diet and plenty of it. They certainly were altogether more satisfactory than if they had been kept in pots.

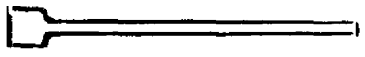
PROPAGATION OF ORNAMENTAL SHRUBS.

IT is much to be regretted that the propagation of many of our ornamental shrubs is so little understood by amateur gardeners. There is nothing more pleasing to the eye than this class of plants, and as they can be had in a succession of bloom throughout the whole season from early spring until late autumn they should be as eagerly cultivated, especially by the rural population, as either flowering or foliage plants which decorate the gardens of the small city lots. Where grounds are of a sufficient size to show their beauty there is nothing to compare with these queens of Nature.

A very interesting book might be written on the propagation of shrubs, their season of blooming, height and general appearance, color and form of flowers, general situation of sun or shade, their capabilities of resisting cold, best method of protection during winter months, etc.

The multiplying of many of them is a perfectly simple matter, and when understood is both easy and interesting.

To propagate from cuttings as a rule, wood should be selected from the current year's growth that has been well ripened; make the cuttings eight to ten inches long, dig a trench along a stretched line, keep the rows straight and from two to three feet apart or even more if the plants have to stand many years in the nursery row. Place the back of the spade to the line, the earth should be thrown out on the side furthest from the operator making a V shaped trench, so that when the cuttings are laid in on the side next the line they will not fall over, place the cuttings in the trench from four to six inches apart, partially fill in with the soil thrown out, and firm the soil at the base of the cuttings with a piece of wood made for the purpose, say five feet long, two by six inches



square at the lower end, the rest may be rounded off to make it handy and light, the earth is only to be "firmed" not rammed too tight, but it must be brought snugly against the base of the cuttings which should be placed in the trench so as to leave the top bud or eye exposed above the ground after the trench is filled in level.

The cuttings are best made the end of October, or beginning of November, when the wood has well ripened; some people advocate planting cuttings in the autumn, but I prefer to tie them in bunches by twisting a wire round them (twine sometimes rots) and burying in a dry place where the water will not remain on the surface of the ground, doing the planting in the spring as described. The object of making the cuttings in the fall is so that the callus may form at the base; this effort of Nature always takes place previous to the young rootlets being formed, and this callus process goes on during the winter months so that growth begins earlier in the spring, than it would otherwise do if the cuttings were made in spring, giving the plant a longer season and consequently greater growth during summer.

Many shrubs may be grown by taking cuttings in May or June, after the leaves are expanded and some new wood is made, but they must be kept watered and shaded for a short period until they get time to root; a little mulch on the ground will also help to keep the soil moist. The lower leaves of these green cuttings must be removed, but the upper ones are left above the ground. If the

cuttings have to be kept for a long time, oiled paper should be used for an outside wrap to keep the parcel damp.

Appended is a few of the shrubs that may be grown from cuttings: any plant can be propagated by layering:—Althea, Cytisus, Carolina Allspice, Deutzia, Honeysuckle, Hydrangea paniculata, Japan Rose, Siberian Pea tree, Smoke tree, Spiræa (a large class of plants), Weigelia, etc., will all succeed without much difficulty.

P. E. BUCKE,

London, Ont.

HOW TO GROW ASTERS AND PHLOX.

MANY owners of small gardens are deterred from growing as freely as they would like, such very desirable flowers as Asters and Phlox Drummondi, from the mistaken idea that to be successful with them they must buy plants ready to set out or grow them in a hot-bed. If plants are bought the expense is quite a serious item if many are wanted, while the care of a hot-bed I have found in my experience to be one of the most troublesome things connected with a garden, only those who can give their whole attention to it can hope to succeed. The weather is so fickle in the spring that only constant watchfulness will prevent disaster; the neglect of an hour may result from a sudden change of temperature in the freezing or burning up of your plants. I find it quite satisfactory with all such plants to sow the seed in the open air as early in the spring as the ground can be got into a seedable condition, in a warm sheltered spot, and transplanted when large enough. The best sort for a seed-bed is a good heavy loam, stiff enough not to fall away from the roots when you are transplanting, as a sandy soil is apt to do. Rake the bed with a sharp steel rake till the soil is as fine as you can make it. Mark furrows 15 inches apart and ¼ in. deep, drop the seed 2 to 3 in. apart, cover and firm the earth well over the row. A common hoe is a very convenient tool for that purpose, a good pat with the back of it brings the earth into close contact with the seed, which is a very important element of success in the planting of all small seeds. As soon as your plants are—for asters 3 to 4 in., and for phlox 5 to 6 in. high, they are ready for transplanting, which is best done on a cloudy day after rain. Remove with a garden trowel two out of every three plants in the row to wherever wanted; those that are left are at a suitable distance apart for flowering, and make a good reserve for cut flowers, when you can cut freely without robbing your border, and also serve if you grow named varieties to keep the names of each sort without labeling the plants in the border.

Last season plants of Phlox Drummondi grown in this way from seed sown May 4th, came into flower on July 12th, and remained in bloom till November. Asters sown April 21st, came into flower August 2nd, were at their best from August 15th to September 5th, and were all over when frost came. To have the best flowers, which are always the first to open, in bloom at exhibition time, it would be well to make a second sowing two or three weeks later.

There may be some kinds of asters that require a longer season to reach maturity than is available planting in this way, but I have found it a perfect success with the following varieties:—Comet, Victoria, Dwarf, Chrysanthemem, Queen of the Market, Goliath, Emperor, Rose, Globe, Truffants, Peony, Perfection, Quilled German, Prince of Wales, Japanese Giant, etc.

Ottawa. R. B. WHYTE.

VIOLETS.

THESE "wee modest blue flowers" are never out of fashion, all the world loves them for their sweet refreshing fragrance. Favored indeed are they who live in climates where the violet will live without protection and flourish out of doors. Among all violets, whether wild or cultivated, our choice for outdoor culture at least, is the Double Russian.

With us it is decidedly the hardiest double violet. The foliage is distinct, the flowers are unusually double, very large, and a lovely deep unshaded purple in color. For fragrance it is almost unequalled, and it is the only double variety that will survive the winter here in good condition without protection.

It is to be regretted that so fine a variety positively cannot be forced for winter flowers. With the aid of a cold frame they may be had in flower very early in the spring. This simple covering of glass starts them growing long before those in the open ground, bringing them into flower here easily by the 10th of April, and when grown in this manner, nice long flower stems are always secured. The double English violet of some catalogues turns out to be synonymous with this.

The single varieties are mostly quite hardy. There are dozens of varieties. European catalogues generally show long lists of them, but comparatively few of them find favor in American commerce. The variety California is at present immensely popular, it bears flowers of surprising size, and has the additional recommendation of very long flower stems, and robust growth. It forces admirably; the flowers have found a ready market during the past two winters, and the subtle violet disease, the nightmare of those who grow the violet for winter flowers, seems as yet to have spared the California.

Luxonne, a new French introduction, is now heralded as having a larger, more open bloom than the above variety, and likely to eclipse it.

The double flowering sorts have a charm all their own, and excepting the Russian all are capricious here under outdoor culture, and many and ingenious are the devices we hear of to winter them safely. Water seems almost more fatal to them during their dormant season than frost.

We have seen plants growing in a real favorable situation, utterly destroyed by a quick thaw followed by frost surrounding the crowns by ice; plants beside them, enclosed by rough boards and covered with hot-bed sash, to keep off rain and snow, come through grandly. Again, if the sash were leaky, they have killed quite as badly, as those unprotected. Anything that holds much water like coal ashes or rotted manure, must be avoided, newly fallen tree leaves or evergreen branches are most satisfactory. To cover a bed in late fall with a simple frame of one inch boards and a well glazed sash, is really very little trouble, and one may then always depend upon a profusion of flowers in the spring. Swanley white, a sport from Marie Louise, is really unique, it bears large, very fragrant pure white flowers. Marie Louise, the best known of all, very popular for winter flowers, has blue flowers with base of petals white. Neapolitan light blue a very pleasing color.

Lady Hume Campbell, is in color identical with M. Louise in color, excepting that it is a shade deeper, its constitution is stronger, and in many places

it has supplanted that variety for forcing. Farquhar is a new candidate that proves scarcely as dark in color as the introducer claimed, however, it is a good grower, distinct in color and foliage; well worth further trial.

WEBSTER BROS.

Hamilton, Ont.

KATSURA TREE—CERCIDOPHYLLUM JAPONICUM.

RICH as we are in native species of trees and shrubs, each having its own peculiar charm, there is always great interest and delight in growing those from foreign countries, especially when proved to be of exceptional merit.

The katsura tree, although introduced into the United States more than twenty years ago, has not yet found its way to many Canadian homes; but anyone who sees this graceful tree cannot but have the desire of possessing a specimen. This tree has been tested at the Central Experimental Farm, Ottawa, for seven years, and has proved perfectly hardy. It is of pyramidal form, branching thickly from near the ground; the leaves are heart-shaped and red-veined, somewhat resembling those of the Judas tree *(Cercis canadensis)*, and are very pretty.

The specimens at the Experimental Farm have not bloomed yet, but we learn that the flowers are small and inconspicuous. The katsura tree is closely related to the Magnolia family. In Japan, of which it is a native, it attains a height of from 75 to 100 feet, and is a rapid grower.

W. T. MACOUN.

Central Experimental Farm, Ottawa.

EGGLAYING OF THE CODLIN MOTH.

PROF. Slingerland has been investigating the habits of the Codlin Moth. He finds that the egg is deposited upon the side of the fruit, and not in the calyx. It is a little smaller than a pin-head, flattened and transparent, so that the color of the apple shows through it. Under the microscope the surface is marked with lines, and looks like a fish scale At first they were difficult to make out, but afterwards easy.

After careful investigations he found hundreds of eggs in the orchard, scattered over the fruits. The young worm was hatched out in about ten days, and at first is little larger than a hair. It remains on the surface several hours, then crawls about till it reaches the calyx, where it works its way between the lobes, and enters the cavity.

The practice of spraying as soon as blossoms fall, is effective, because the calyx lobes are then open and the Paris green is readily deposited within the eye, and as the worm does not eat till it enters the eye, its first dose will be its destruction

The closing of the calyx and lobes soon after spraying is an advantage, because it keeps the poison from being washed away by rains; but if the spraying is delayed till after the calyx closes, it will not be so effective.

The second brood does not always enter the calyx, but eats in the side of the fruit, especially if protected by an overhanging leaf.

Our Affiliated Societies.

Advantages of an Affiliated Horticultural Society.

Sir.—Would you kindly furnish me with the following points of information *re* Affiliated Horticultural Societies in their relationship to the Ontario Fruit Growers' Association?

1. Are these societies founded on Provincial Acts, or on a constitution formulated for the purpose?

2. If a society on the old plan now exists in a town, how can it be changed or affiliated with your society?

3. Describe the exact terms of relationship existing between an affiliated society and your society.

4. What part of the collected funds goes to the parent society, and what advantages come to them by virtue of their relationship with the Ontario Association?

5. By what means are the greatest advantages secured to the members of each society, by internal draft or by initiation fees?

6. If the plan of affiliation is successful or helpful to local societies, how is it that this is not more generally known and everywhere adopted?

If a constitution is needed, send an example copy.

This is a matter in which we could be easily much interested, and in this town of some three or four thousand people, we should be delighted with such a society working successfully amongst us. Please give whatever information you have at hand bearing on the matter, and it will be most thankfully received.

B. Gott.

Strathroy, Ont., March 15th, 1897.

(1) Horticultural Societies are organized under the provisions of the Agriculture and Arts Act of 1895, and the Agriculture and Arts Amendment Act of 1896.

(2) By alteration of by-laws as provided by Section 13. (Note.—This must be done by the *members* of the society, not by the Board of directors).

(3) The members of an affiliated society, besides being entitled to every privilege of membership in the Fruit Growers' Association, receives the benefit, once a year, of a free lecture on some horticultural topic.

(4) Eighty cents per annum for each member. The free lecture mentioned in last paragraph, the Monthly Magazine.

(5) By the expenditure of its funds as provided by sub-divisions *(a) (b) (c) (d)* and *(e)* of sub-section (2) of section (9) of the Act. The premiums mentioned in sub-division *(e)* being nominal only. And also, otherwise; see sub-section (3) section (9). The words "by internal draft or by initiation fees" are not understood.

(6) The members and all others interested in the district and township agricultural societies, as also horticultural societies which had existed for perhaps twenty years or more, were fully impressed with the idea that the *sole* object of their organizations was to hold an exhibition once a year. Of late years the fact became apparent that these exhibitions, as conducted, had not advanced the objects contemplated by the Act. Three or four years ago an effort was made to have a few horticultural societies established and conducted more nearly in accordance with the Act. This course was regarded by most persons who were consulted as chimerical, on the principle that it was next to impossible to remove from the public mind such a deep seated impression. The societies organized and worked on this basis now number about thirty, and, judging from late developments, there is good reason for believing that the plan has passed its trial stage, and has become a decided success.

Simcoe.—Mr. D. W. Beadle, of Toronto, lectured to us on the evening of the 9th March. His subject was "The Production of New Varieties of Fruits and Flowers by Cross-Breeding." Af-

ter this, Mr. W. F. Kydd, of "Oakhill Farm," Simcoe, gave us a paper on "Growing and Marketing Strawberries." This was followed by a discussion on several topics, during which time Mr. Beadle answered a number of questions that were submitted to him. All present were pleased at the way Mr. Beadle handled the subject of the evening. A vote of thanks was tendered Messrs. Beadle and Kydd.

H. JOHNSON, *Secretary.*

REPORT OF WESTERN NEW YORK HORTICULTURAL SOCIETY, giving proceedings of the recent meeting in Rochester, last January; sent only to members, but anyone may join by sending $1.00 to John Hall, Rochester.

KINCARDINE.—We were much pleased with Mr. McNeill's lecture here on "House Plants and How to Care for them." We had an attendance of nearly 200, in spite of the rainy night. These 200 were all true lovers of fruits and flowers, and they gave the closest attention from 8 to 10 o'clock. The chair was occupied by Mr. W. M. Dack, editor of Bruce Reporter. We had also a brief musical programme.

JOSEPH BARKER, *Secretary.*

DURHAM.—Mr. McNeill's lecture was given us on the 20th, on "The Horticultural Possibilities of a Town Lot." We had an attendance of 150, presided over by Mr. Campbell, School Inspector for South Grey. We expect larger numbers for future lectures.

BRAMPTON HORTICULTURAL SOCIETY.—The membership is steadily increasing, the number at present being 110, an addition of 20 over the number for 1896. Of course the inducement is attractive, every member getting the HORTICULTURIST for the year and its gift of one plant, tree or bulb, besides our spring distribution, which this year consists of 1 oz. sweet peas, 1 clematis, 1 hydrangea (hardy) and 4 tuberoses. In the fall, each one will receive in the neighborhood of 80 bulbs, besides getting the Annual Report of the Fruit Growers' Association.

Mr. McNeill, of Windsor, is to give us a lecture on the 22nd of March, on "How to Grow and Care for House Plants," with answers to questions that may be put to him. We have issued posters requesting all the members to be present and inviting the general public, and as the Brampton orchestra will enliven the meeting with a musical programme and the members intend, as far as possible, to have plants in flower on the tables, we expect the meeting to be a pleasant and successful one.

HENRY ROBERTS, *Secretary.*

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

ADVERTISING RATES quoted on application. Circulation, 4,000 copies per month.

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

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

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

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

Notes and Comments.

THE PROPOSED BILL regarding the San José scale to be brought before the American Congress is still more restrictive than the one advocated for Canada by this Journal. Not only are all trees, scions, plants and buds from foreign countries to be subjected to rigid quarantine, but they cannot even be moved from one state to another without a certificate from the Secretary of Agriculture, and if found infected, dealt with at the expense of the owner. The American nurserymen are indignant with the terms proposed. We think the least that our country could do would be to enact that no trees, plants, buds, scions or fruits be allowed to enter the Dominion, unless accompanied by a certificate from the Secretary of Agriculture for the U. S., or from the State Entomologist, that they are free from the San José scale.

OUR ENERGETIC MEMBER at Simcoe, Mr. H. H. Groff, who writes so frequently for these pages, has received an honor, which is well merited. A prominent and wealthy U. S. scientific hybridist has offered him a partnership in a very important line of scientific experiment. Such men as Mr. Groff are a credit to Ontario, for their enterprise in originating new varieties.

CANADA AS A FRUIT COUNTRY was the subject of an address by Mr. John Craig before the Field Naturalists' Club at Ottawa, on Thursday evening, March 11th. The whole Dominion was touched upon and special emphasis was laid upon the capabilities of the Province of Ontario. He stated that the total area in orchard, garden and vineyard in Ontario is 320,122 acres. There are about seven million bearing apple trees and about

half as many more not bearing. The yield of apples last year was about twenty million barrels.

SELF-STERILE APPLES.—The following varieties of apples are more or less self-sterile, that is, to be comparatively unfruitful when planted in blocks by themselves, without having other varieties near, from which their blossoms may be pollinated, viz.:—Bellefleur, Chenango, Gravenstein, King, Spy, Red Astrachan, Roxbury Russet, Spitzenburg, Talman Sweet.

ROBT. HOGG, LL.D., author of "Fruit Manual" (English) and of "British Pomology," Secretary of the British Pomological Society, and of the Fruit Committee of the Royal Horticultural Society, died on the 14th of March last. Since 1886 Dr. Hogg has been editor of the Journal of Horticulture, which work is now in the hands of his son.

MR. ALEX. MCNEILL'S lecture before the Waterloo Horticultural Society on the 23rd of March, was on "The Horticultural Possibilities of a Town Lot." There were about one hundred present, and the lecture much appreciated.

PAST EXPERIENCES and Future Prospects of Fruit Growing in the Canadian North-West, is the subject of a paper read before the Royal Society of Canada, by Dr. William Saunders.

THE COLD STORAGE WAREHOUSE for experimental shipments, which has been located at Grimsby, was completed and iced by about April 15th. It is just large enough to hold about one carload of fruit at a time. The first shipments will be made early in August, and kept up weekly until the scheme has been well tested. Tomatoes, early apples, and peaches will probably constitute the first cargo.

THE JAPAN CHESTNUTS promise to be profitable in Delaware, possibly they would also succeed in Southern Ontario, and it is quite worth while that our experiment stations should test them and report. One good point about them is their early and abundant bearing, but the quality is not equal to the American chestnut.

There are also several varieties of European chestnuts, *e g.*, Paragon, Ridgeley, etc. Of these, the Paragon is counted the finest. A writer in R. N. Y., speaking from experience, says it is a healthy, robust grower, very prolific, and usually produces from three to seven nuts to the burr.

COLD STORAGE.—The Hon. Minister of Agriculture has made arrangements with the following lines of steamers for cold storage service, viz.:—The Elder, Dempster Co., Montreal to Avonmouth; Allan and Thompson lines, weekly, Montreal to London; Allan and Dominion lines, weekly, Montreal to Liverpool; and, possibly, Allan and Thompson lines, Montreal to Glasgow; also the Furness line, from St. John, N.B., and Halifax, N.S, to either Liverpool or London, fortnightly.

A special service of refrigerator cars will also be furnished on the leading railway lines. The Dominion will have an officer in Montreal to supervise the transference of the perishable products from car to boat, or if necessary to place them in a cold storage warehouse until the ship is ready. Another officer will no doubt be placed in England to give us shippers all needed information.

PROFESSOR CRAIG'S EXPERIMENTS IN SOUTHERN ONTARIO.—On the 20th inst. we had a call from Prof. John Craig, Horticulturist, of the Central Experimental Farm, Ont. He is investigating the grape trouble, known as the "Yellow Leaf," and arranging to carry on plot experiments with fertilizers, as the assumption that soil conditions at the present time are unfavorable; and that this condition may be corrected by the judicious use of chemical fertilizers.

For the prevention of plum and peach rot, and peach curl, Mr. Craig is conducting some experiments with Mr. Hilborn in Essex, and Mr. Burwell in Lincoln Counties, with the object of finding a mixture that will not be injurious to the peach foliage, and at the same time be cheap, effective, and easily applied.

PEACH PLANTING, according to Mr. Craig, is going on vigorously in the County of Essex. At Ruthven, for example, a small station near Kingsville, he saw four car loads of peach trees, all for planting near that point.

SINCE THE SAN JOSE SCALE has been found at Chatham, on trees imported from New Jersey, and the evidence seems to show that it has lived through one Canadian winter, Mr. Craig advises the *utmost caution* in importing trees from our neighbors to the South.

ALBERT REGEL'S HONEYSUCKLE *(LONICERA ALBERTI, REGEL).*

FEW hardy flowering shrubs outrival the honeysuckle in beauty and profusion of blossom, delicacy of fragrance, and general usefulness for ornamental purposes. The well-known bush honeysuckle *(L. tartarica)* is a prominent object in nearly every old garden, while the Scarlet Trumpet *(L. sempervirens)* and English *(L. Periclymenum)* honeysuckles are used very extensively for training over verandas, summer houses or walls.

Of late years many new species of greater or less merit have been introduced from foreign lands, and among them one of the most beautiful and desirable is *Lonicera Alberti.* This charming honeysuckle, which is a native of Turkestan, has been thoroughly tested at the Dominion Experimental Farms, and has proven hardy even in the North-West Territories. It is a small but graceful shrub, with pendulous branches, and is intermediate in habit of growth between the bush and climbing types; the leaves are narrow, dull green above, and glaucous beneath. The flowers which open about the first week of June, are of a bright pink or rose color, almost bell-shaped, and growing in clusters. When in full bloom this shrub is a very pleasing and attractive object. It is well worthy of a place in every Canadian garden.

W. T. MACOUN.

Central Experimental Farm, Ottawa.

Question Drawer.

Crinums.

935. SIR, — Can you tell me, through your valuable Magazine, how to succeed in

CRINUM FIMBRIATULUM.

growing Crinums and how old they need to be before blooming?

T. TOBIN, *Fergus.*

Reply by Prof. H. L. Hutt, O.A.C., Guelph.

All the authorities I have read on the subject speak of it as free-flowering and easy of culture. Our own experience, and that of several to whom I have spoken about it, shows it to be quite the reverse. We have a few fine Crinum bulbs, which have been well cared for for the past two or three years, since we have had them, but they have not yet favored us with a flower.

C. L. Allen, Floral Park, N.Y., has written an excellent book on "Bulbs and Tuberous-rooted Plants," and might satisfactorily answer the question.

Reply by C. L. Allen, Floral Park, N. Y.

SUBSCRIBER.—1st. The Crinum is a provoking subject to manage; while it is of the easiest culture, it is a very difficult one to grow, away from its native habitat. Most of the species are evergreen, and require but little rest; during this period they do not dry up, simply rest, and must have occasional watering—very light—but sufficient to make good the loss by evaporation. This necessitates their being grown in a greenhouse, where they can be grown without any difficulty, only that they require a very large pot, and considerable room, which, in view of their short period of bloom, can be better employed. *C. Amabéle*, the most showy of the class, will require a tub, two feet in diameter, which for an uninteresting plant, excepting when in bloom, is an expensive waste of room.

Many of the species can be grown nicely in the garden, when treated in the same manner as the Gladiolus, but they will annually grow smaller, from the fact that our seasons are not sufficiently long to perfect their growth. Grown in this way they will rarely flower more than twice.

2nd. Offsets, in the greenhouse, will make flowering bulbs in two years.

Cherries for Profit in Lincoln Co.

936. SIR,—Please name most profitable cherries to grow for market in Southern Ontario.

A SUBSCRIBER, *Grimsby.*

We would recommend of the sweet, Early Purple, Governor Wood, Black Tartarian, Mezel, Napoleon and Windsor; and of the sour, Richmond and Montmorency.

White Grubs in Strawberry Beds.

937. SIR,—What must I do in order to destroy the large white strawberry root-eating grub or maggot?

R. BURNS, *Parkhill, Ont.*

Reply by Dr. Jas. Fletcher, Ottawa.

The insect referred to is probably one

of the White Grubs, a name given to the preparatory stages of the different species of the June Beetles These are frequently very destructive in strawberry beds, in the second year of their growth. For this reason many fruit growers have adopted that method of growing strawberries in which the young plants are set out one spring and the crop is taken from them the next season and the plants are then ploughed up, and a fresh bed is started. The first year the plants are so small that the beetles are not attracted to them to lay their eggs, and by plowing up the second year, if eggs have been laid that season the young grubs are destroyed before they have grown large enough to be very destructive. Mr. Craig tells me that this method is now generally practised by growers who cultivate strawberries in a large way for commercial purposes, so that in this happy instance we have both a satisfactory horticultural method, and one which serves as a good remedy for controlling one of the worst insect pests of this important crop.

Small Flies in Window Gardens.

938. SIR,—How can I get rid of those very small flies that come out of the rich earth in the potted plants? Does it show it is too rich?

R. H. LIGHT, *Kingston.*

Reply by Dr. Jas. Fletcher, Entomologist, Experimental Farm, Ottawa.

It is impossible to give the exact name of the fly referred to above without specimens, because there are several species, the *larvæ or maggots* of which occur in the earth of house plants. It is probably a species belonging to the genus *sciara*, and is possibly *sciara inconstans* of Fitch, but it is just as likely to be some other species.

I do not know of any better method of preventing the presence of these maggots than the liberal use of very finely ground tobacco dust. This, of course, is a very safe thing to use, and other remedies would probably be less safe with the comparatively tender house-plants. The use of such substances as kerosene emulsion, or hot water even, and especially of bisulphide of carbon, are all attended with some danger, except when used with caution and some preliminary experience. The efficacy of the tobacco dust is much greater if finely ground.

The question as to whether the soil is too rich must be decided by the behaviour of the plants. If too rich soil is used, the plants are apt to run too much to leaf instead of blossom. The maggots of these flies feed on the decaying vegetable matter in soils, so that their presence would merely indicate that the soil contains this material. The tobacco dust not only destroys insects but has valuable fertilizing qualities.

Borer in Acacia.

939. SIR,—Can you give me a preventive, or a destroyer of the borer that has begun working in the blackthorn acacia? We have beautiful specimens of the honey acacia, forty feet in height and thirty-five years old, and our grounds would be spoiled if these were destroyed.

MRS. W. L. TYSON, *Clarksburg.*

Reply by Jas. Fletcher, Experimental Farm, Ottawa.

I regret to say that there is no practical remedy for the Locust Borer. When the trees are not too large, they can, of course, be washed with one of the alkaline washes, which are so efficacious against the well-known borers in fruit trees; but when the locust or acacia trees have grown to a large size, it is impossible to do anything to preserve them against the attacks of the borer.

Fertilizers for Strawberries.

940. SIR,—In June number of HORTICULTURIST I noticed you recommend nitrate of soda and phosphate of lime as a fertilizer. I have a few acres of strawberries, and wish to apply it. Please tell in next No. what proportion, and how to apply it without injuring foliage ; or would wood ashes do in place of lime ; also, when to apply it.

Reply by H. L. Hutt, B. S. A. of O. A. C., Guelph.

Articles recommending this or that fertilizer for this or that crop, without any reference whatever to the kind of soil upon which it is to be used, are very often misleading. Probably the most unsatisfactory kind of questions we are called upon to answer are those relating to the use of commercial or special fertilizers, because they can be answered only on general principles.

Barnyard manure is a general fertilizer, and we seldom go astray in applying it to any soil for most any crop. Commercial or special fertilizers are intended to supply some special element of fertility, and their value upon a particular soil depends very largely upon the richness or deficiency of the soil in that particular element. The question then is not only what is the best fertilizer for some particular crop, but what is the best fertilizer for my particular soil ? I believe this cannot be more satisfactorily answered than by each one experimenting for himself on a small scale. The information so obtained would be of infinitely more value to such an experimenter than all the theories laid down by writers.

Camellias and Heliotropes.

941. SIR,—I wish to know if Camellias can be successfully propagated from cuttings, and the best time and manner of doing so. Also, the best time for taking cuttings of Heliotrope.

MRS. A. J KYLE, *Wiarton, Ont.*

Reply by Prof. H. L. Hutt, O. A. C., Guelph.

Camellias may be grown from cuttings or layers. The cuttings should be taken in August from the ripened shoots of the preceding summer's growth. These should be firmly planted in the soil, and kept in a frame where the temperature and moisture can be controlled. By the following spring such as have rooted will show signs of growth, and may be potted off. Seedlings of the single varieties are generally grown as stocks, upon which the double and variegated varieties are grafted by inarching in the early spring.

Heliotrope cuttings may be taken at almost any season when good growing shoots are to be had.

How to Kill Poplar Suckers.

942. SIR,—In the March issue of THE HORTICULTURIST, in my communication, *re* "Poplar Suckers," I am made to say "every sucker even TWO FEET from stumps, were killed. It should read TWENTY (20) feet. Kindly make correction.

L. FAIRBANKS, *Whitby, Ont.*

Falling Gooseberries.

943. SIR,—What is best to prevent the dropping off of gooseberries when about half, or two-thirds grown ; there is a worm in every fallen berry ?

R. BURNS, *Parkhill.*

Reply by Jas. Fletcher, Central Experimental Farm, Ottawa.

The dropping of Mr. Burns' gooseberries is undoubtedly due to the injuries of the gooseberry fruit worm (*Dakruma convolutella.*) The egg from which the caterpillar emerges is laid by a small dull gray moth on the green fruit. As soon as it hatches, the young caterpillar bores into a berry and feeds upon the pulp. After it has eaten out one berry it fastens another to it by silken threads and devours its contents. In this way it sometimes destroys 4 or 5 berries before it is full-grown, which is about the time the gooseberries attain

their full size. It then lets itself down by a silken thread and buries itself a short distance beneath the surface of the ground, where it spins a dark brown cocoon, inside which it remains until the following spring. The only remedy which has given any results, is picking by hand all the injured berries as soon as they show by turning prematurely red, that they are attacked. Letting chickens run among the bushes both before the fruit is ripe, and late in the autumn, it is claimed is a good plan, as the hens devour many of the insects. It is also advised to destroy the fallen leaves and rubbish from beneath the bushes in autumn, so as to destroy any cocoons spun at the surface of the ground.

Cranberry Growing.

944. SIR,—Would you or some of your members give me information about planting and cultivation of Cranberries. Would you plant seed in the marsh or start in a bed, and transplant bushes afterwards? Will the bushes grow in water and if so to what depth? A reply in your next number will greatly oblige. Yours truly,

R. A. C.

Cranberry growing is not always a success. A large bog was made artificially at Walkerville, at very great expense, and has so far proved a failure. But where natural conditions are favorable, so as to reduce the great expense of establishing the plantation, they are usually profitable, for after the bog is once completed and the vines in bearing condition, the culture is simple and inexpensive. The *New England Farmer* gives the following instructions for preparing and planting a patch: A piece of low, swampy territory is selected to begin with. From this all the trees, bushes, or whatever growth may exist, are thoroughly cleaned out and the roots eradicated. Then the turf or dirt is taken off and the bog ditched and leveled. The old fashioned way of getting the level by the water and straight edge can not be improved upon for accuracy where the bog is well ditched. The level place is then covered with some four inches of coarse sand—some put on five—and the coarser the sand the better, if it will not interfere too much with the growth of the vines. The bog is then ready for the planting of the vines. the only fertilizer employed is to sometimes put a trifle of guano on the top of the plant, which works down through the sand to the roots of the vine. Three years must usually pass before the vines bear fruit, and they are generally not in bearing condition until the fourth year after planting. Some bogs on the Cape are still in good bearing condition that have yielded fruit for more than thirty years. Sometimes the vines are mowed down closely, but they come up again and bear more vigorously for cutting. The chief attention required is to keep down the weeds and rushes, which are usually not troublesome if not neglected, and to watch the enemies of the vines, the principal of which is what is popularly known as the fire worm. If they get in unobserved, a promising lot will be completely ruined in a few days, and they do their work so rapidly that they are well named the fire worm. Of late years they have been quite destructive. The remedy for them is a tobacco wash and it generally proves very efficacious if applied in time. The cost of producing a barrel of Cranberries all ready for market varies from three to four dollars per standard barrel of 100 quarts. It is safe to put down the average market value at $7.00 per barrel.

Open Letters.

Should the Importation of American Nursery Stock be Prohibited?

SIR,—I read with much interest your article on the San José scale insect in your March number, and note that you recommend farmers' institutes and other farmers' gatherings throughout the land to pass resolutions requesting the Department of Agriculture to "either prohibit the importation of fruit trees and plants from the United States, or else that all trees for importation be subjected to the most strict quarantine and not be permitted to cross the lines unless a sworn certificate of an expert entomologist can be first secured by the shippers at their own expense, that the stock has been thoroughly examined, and proved to be free from scale" From your statement of the case it would appear that it is perhaps desirable that the Government should take some steps in the way of examining American nursery stock before it is admitted to the country, though I am not sure that your recommendation is really the best, and would feel inclined, for example, to think that it would be more simple and more effective to restrict importations to such States or localities as are known to be free from the insect. I desire, however, to point out that any suggestion looking towards the total prohibition of importations of American fruit trees and plants is one which would require the most serious consideration before being allowed to pass into law. I beg to draw your attention to two features of the case

1st. The authorities of the Dominion Government Experimental Farm at Ottawa state that the *Americana* varieties of plums [De Soto, Hawkeye, Stoddard, Wyant, Miner, etc.], are the only ones suitable for the greater part of the Province of Quebec and Eastern Ontario, where the European varieties fail. The cultivation of these American plums has developed enormously in Iowa, Minnesota and the Western States, one authority estimating that from 100,000 to 150,000 of these trees are planted each year in the State of Iowa alone. With the exception possibly of the first named, I am inclined to think that it is impossible to obtain trees of any of these varieties, in any considerable quantity, from any nurseryman in the Dominion, or even from all combined. The reason for this is, that most of the Canadian nurseries are situated in Western Ontario, and their proprietors are apparently not alive to the needs of the Province of Quebec in regard to plums; and farmers in the East must either neglect this branch of horticulture, or purchase from nurserymen in the Western States. Would it be just or right to pass a measure which, though it might not seriously injure Western Ontario fruit growers, would yet very greatly handicap those who live in the East and North?

I am further informed by the authorities of the State Agricultural College of Iowa that the San José scale is unknown in that State.

2nd. The possibility must not be ignored that, if American nursery stock were prohibited, Canadian nurserymen might combine and raise their prices throughout the whole country, greatly to the detriment of all Canadian farmers.

Montreal, March 15th. M.

Discouraged.

SIR,—I have taken CANADIAN HORTICULTURIST for fourteen years but must now quit on account of poverty. I rented a small farm with every convenience, rent and taxes, etc., $100 per annum. Drouth and rust, and not forgetting grasshoppers, about cleaned me out; prices, you know. I picked for a grocer 1 bush. crabs, best I ever saw, put them in clean new baskets, he gave me 20cts. in trade, he had them ordered. A gardener here was asked for a basket of crabs, he picked them and took them to the house, they said *thanks*, that's what we are living on; we did think the hens were going to help, but McKinley Bill will fix that. I came from England seventeen years ago, have wished 17,000 times I had never seen the country. Some of the best of workers here have lost their homes and come to the hammer; still they wish to encourage emigration. What for, to help us starve.

S. P., *Wingham.*

Spring's Active Work.

SIR,—In the cool pleasant days of early spring, when one's enthusiasm and activity is high for the planning of the flower garden, we are apt to think that we are possessed of abundance of natural wisdom, that will lead to success in all we undertake, and we are of the opinion that anyone can raise flowers and plants without the general information required to make it a success. Of course at the end of the season we note our disappointment and failure. Now I think we may overcome some of these difficulties, by careful observation and reading our CANADIAN HORTICULTURIST, or any good floral publication that will give us some knowledge in planting, habit and growth of seeds and plants that we intend growing. Many flower growers I know do not look into a magazine to seek information or advice from the experienced men and women who have made a lifelong study of flowers and plants.

When the out-door work in the garden commences in April and May, it is certain that we will all feel better and made brighter by the result of our labors, while we must not forget the steady and healthful employ-

ment it has been to ourselves and thousands more, we think it can not be estimated. Flowers are soul food for many. Go and visit them before breakfast, and you surely will find relief and profit in health and happiness.

Spring's active work is to prepare our soil, purchase our seeds, plants and vines; then when all are planted, our work is over, till our tiny little plants make their appearance, when we must work early and late to get our reward.

I will not attempt or advise the readers of this Journal what to plant, as there are many flowering plants and shrubs, to suit the taste and purpose of every lover of flowers; and therefore it would occupy too much valuable space in these columns to enumerate all varieties grown, and what purpose, location that each planter required them for.

Flower growing is fascinating, and a genuine flower lover is never discouraged by failure, and would say to all, have flowers somehow, no matter how limited your ground may be. You cannot engage in a more healthful work. If you have had disappointment, be not discouraged, try again, it will be with increased knowledge. Read, study and observe, and you will surely succeed that will repay you for your trouble.

E. HERSEE, *Woodstock.*

Wild Native Stock for Grafting.

(See Question 897.)

SIR,—I would say, first, that there is more strength of root in natives. I took some wild trees, 1½ inches in diameter, cut them off at the collar and inserted two scions in each. I raised a mound around them so that the scions rooted also, and thus I had the strength of both roots. The result was a very rapid growth. One scion grew seven feet high the first year and bore fruit the second year. Some years I have sold over thirteen bushels off those six trees. I have bought quite a number of trees from nurseries, but have got more good from those six trees than from all the others.

JOHN DALGARNO.

More Notes on the San Jose Scale.

SIR,—The article on the San José Scale in the March HORTICULTURIST sounds a timely note of warning to Canadian fruit growers, and the resolution passed at the meeting in St. Catharines is a step in the right direction. Action on the part of the Government will undoubtedly be necessary before long, and the growers generally should familiarize themselves with the bearings of the whole subject, and keep up a wholesome agitation on the question.

The Ohio Legislature last year repealed its "Peach Yellows and Black Knot" Act, and passed a new Act providing for the eradication of those two diseases, but including also the San José Scale. A special bulletin (No. 72) was ordered by the State to be prepared and published by the State Experiment Station, which contains a detailed description of the new pest.

There has been more or less confusion as to the history of the Scale and as to the remedies necessary, so it might be well to point out a few of the main facts.

The Government Entomologist at Washington, Mr. L. O. Howard, has not only thoroughly worked out the life history of the insect, but has carried out an exhaustive series of experiments with a vast number of washes. A complete record of these experiments was prepared for *Insect Life*, by C. L. Marlatt, the Assistant Entomologist, and may be found in No. 5, vol. vii. of that publication.

The San José Scale is similar in some respects to the Oyster Shell Bark Louse, to which it is nearly allied; but there are one or two important differences, which make the San José Scale infinitely harder to exterminate. The Bark Louse has but one brood a year and winters over in the egg state. The San José Scale is viviparous—that is, it does not lay eggs—and there are several broods during the year. The female winters over in the nearly full-grown condition. It commences to bring forth living young in May, and continues the process day after day for six weeks. By that time some of its progeny are also breeding; from 38 to 40 days being about the time occupied by a single generation.

Three female Scales if left unmolested on a tree would probably kill the tree in three or four years. These facts indicate the rapidity with which this new enemy increases and the consequent difficulty of controlling it.

Kerosene emulsion applied in May and June has been recommended; but the diluted emulsion, while fatal to the crawling larvæ, will not destroy all the Scales; and as the young larvæ have formed a protective scale two days after birth, this remedy would not be satisfactory unless it were applied day after day for a long period. Pure kerosene emulsion even, is not always fatal to all the Scales, and will seriously hurt a peach tree. In the experiments I have referred to, of which there were more than forty in number, a great many washes and emulsions were used, including all the California washes. The following conclusions were arrived at.

1. The California washes are hardly effective in the East, even when the usual strength is doubled.

2. Lye washes are too expensive when used at the necessary strength, and then the health of the tree is endangered.

3. Pure kerosene kills the Scales, and the peach tree, too. The apple might stand it in mid-winter, but an element of risk is introduced.

4. Kerosene emulsion, pure, endangers the life of a peach tree, and diluted with one part of water is not thoroughly effective.

5. The Resin wash, to be effective, must be six times the summer strength, and its preparation then becomes cumbersome and expensive.

6. The Whale-oil soap wash, 2 lbs. to the gallon, is absolutely effective against all the Scales. Two thorough drenchings, one after the foliage has dropped in the fall, the other just before the blooming period, are enough. This wash is thin enough when cool to be sprayed through the ordinary nozzle.

The evidence gathered everywhere is all in favor of this whale-oil soap wash. Of course where trees are very badly infested—which one hopes may never be the case in Canada—it would be advisable to cut out and burn the infested portions at once.

As to this vile addition to our too numerous pests, it is an excellent thing to be alarmed in time. Forewarned is forearmed.

MARTIN BURRELL,
St. Catharines.

Fruit Growing in Manitoba.

SIR,—The following are a few brief notes and observations on the fruit harvest here during the past summer:

Apples.—Nine different varieties bloomed, six of these for the first time, but five only carried fruit to maturity, namely, Lieby, Anisette, Wealthy, Whitney and Blushed Calville. The latter is from Prof. Budd, of Iowa Agricultural College, six years planted. The fruit was larger, one specimen measuring ten and a half inches in circumference, but there was no blush; fruit dead ripe when picked on 15th September. Lieby, medium size, flattish, highly colored; ripe 26th Sept. Anisette, medium size, somewhat pointed, dull green in color; ripe 25th September. Wealthy, large, highly colored; ripe 30th Sept. Whitney, ripe 30th September.

Crab Apples.—These were an extra heavy crop, the limbs of Transcendent and Montreal Beauty having to be proped up with sticks to prevent them from breaking down. General Grant, Virginia and Sweet Russet bore this year for the first time The first mentioned variety was poor, but the last two were extra large, and fine in quality. All parties having crab apple trees in this locality had fine crops. One grower sold eight barrels. A good market is found in Morden for all we have to sell. The fruit is superior to that which comes from Ontario. I know this will sound rather strange, but it is nevertheless true.

Plums—The early ones were a failure. Cheney matured a full crop of "plum pockets," and the same may be said of Wyant, Chippawa and Rockford, although not to the same extent as the first named. Luedloff's Long Red and Newton Egg were loaded almost to the breaking down with plums of very fair quality. The trees were almost entirely free from "plum pockets." Bicksley, a new variety, gave a few specimens this year for the first time, of very fine quality. The Weaver spurs are growing finely.

Cherries.—Bessarabian, planted in the spring of 1893, matured a few specimens of very fine cherries, for the first time. One of Budd's Seedlings (No. 475), planted 1892, carried a number of fine large, bright red cherries to maturity. Shubianca also carried some fruit, but the quality did not impress me very favorably.

Grapes.—Moore's Early carried over one hundred bunches. One-third of these ripened fairly well. I tried girdling the limb by taking out a ring of bark from the bearing canes early in August, and found that it hastened ripening eight to ten days. One of the three Gibb grapes, planted in 1894, died the first year; the remaining two have grown well. I expect some specimen bunches next summer. Bacchus and Virgennes, planted 1895, are alive and made fine growth last summer.

Small Fruits.—*Black Cap Raspberries* bore an extra heavy crop. Older came into full bearing last summer. The crop was something grand. I am advising the planting of this sort here. The canes are easier managed, being of a more sprawling habit than the old varieties, which counts for a good deal in a prairie country where winter protection is essential to success. Fruit, rather soft, a poor shipper. The red raspberries bore a full crop. Kenyon, a good deal more than the others. I never saw red raspberry bushes carry so much fruit Of the six Sarah raspberry bushes, planted spring 1895, five lived and have done well. I will have enough young plants this spring to plant a row 150 feet long.

No protection is given to any variety of red raspberries. Gooseberries were an entire failure with me. Currants an average crop. Strawberries, where not drowned out, were a good crop. I have been growing the Snider blackberry for years, but the fruit fails to ripen sufficiently early enough to escape injury by frost. Windom Dewberry vines were the most heavily laden with fruit on the farm the past season. I have only a few plants, but their bearing the past two years encourages me to enlarge my patch.

The rabbits have done a great deal of damage to me this year. About 600 have been already killed around the garden, but they appear to be as thick as ever. I have tried various washes, but with poor results. Gunny sack wrapped around the trees is the only reliable protection.

A. P. STEVENSON,
Nelson, Man.