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CLUMP OF HERBACEOUS PÆONIES.

THE CANADIAN HORTICULTURIST.

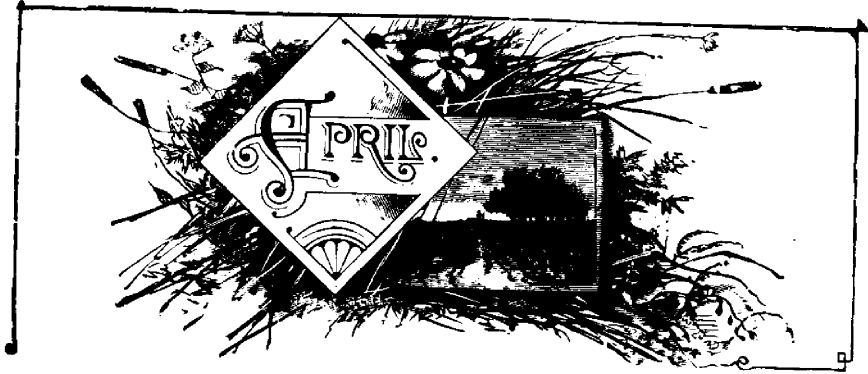
VOL. XXI.

TORONTO

1898

APRIL.

No. 4



THE PEONY.



SINCE we are sending out roots of herbaceous peonies as a part of our plant distribution for '98, we thought it would be interesting to use as a frontispiece a photograph of a fine clump of these plants in full bloom at the Central Experimental Farm, Ottawa. The cut is kindly furnished us by Dr. Saunders, from his report for 1896, in which he writes as follows:—The peony is an old garden favorite which has of late years grown very much in public esteem on account of the large number of beautiful new varieties which have been produced. The herbaceous sorts are best known and have a first claim on our attention. These consist of several distinct species, the flowers of which when unimproved, are single or semi double, but by cultiva-

tion, selection and cross-fertilizing, a large number of very fine double forms have been obtained. The Chinese peony *P. albiflora*, a native of China and Siberia has been very much used by those who have worked on the improvement of the peony. This flower was first introduced to cultivation about 1780, and was brought prominently into notice nearly a century ago; a number of the first new forms having been described in the Transactions of the Linnean Society in 1817. After this peonies grew rapidly in favor, and from 1835 to 1842 choice examples of the newly introduced sorts of that period were sold at very high figures ranging from £2 to £10 sterling each. In subsequent years, they were favored with less public attention, but the interest has revived in them very much during the past ten years, and in the catalogues of some of the larger growers of these plants, there are now offered as many as 500 named sorts all said to be distinct varieties, varying in color from pure white through different

THE CANADIAN HORTICULTURIST.

shades of lilac, pink, rose, carmine, violet, purple, red and crimson, and many of them are rose scented.

The herbaceous peonies send up stout flower stems every year, which die down at the close of the season. The roots are thick fleshy and much branched and if left undisturbed for several years, large clumps form, producing very effective masses of bloom. Peonies delight in a rich, deep soil, well manured, and the roots should be planted with their crowns or buds 3 or 4 inches below the surface. A top-dressing of rotted manure in the summer is also very useful by affording nutriment and preventing

evaporation, and a similar covering in winter is desirable for protection.

Another class of peonies is known as tree peonies. These are varieties of a shrubby peony from China, *P. Moutan* and do not die to the ground each year as the herbaceous sorts do. These have been grown with fair success at the farm at Ottawa, when the ground has been well covered with snow during the severe weather in winter, but if exposed to low temperatures when the ground is bare they suffer more or less from winter killing. The tree peonies are more expensive than the herbaceous sorts and are not nearly so satisfactory for general cultivation.

OUTDOOR FLOWERS IN FEBRUARY IN B. C.

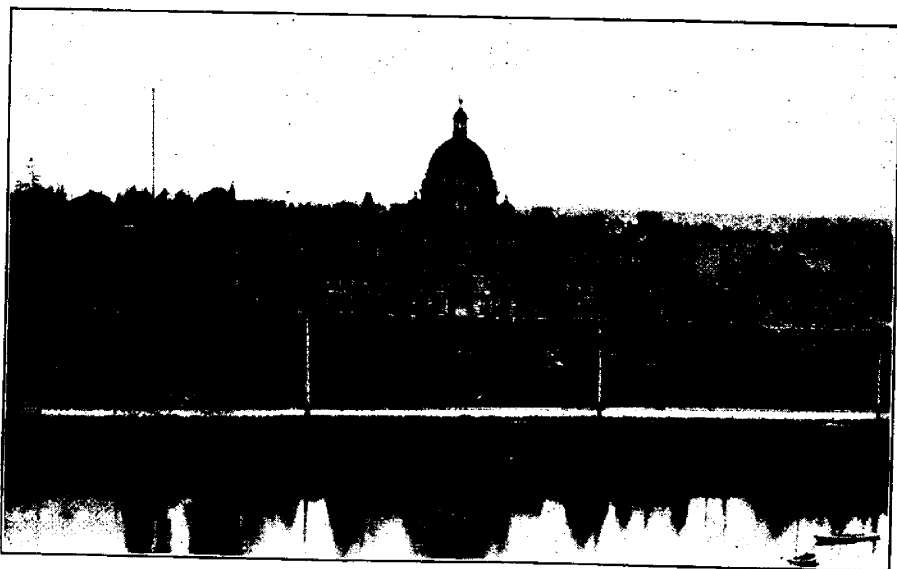



FIG. 1320.—PROVINCIAL PARLIAMENT BUILDINGS, VICTORIA, B. C.

 UR readers will be interested in the following letter from Mr. J. R. Anderson, Deputy Minister of Agriculture for British Columbia, which proves so clearly what a mild climate that Province has,

when so many varieties of flowers are in bloom in February. The new Parliament Buildings of Victoria, are also an evidence of the rapid development of the country.

On the occasion of the ceremonies in

OUTDOOR FLOWERS IN FEBRUARY IN B. C.



FIG. 1321.—A TABLE OF FLOWERS GROWN IN THE OPEN AIR IN B.C.

connection with the opening of these Provincial Buildings at Victoria, on the 10th of February, the Natural History Society undertook the collection, as an object lesson, of such open air spring flowers as were then obtainable. The result was, that a table was arranged in the botanical room of the Department of Agriculture, in which was exhibited

bunches of flower of the following varieties :—

Daphne, wallflower, primrose, violet, laurestinus, polyanthus, crocus, stock, scylla, pansy, snowdrops, anemone, corse, willow, jasmine, Monkshood, or Aconite, Japanese berries, ivy.

Under separate cover I send a photo of the table and a cut of the buildings.

FERTILIZERS FOR STRAWBERRIES.— Nitrate of soda is a valuable fertilizer for strawberries and raspberries, and should be applied with powdered phosphate of lime.

This application to strawberries will sometimes treble the yield. The berries are larger in size, handsomer in color, more solid and finer in flavor. Ordinary manure will not produce such results,

as it is not converted into plant food until after the demand of the fruit.

Nitrate of soda and powdered phosphate of lime are assimilated by the plant at once, and appropriated at a cost of less than ten dollars per acre, using four hundred pounds of the mixture which contains the three ingredients considered necessary to use for feeding plants; nitrogen, phosphoric acid and an alkali.

SOME TREES AND SHRUBS IN NIAGARA FALLS PARK.

MR. R. CAMERON, the gardener, forwards us some photographs of trees and shrubs in the Park, taken by the Secretary of the Niagara Falls Horti-

or *Camptosurus rhizophyllus*, in thousands covering the rocks, also the *Pellaea atropurpurea* (Cliff Brake), and *Asplenium angustifolium*, and many others.



FIG. 1322.—A VIEW OF NIAGARA GLEN.

cultural Society, some of which will be of interest to our readers.

Fig. 1322 is a view of Niagara Glen, a most charming spot, with its many attractions in rapids, trees, shrubs and wild flowers. One may here find immense rocks, covered with mosses of many varieties, and rare and beautiful ferns, such as *Asplenium trichomanes*,

Fig. 1323 shows *Exochorda grandiflora*, from North China, a strong growing, finely shaped shrub, bearing in May a great profusion of lovely pure white flowers; a very choice shrub, but difficult of propagation, and always scarce. It [should be in every collection of shrubs. This specimen is four years planted, and has given great sat-



FIG. 1323.—*ENCHORDA GRANDIFLORA*, FROM NORTH CHINA.

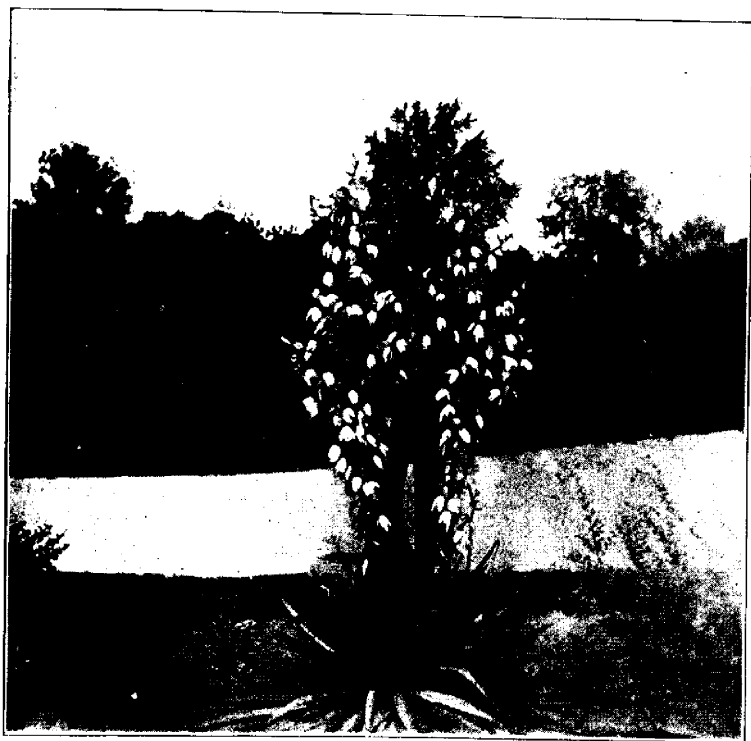


FIG. 1324.—*YUCCA FILAMENTOSA* OR SPANISH BAYONET.

isfaction. It is quite hardy here and should succeed even further north.

Fig. 1324 shows a fine plant of *Yucca filamentosa*, or Spanish Bayonet. There are about one hundred of these in the Park, and last year they made

Fig. 1325 shows one of the herbaceous plants that should be in every garden. There could not be anything better. It is quite hardy and will grow in any good soil, but it is better of a little coarse barnyard manure about

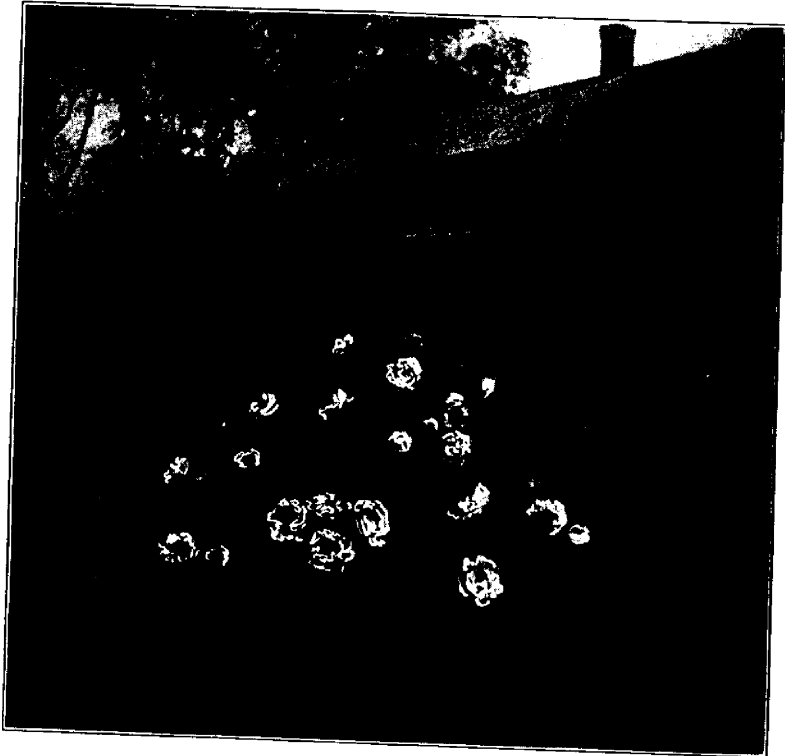


FIG. 1325.—*PEONIA LATIPETALA*, TREE PEONY.

a grand display when in bloom, and they were the admiration of a number of visitors. The flower spikes are about six feet high, and I question if the like were ever before grown in Canada.

the roots during the winter. The plant shown is ten years planted, and had last spring (1897) one hundred and fifty flowers and buds on it at one time. The name of it is *Pæonia latipetala* (Tree Peony.)

THE Plane tree (*Platanus orientalis*) in Washington is one of the best all-round street trees. They are greatly improved when severely trimmed; even

the hollow-stemmed old specimens on Pennsylvania avenue, when so treated, were greatly renovated in appearance.—Rept. Mass., Hor. Society.

WHITESMITH GOOSEBERRIES.

SIR,—An article from T. Beall, of Lindsay, in October number anent large and small Whitesmith gooseberries, requires a few comments. I wish to inform Mr. Beall that the sample sent by me was not the largest I had as the branch contained large and small, and taking productiveness into account it was a sample not easy to beat. Mr. Beall ought to have born in mind that his sample was selected berries taken from a gallon. However I congratulate him on his large gooseberries and hope he will long produce more of them. I grow every season specimens weighing more than the weight given by him which is nearly one half ounce each. The largest I ever grew were this season's product, but the long continued rains burst all the largest ones. I have not any of the English prize-taking varieties, they being worthless except for that purpose; some of the berries are of enormous size and such as the London Red weigh 33 penny-weights or about one and one half ounces. We cannot reach such dimensions as these with our present marketable varieties.

I fully endorse the proposition by Mr. Beall for parties in different sections to send samples for you to test and report in the journal; it would be a good stimulant to produce the best of a much relished fruit but the test I think ought to be of different varieties. I am sure the growers here will court competition as we flatter ourselves we can grow gooseberries equal to any part in Ontario, we can grow them also without mildew. Ever since I discovered—ten or twelve years ago—how to treat them, I did not

lose over two quarts up to this season which was the worst I ever experienced, every variety that would mildew did so; even the Downing had to submit. However I have several seedlings that were mildew proof and which I consider the best in my possession but even with the unfavorable season my loss was only about 4 quarts in 400 and I could have reduced it to zero if time had permitted, this showing I consider is without a parallel. But I fear a worse enemy to contend with is the white grub which destroys the bush altogether and seems to be a hopeless case for any remedy. This season I dug up 20 bushes to make room for others, I was surprised to find that all of them were affected, none had fewer than four while one had as many as seven all busy gnawing at the fibrous roots. A few years ago I lost 30 bushes by the same pest. Mr. Brooks of this place a large gooseberry grower, having about 1400 plants had to dig up 90 bushes that were unhealthy by the same cause. Perhaps an oil lamp with a large glass surface lighted in the evenings to trap and burn the large brown beetle—progenitor of the grub—might mitigate the evil, and perhaps powdered glass put thickly around the bushes to prevent beetles from burrowing. Our experimenters have plenty future work to do.

An article on page 391 by E. Hersee of Woodstock, on selling unripe goose berries expresses the opinion I have long held on the subject.

Thanking you for the space taken in your excellent journal.

F. W. PORTER, *Mount Forest.*

THE IROQUOIS HORTICULTURAL SOCIETY.

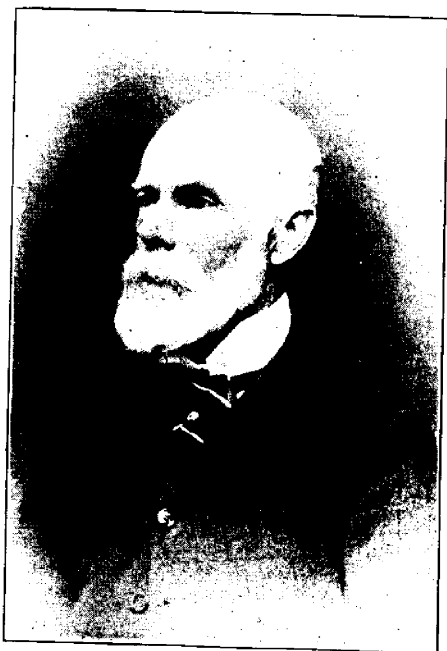


FIG. 1326.—MR. WM. A. WHITNEY.

THIS is one of the new affiliated Societies, which was organized this year with a membership of over sixty persons.

We have just received from Mr. T. S. Edwards, the following sketch of the newly elected president, Mr. W. A. Whitney.



FIG. 1327.—RESIDENCE OF MR. WM. A. WHITNEY, IROQUOIS.

Mr. Wm. A. Whitney, M.A., was born in the County of Grenville, in 1834, and educated at Victoria College taking the degree of B.A., in 1860 and M.A. in 1864. In 1860 he became principal of the Iroquois High School retaining the position for 26 consecutive years, during which period he turned out many young men who became prominent in professional life. He was also classical Master of Morrisburg Collegiate Institute for seven and a half years.

He retired in 1893, since which time he has turned his attention to the cultivation of flow-



FIG. 1328.—MRS. ALVAH BROUSE, 1ST. VICE-PRESIDENT, IROQUOIS HORT. SOC'Y.

ers and fruit and to bee culture. Indeed it is not a new departure for Mr. Whitney as he found a little leisure during his most active years of toil to keep a profusion of flowers and a good supply of fruit on his beautiful premises, consisting of 10 acres on the bank of the St. Lawrence just below the Eastern limit of the village.

He was unanimously chosen President of the Horticultural Society recently formed here, and very properly so as he was mainly instrumental in presenting the claims and benefits of the Society to the public and securing such a large number of our best citizens to become members. He is a man highly esteemed in the community where he has lived

THE IROQUOIS HORTICULTURAL SOCIETY.



FIG. 1329.—DR. JOHN HARKNESS, 2ND VICE-PRESIDENT, IROQUOIS HORT. SOC'Y.

so long not only as a scholar but also as a Christian and a gentleman. I need not mention here the various positions of trust and honor that such a man holds among his fellow men, but will close this brief biography by saying that I know of no other gentleman in these counties who has a better knowledge of flowers and fruits or a stronger desire for their propagation.

We also give a view of Mr. Whitney's house and garden, which is very attractive. Of the other officers of the Society, we have Mrs. Alvah Brouse, 1st Vice-President, and Dr. John Harkness, 2nd Vice President. Of the former we have no biographical sketch, but Mr. Whitney has furnished us a few notes concerning Dr. Harkness.

Dr. John Harkness was born in 1841 in the Township of Matilda, County of Dundas. He entered the Matilda Grammar School in 1854, beginning when Albert Carman, (now Dr. Carman of the Methodist Church) became the master, he remained a pupil till 1857, both he and the master quitting the school at the same time. He graduated in medicine at Mc-

Gill in 1862, and soon after settled on the homestead where he has since lived, devoting his attention to his practice, his extensive farm, his large and well kept orchard and his library.

He is an enthusiast in the cultivation of flowers and has what may well be called a model vegetable garden. For ten years he was President of the County Farmers Institute. He takes a great interest in education, having been Chairman of the Iroquois High School Board for the past seventeen years.

Mr. A. E. Overell is the energetic Secretary of the Society, upon whose industry and promptitude the future success of the body will largely depend. We show our readers both the Secretary and his home.

We have pleasure in publishing a paper on "Our Homes," written by the President of this Society, Mr. W. A. Whitney, upon a subject which cannot fail to be of interest to everybody, whether farmer or fruit grower.



FIG. 1330.—HOME OF MR. A. E. OVERELL, IROQUOIS.



FIG. 1331.—A. E. OVERELL, SECRETARY.

“OUR HOMES.”

In these days of competition and low prices and bad seasons the material view of farming must be kept in view, if the farm is to be kept free from mortgage and a surplus secured for old age or the wherewithal to give our sons and daughters a fair start in life. But is the question of money and getting rich the only one to consider? I think all present will agree with me, when I say that a man whose only object in life is the acquisition of money, and whose sole delight is to tug and slave from early morn till late at night, is a miserable creature. We have souls as well as bodies, yea of infinitely more value than our bodies. These minds of ours have wants that cannot be satisfied with mere gain. Let us, by improved methods and scientific agriculture make all the money we can, but let us not neglect to cultivate the better part of our natures and enjoy all that is beautiful and elevating around us. I may be met with the objection, “We have no time for anything but hard

work. After the day's work we are too fatigued for reading or music, or cultivation of flowers, and we have no taste for such things.” I reply that the average farmer works too hard. I have known young men of twenty years of age whom hard work has deformed and stunted, who have never had a chance to grow up lusty, graceful men, who know but little except to plow, to sow and reap. No wonder they become tired of the farm and crowd our cities, often to fall into evil ways or to gain but a poor living. The farmer's wife also suffers in the struggle. She becomes prematurely old and loses the grace and comeliness of early womanhood. Induced by these thoughts I have decided to say a few words to you about our homes. I have travelled a little, and I can say that the farm houses in Ontario and in most of the County of Dundas are not surpassed by those of any country in the world. The past twenty years has witnessed a great improvement in this respect and in no other section more than in your own fair township.

But I have this criticism to offer that while a good deal of money has been spent in the buildings and their furnishings, too little attention and outlay have been devoted to the surroundings, as lawns, fences, trees and flowers. Allow me, then, to make a few suggestions about the “outside” of our homes. The site should, if possible, be on the higher ground of the farm front, in order that proper drainage may be afforded to secure a dry cellar and dry yards in wet seasons of the year. The barns and stables should be at sufficient distance to avoid unpleasant and unhealthy odors, and at a lower elevation to hinder, in rainy seasons, impure water from approaching the house or contaminating the well, from which the family supply

THE IROQUOIS HORTICULTURAL SOCIETY.

is drawn. In approaching our home, the visitor should not be obliged to pass a barnyard, or come in sight of pig pens or heaps of reeking manure piles. In most homesteads, these suggestions can be observed and at no additional cost or trouble.

A good lawn is a thing of much beauty. After the new house is erected, the clay and gravel from the cellar should be carted away, for it is almost impossible to secure a good sod upon it or make trees and flower flourish on it. With the plow, harrow and roller a level or sloping surface can be made in front and around the house in a few hours and a suitable mixture of seed can be got from any seedsman for a trifling sum. For a year or two, it will require rolling in spring and a coating of well rotted manure in the fall. A lawn-mower will be necessary, if you would have a perfect lawn. A sharp scythe, however, will do very well. I would avoid disfiguring a nice lawn by cutting it up by too many flower beds or too much shrubbery. Nothing is nicer than the broad, level, velvety-green of nature. Place your flower garden away from the front of the house and your shrubbery in clumps at the sides of the lawn. A plain board walk from the gate to the entrance is cheaper and more easily kept in order than a gravel walk.

And now a few words about the trees. In the first place, they should not be near enough to shade the house. The sunlight is needed to keep off mouldiness and dampness, which are deadly enemies to the health of the inmates. Do not plant too many trees about your houses or too near together. Choose trees for home adornment and shade that have straight trunks and that may be trained and have well-shaped tops. The maple is largely planted and rightly so, but let me suggest the propriety of

trying a few basswoods, with their clean smooth trunks, broad leaves and pendent white flowers. They grow very fast also, which is a great consideration. If the beech were a fast grower I know of no tree I would prefer to it. If you plant evergreens, do not cut away the lower branches. They should form a perfect cone, the base of which rests on the ground. I would not allow trees to remain on the home grounds till they become too large or begin to decay. Around some houses you will see old, ragged specimens of balsam or spruce that have been trimmed of side branches to the height of twelve feet or more. Their usefulness has gone. I would advise farmers to be content with our native trees, which he can get from the woods without cost. But if we desire a variety, let us get a few of the Mountain Ash, Chestnut, Sweet-scented Locust, and that most beautiful tree, the Cut-leaved Birch, and any others that are hardy. In transplanting, especially the evergreens, care should be taken to cover the roots with a wet blanket or in some way keep them from drying. I would not advise planting apple trees on the lawn, for fruit bearing keeps their tops too low and drooping. While young, it must be admitted that their flowers in spring and fruit in autumn are beautiful indeed.

If the house is at a sufficient distance from the public road, the driveway may be lined on each side with trees. In a few years you will have a leafy arch overhead like the nave of a gothic cathedral. The matter of tree planting and culture is beginning to receive better attention. If all farmers would follow it up judiciously not only near the residence but along line fences and elsewhere, the amount of rain fall would be largely increased; winds would be broken in their destructive career, and

THE CANADIAN HORTICULTURIST.

in time, they would be substantially rewarded by returns in wood and lumber.

A word or two about fences. The cost and material and style are matters to be left to the taste, and size of purse of each one concerned. But, whatever be the kind or expensiveness, let them be neat and be kept in good repair. An hour's work will save the place from having a tumbled-down appearance. A great mistake is made by many in fencing in a small enclosure in front of the house called a front yard; this is generally allowed to grow up with long grass and lilac bushes, reminding one of many of the enclosures in a church yard. If cattle, and sheep and pigs were to roam at will; such fences might serve some useful purpose by guarding the front door from their entrance; but surely this is not now the excuse for their existence. In parenthesis may I say that the farmer spends far too much money and labor on fences. Stock has no business or right to roam at large on public highways and meadows, and orchards should be debarred their presence. Thus of what use are fences in such locations? Their only plea for existence is custom, or to harbor stone heaps, weeds and useless underbrush.

And now I come to speak of one of the chief features of outside home adornment—flowers. I am met at the outset by protest of the farmer that he has no time or taste for such things. As to time, we answer, that a few hardy flowers would not demand much time, and as to the taste for them, that he should cultivate a taste for such God-given, beautiful things.

If he will not cultivate them for his own sake, surely he will spend one hour a week to please the wife and daughters. You will scarcely find a woman in the country who does not love flowers, and

do a little at least in their culture. If you desire, but do not know how, to cultivate flowers, I would strongly advise you to take our own HORTICULTURIST, and if possible form a Horticultural Society. You will gain in knowledge and pleasure many times the amount of the subscription. Allow me then to trespass on your patience for their sake. Those who know but little of flower culture, should commence with a few hardy kinds, extending the list as experience is gained. Flowering shrubs are easily raised and cost but a trifle, with moderate care, they will continue to bloom for many years. I would have sweet syringa, barberry, mock orange, weigela, dogwood, hydrangea and a few others. The rose is the queen of flowers and for it the soil needs to be very rich. In summer pinch off the top of new growth, to make the plant stocky and wood well ripened. In spring cut back to two buds. It has numerous parasitic enemies. The white louse may be destroyed by fumigating with tobacco smoke. The worst enemy is the red spider which is best destroyed by sulphur fumes. The common cabbage rose and the small white or yellow sorts, if thus treated, will surprise and delight you with their beauty and odor. After you succeed well with these common sorts, buy a few hybrid perpetuals such as Jacqueminot, La France, Alfred Colomb, and La Reine, etc. It is better to plant all your roses in a square or round bed, so that they may be the more easily smoked or sprayed. The variety of the colors and foliage affords a fine contrast when so planted. The amateur would do well to cultivate perennials, as one planting will suffice for years. Among these, the Sweet William is very hardy and showy, and some kinds of pinks are perpetual and are very sweet and pretty. A few others are the daisy,

GROWING FANCY MARSHALL STRAWBERRIES.

lily of the valley, phlox, peony, lily, tulip, gladiolus, etc.

Annuals also should be cultivated, if we would have a succession of bloom throughout the season. We depend on them for fall flowers. The seed should be sown in the hotbed, or in boxes placed in the window in early spring. As soon as there is no danger from late frosts, they are transplanted into beds on a rainy day. The soil should be clean of weeds, well and deeply worked and rich. All the plants of one kind should be massed together to secure the best effect. Experience will tell us how far apart the young plants should stand. The larger kinds such as stocks, asters, verbenas and petunias should be about one foot apart, while phlox, pansies, etc., may be put at six inches in distance.

The pansy does best in a partial shade. After the first year's purchase of seed, you will not need to spend much, as you can save seed that will produce almost as good flowers as their parents. I generally buy new seed every year as it does not cost much, the bloom is better, and it takes some time and trouble to save the seed. There is another item in outside home adornment that I must refer to, viz, paint.

The fences and outside woodwork, such as cornice, windows and doors are often allowed to go unpainted until their original hue is almost gone. They become unsightly and rotten. It pays as well as improves the appearance to repaint oftener. All I have aimed to do is merely suggestive and elementary.

GROWING FANCY MARSHALL STRAWBERRIES.

THE berries were grown by the ordinary matted-row system. After taking out plants for re-setting, we left a row about 10 inches wide, and mulched this well with marsh hay. Last year, we bedded in runners and mulched in the spring. This year, we are using the narrow-row system. We set plants with a spade, and cut the roots to about three inches in length. A man uses the spade, and a boy follows with a basket of plants, and puts each plant in back of the spade, spreading the roots fan-shaped. We use a small handful (about 400 pounds to the acre) of commercial fertilizer costing about \$38 to \$40 per ton, about ten days after the plants are set. We use a tool made by ourselves especially for putting on the fertilizer. It consists of a long tube and two funnels, one within the other. The inner funnel sets over the plant, and when the fertilizer is dropped

through the tube, it falls in a rim around the plant, and none of it touches the foliage. In the Fall, we use 500 pounds of ground bone, and 250 pounds of sulphate of potash to the acre. We don't use muriate; it will burn them.

After the plants are set, we use a garden rake about them to stir the soil, and Breed's weeder till July 1st. I set berries this year 2½ x 3 feet apart. I use a marker made of flexible board, with shoes underneath. If the surface is uneven, the thin ash board will bend and reach every depression. I set plants at the intersections of the marks, keep off all runners till the middle of July, and cultivate both ways till the runners are rooted. I allow four runners to root from each parent plant, and place them at regular intervals between the old plants. It costs about \$10 to keep the runners off, and I think that it pays well. I put on nearly four tons of straw to the

acre this winter; I put it on early, not covering the plants, but between them. On the approach of the coldest weather, I place part of it directly over the plants. Of varieties, I prefer the Marshall. It did better on upland than on the flats this year. I also grow the Brandywine

and Wm. Belt. The latter is liable to blight, but I am not troubled much that way. Marshall yielded at the rate of over 10,000 quarts to the acre. I put many of them up in fancy packages, and sell six quarts for \$1 50.—Report Oswego Horticultural Society.

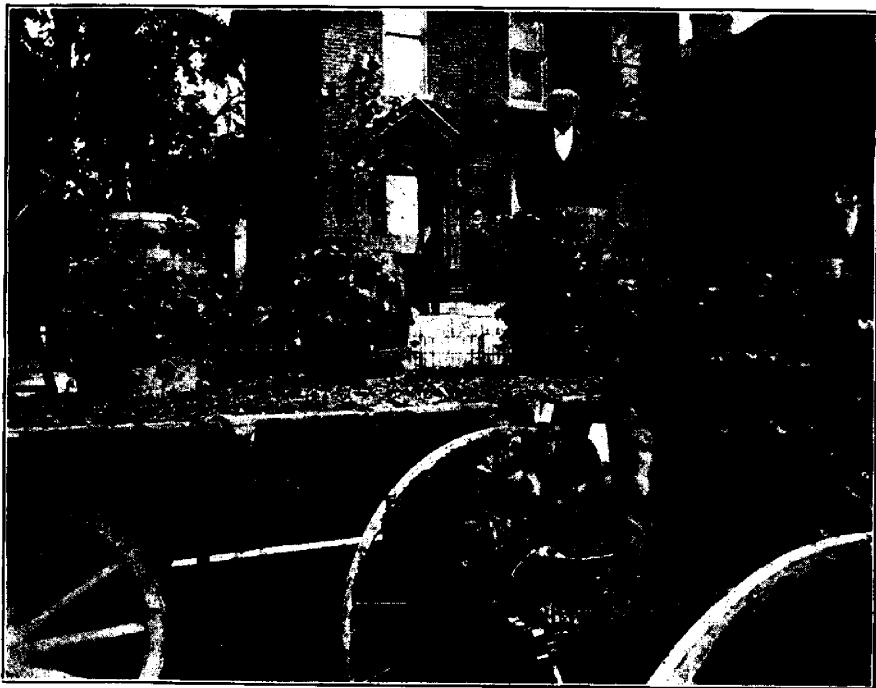


FIG. 1332.—BARREL-GROWN STRAWBERRIES.

BARREL-GROWN STRAWBERRIES.

IN response to an enquiry, Mr. F. W. Ritter, of Dayton, O., sends another illustration of Mr. Ohmer's plan of growing strawberries. We give place to the engraving and to the letter because it would seem such an excellent plan for the city garden, where ground room is limited. Mr. Ritter writes :—

“ I have to-day mailed you a photo of four barrels of strawberries, Mr. J. P. Ohmer is on the right in the small wagon, with the single barrel. This is J. P. Ohmer and not Nick Ohmer as the American Gardening labeled the picture; they are brothers, and both noted horticulturists.”

PREPARING NEW STRAWBERRY BEDS.

WITH the coming of spring, comes the preparation of new plots of strawberries, such as digging and trimming, when not purchased, and setting them in the prepared beds.

There are so many simple details connected with the work, that many are inclined to slight some of them, to the detriment of the plants. One of the most important ones is the preparation of the soil. I never yet saw a piece of land too well fitted, but I have seen a great many which were very poorly prepared. My first lasting impression of this work was when a small lad, I had to hand-rake my father's beds several times over before he ever set a plant, and the thoroughness of this work was one of my parent's hobbies, if such it may be called, for I used to wonder why I had to work over the soil so many times when it seemed as though another time over was only time lost.

The success which always attended my parent's labor was amply rewarded, for I cannot remember he ever had a failure in starting his beds.

With our improved machinery, it is not necessary that we do so much hand-labor now, but in the absence of such I would surely resort to it.

When I first started in the fruit business, I only had a light spike-tooth drag and a plow, I made me a plank-drag, or some call it a float, and used it in connection with the harrow; by this process I was able to secure a finely pulverized surface in which to set my plants.

If one uses his own plants for setting, he should be sure they are only one year old, and were not taken from beds which had previously borne fruit, for whenever

a plant matures its seed a portion of its vitality is gone with it, much to the detriment of the young plants.

I always plant a few rows separate for propagating purposes; these plants are never allowed to mature seed, and so by careful culture, I am able to maintain a high standard of plants, which I would not get if I allowed the other plants to bear.

The method of setting is quite important, and a great number of valuable plants are lost, either through carelessness or ignorance.

It is as fatal to set too deep as too shallow, for the new leaves must have a chance to push out to the sunlight that they may breathe for the plant, as they are the lungs, being the organs through which one of the most valuable elements of the plant is obtained.

If set too shallow the roots are apt to be exposed so that the moisture which they should convey from the soil to the plant, is evaporated into the air and death soon follows.

After a bed has been successfully set, to keep the plants growing continually throughout the season, is no small matter. The same fine soil should be maintained by using a fine tooth cultivator and a garden rake.

I cultivate my beds once or twice thoroughly, as it may be necessary, and then pass along the rows with a garden rake, and work the soil level and fine as when first set. This is no great job, as some may suspect, as I can go over an acre a day.

This process is continued throughout the season, or until new runners get too numerous to use the rake, then we use a narrow-blade hoe.

It will greatly lessen this work, if the

THE CANADIAN HORTICULTURIST.

soil on which the plants are set, has grown one or two cultivated crops the previous season. Many think that a rich soil is the best, but in my mind, it is the worst, for it is full of foul seed

and the larva of many pests which are ruinous to the plants.

B. A. WOOD.

Kalamazoo Co., Mich.

THE LOUISE PEAR.



FIG. 1333.—THE LOUISE PEAR.

AMONG our autumnal varieties of pears of fine color and consequent attractive exterior, there is no more desirable than the Louise Bonnde Jersey. Grown as a dwarf on quince stock it succeeds remarkably well on sandy soil in the Niagara district, reaching a fine size; but, as a standard, it is inferior being small and sometimes scabby.

During the season of 1897, some cases of this variety, containing about a bushel, were shipped from Grimsby and sold in the British markets for 15/ each.

This pear is well spoken of in the Fruit Grower and Fruiterer (England), as follows:—

LOUISE BONNE DE JERSEY.

We select this as the second pear, and readers will at once admit that as re-

gards quality, appearance, and flavor, few pears grown equal it. We know of no pear to surpass it, and it has become one of the leading market pears, because of these qualifications alone. Now we have here a variety which, when well grown, may be said to be one of the best flavored pears procurable. In the best class shops it may often be seen when in season, marked up at high prices, and punneted, it adds to the attractiveness of the fruiterer's window on account of its beautiful color. We have often referred to the many points in favor of this pear, and are rather astonished that anyone mindful of the chief features of this and other leading pears should assert that quality or flavor in pears is a secondary consideration when the contrary is the case.

RESULTS OF THINNING FRUIT IN 1897.

THE time has come in the history of fruit growing in Ontario, when finer fruit is wanted, not more of it. Indeed we must cease to produce the poor, small, scabby and wormy apples altogether, the stuff that gluts the markets and spoils our reputation abroad, and instead, produce only the fine large highly colored samples which our country is so well adapted to produce, by giving that attention to the growing crop which it deserves.

Frequently in the past the importance of tillage and fertilizing has been emphasized in these columns, but sufficient stress has never been given to the thinning of our fruits. By this means it is possible to remove at an early stage all the poor and ill-formed samples, and leave only the finest. The best of all is that the quantity of the yield is not lessened by this apparent waste, but often increased, by the increased size; but even if lessened, the financial results would be much better, by reason of the higher prices obtained.

The following are some of the actual results obtained at Maplehurst during the year 1897, and it will be seen that in peaches, especially, the benefits were most marked. In this experiment pairs of trees were selected which were a nearly as possible of the same size, and equally laden with fruit. It was most

astonishing to find in some cases even more baskets of fruit, from the trees thinned, than from those not thinned.

Variety.	Date.	Quantity Removed.	Hours required One tree.	Yield in 12-quart baskets.	
				Thinned tree.	Tree not thinned.
Peaches—Alexander,	2 trees...				
"	June 21	1	2	11½	9½*
Honest John,	" 23	1	1	8	4½*
Centennial,	" "	1	1	7**	1
Hale's Early,	" "	1	1	9½	5
Waterloo,	" "	1	1	5½	7*
Crawford,	" "	1	1	2½	5½
Early Rivers,	" "	1	1	13½†	2
Apples—Spy,	" "	1	1	9†	9*
Pears—Clapp's Favorite,	" "	1	1	11	13††
"	July	1	1	11	15††

THINNING FRUIT—RESULTS OBTAINED AT MAPLEHURST, 1897.

*Loss from rot. **Increased size of fruit. †Extra size and clean. †† Thinned too late.

WHY ORCHARDS ARE FAILING.

EXPERIENCE is one of the most potent factors in our development. It brings facts and causes to our view better than possibly anything else. This point is well illustrated in my mind by an

illustration of practical value. An orchard on my father's farm, and not an old orchard either, seemed to be failing, and produced but little merchantable fruit. There was something wrong. This failure or partial failure was not

THE CANADIAN HORTICULTURIST.

due to insects or lack of care in the usual sense. It never occurred to us that perhaps there was a lacking of fertility in the soil. At the same time, we were growing wheat, adding manure and even commercial fertilizers to get a maximum crop. We had used every method in the development of the field crops but perfectly neglected the orchard. Not intentionally either, but because we thought it was not necessary and that an orchard had an easy time of it anyway.

But soon after I went to College, I studied plant growth, chemistry, etc. My eyes were soon opened. I soon realized that the depletion of the land by the fruit trees is more serious than by annual crops, for this fact: plant foods are locked up for many years in the trunks and branches of the trees, while a large part of the fertilizing elements in the common crops is returned to the soil each year. Besides the fruit taken off, removes plant food that is seldom ever returned.

It has been estimated that an acre of apples during the bearing season will remove about 49 lbs. of nitrogen, 38 lbs. of phosphoric acid. and 72 lbs. of potash, the value of which would be \$12, at the average prices paid for fertilizing material furnishing these ingredients on the market. Is it any wonder then that orchards are failing? Taking from the

soil that amount of plant food each year, it is only natural that the time soon comes when one gets but a partial crop. In ten years the amount of plant food removed from the soil will amount to \$120. Now for the orchard land to be kept in perfect bearing condition, these fertilizing elements must be returned in some form.

We know the value of clover, cow peas, vetches, crimson clover, etc., in adding nitrogen to the soil. Fruit trees require humus. Plow up the orchard and sow clover, then keep the orchard clean and clear of weeds and insects. Humus is added, and at the same time an abundance of nitrogen is supplied to the soil for the use of the trees. It remains then only to use phosphoric acid and potash, which can be readily obtained in the form of acid phosphate and muriate of potash, an average dose of these would be about 300 lbs. of the former, and 200 lbs. of the latter. It would be better to apply the potash and phosphate before the clover is sown, as they will assist in making a full crop of clover, which means the absorption of larger quantities of nitrogen, and the whole mass turned under will improve both the physical and chemical condition of the soil.—CHARLES W. BURKETT.

Ohio State University.



THE VINEYARD.

The Site.—The investigating fruit-grower will find in Ontario healthy and paying vineyards, situated upon nearly all classes of soils. The grape is a warmth loving plant, and undoubtedly the most favorable location is that which furnishes a loose, well drained clay loam, in addition to a free atmospheric circulation. Good soil drainage is imperative if a long-lived, productive vineyard is the ambition of the fruit-grower. There are examples of the ill effect of imperfect soil drainage to be found in some of the best grape growing sections of Ontario—a yellowing of the foliage—dropping of the fruit—indications are that there is something radically wrong. Occasionally late spring frosts visit us, the injury is most severe as a rule in the lower levels of the vineyard. In Eastern Ontario and Quebec, where the summer heat requisite to bring some of our best varieties to maturity is deficient, a warm southern exposure should be selected. If this is protected by wind breaks on the north and west, so much the better.

Preparing the soil.—Hoed crops, meaning those requiring cultivation, in summer, as roots and potatoes, should precede vines. When the ground is cleared of these, a good plan is to plough it into narrow lands, allowing the dead furrow to fall into the line of each proposed row. Subsoiling is of prime importance, and should be done as thoroughly as possible. If the ground is allowed to remain in this condition till spring, the pulverizing action of the frost will have acted beneficially upon the soil, greatly increasing its mellowness and friability.

Time to plant.—In the best grape growing sections, both fall and spring planting is practised, most growers claim, with equal success. The amount

of leisure time, therefore, may be allowed to guide the planter, although in fall planting the ameliorating influence of the frost upon the soil previous to planting is lost. Fall set plants should also be protected by throwing a furrow against them on each side. In the east and north, spring is undoubtedly the best season.

Distance apart and how to plant.—Grapes, like apple trees, require room, according to their vigor—Daleware, Moore's Early and Moyer do well 8 x 8 feet apart, or even less. Strong growing varieties, like Concord and Niagara, need more room between the plants in the new row and should be 10 feet apart, though as a general rule 8 x 10 feet is the distance used by most planters. At the north, it is important that the vine should be planted deeply, 15 to 18 inches being often recommended. To obtain this depth, the vine is planted in a hollow, which is filled gradually subsequent to the growth of the plant. Ten to twelve inches may be accepted as the ordinary depth. It always pays to buy strong plants. They quickly return the price in fruit. Occasionally satisfactory yearlings may be secured, but strong two year olds are much better. As in setting out tree fruits, be careful to remove all bruised portions of roots; the fibres should not be allowed to become dry; the earth should be firmly packed about the roots.

Intermingling varieties in the vineyard.—It has long been a common observation that certain varieties set loose straggling bunches when planted in blocks by themselves. This is the result of imperfect pollination. The experiments of Prof. S. A. Beach, of the New York Experiment Station at Geneva, have given us a list of those varie-

THE CANADIAN HORTICULTURIST.

ties, fertile, partially fertile and nearly, or wholly sterile, with their own pollen. It will be noticed that the majority of the self-sterile varieties are hybrids—the product of two distinct species.

*The following list is only partial, but includes the principal commercial varieties.

I.—Grapes fully self-ferile—

<i>Variety.</i>	<i>Parentage.</i>
Campbell,	Lab. x Vin.
Deleware,	Vin. x.
Janesville,	Lab. x. Vulp.
Moore's Early,	Lab.
Niagara,	Lab.
Poughkeepsie, Red,	Lab.
Rogers' No. 13,	Lab.
Rogers' No. 24,	Lab.
Rogers' No. 32,	Lab.
Winchell,	Lab.

II. Grapes partially self-fertile, but practically capable of fruiting satisfactorily if planted alone :—

<i>Variety.</i>	<i>Parentage.</i>
Agawam,	Vin x Lab.
Brilliant,	Lab x Vin.
Catawba,	Lab.
Clinton,	Vulp.
Concord,	Lab.
Empire State,	Lab.
Jefferson,	Lab.
Vergennes,	Lab.
Worden,	Lab.

III. Grapes partly self-fertile ; set fruit unsatisfactorily when planted alone :—

<i>Variety.</i>	<i>Parentage.</i>
Adirondack,	Lab.
Amber Queen,	Rip.
Canada,	Rip. x.
Duchess,	Lab.
Eumelan,	Lab.
Perkins,	Aest.

IV. Grapes which bear abortive fruit, but do not perfect fruit when planted alone :—

<i>Variety.</i>	<i>Parentage.</i>
Aminia, (Rogers' No. 39),	Lab.
Brighton,	Lab.
Essex, (Rogers' No. 41),	Lab.
Gaertner, (Rogers' No. 44),	Lab.
Massasoit, (Rogers' No. 3),	Lab.
Merrimac, (Rogers' No. 19),	Lab.
Requa, (Rogers' No. 28),	Lab.
Rogers' No. 5,	Lab.
Salem, (Rogers' No. 53),	Lab.
Wilder, (Rogers' No. 4),	Lab.

V. Grapes in which self-pollination has no perceptible influence on the ovary :—

<i>Variety.</i>	<i>Parentage.</i>
Amber,	Vin x Lab.
Barry, (Rogers' No. 43),	Lab. x Vin.
Creveling,	Vin x Aest.
Eaton,	Lab.
El Dorado,	Lab x Vin.
Lady,	Lab x Vin.
Lindley, (Rogers' No. 9),	Lab x Vin.
Norwood,	Lab.

Cultivation.—"Frequent cultivation" should be a motto in growing a vineyard. The surface should be kept mellow by the frequent passage of the cultivator or grape hoe. This latter, is an exceedingly useful implement in the vineyard or small fruit plantation. In a dry season the importance of frequent shallow cultivation, as a means of retaining the moisture of the soil, is not easily over estimated. A good practice is to plough to the vines in the late summer and away from them in the spring. The furrows nearest the trellis should be very shallow, as the surface soil is filled with fibrous roots. The cultivator and grape hoe will do the work during the remainder of the season. A cover crop is of great service in the north, to catch the snow, and thus afford protection to the

* A complete list is given in the Annual Report of the Ontario Fruit Growers' Association, p. 98.

THE VINEYARD.

roots of the vines. Crimson clover does not, as a rule, make sufficient growth to afford much protection when sown as late in the season as seems desirable. Probably rye or field pease will serve the purpose and will also give some return when ploughed under. Grape growers in this vicinity make special arrangements in the way of providing movable "snow catchers" for the more exposed parts of their vineyards. This is very important when the vines are young.

Fertilizers.—Heavy fertilizing with barnyard manures will, in most cases, induce an over luxuriant growth with a

same throughout. The vine produces its fruit near the base of the growing shoots that spring from the wood of last season's growth. These shoots go on growing after producing two or three clusters of fruit; a bud is formed every six or eight inches. If the cane makes a growth of eight or ten feet it would mean a dozen or more such buds. Then if this cane were not cut back each bud would throw out a shoot the following spring, which would bear two or three bunches of fruit. As each vine would carry ten or fifteen such canes it is easily seen that the crop of fruit would be

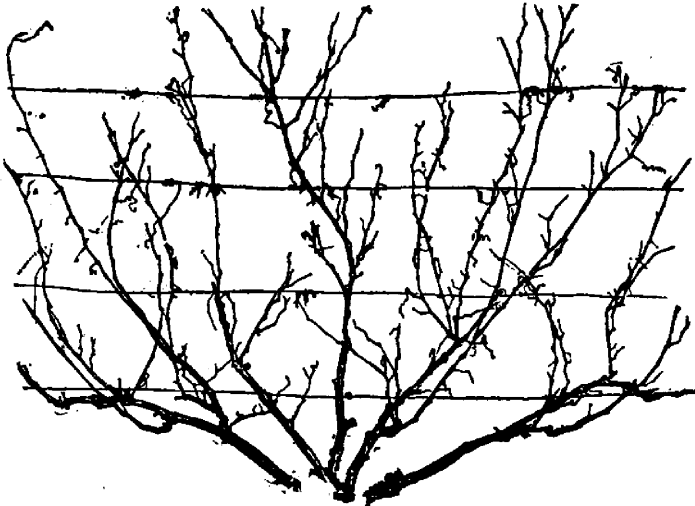


FIG. 1334.—FAN SYSTEM BEFORE PRUNING. (From a photograph.)

tendency to mildew of foliage and fruit. A dressing of barnyard manure once in three years will probably give sufficient nitrogen. The phosphoric acid and potash (both of which are largely drawn upon by the grape vine) should be supplied the two remaining years. Wood ashes or muriate of potash, and superphosphate or bone meal will supply these.

Training and Pruning.—To carry out any system of pruning properly, and there are many, one should understand the underlying principles, and these are the

greater than the vine could properly develop and mature. Pruning, is therefore, practised as a means of thinning the crop and keeping the vines within bounds and under control.

In Quebec and Eastern Ontario, where vines need winter protection, and are carried through the winter by laying them down and covering them with earth, two systems of training are practicable only. Whatever system, the cane may be cut back, to two eyes at the first year's growth in the vineyard.

Fan System.—This is used most freely

THE CANADIAN HORTICULTURIST.

where vines are protected in the autumn by laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis.

There is a tendency on the part of the grower to allow too much wood to remain on the plant in the autumn,

near the ground, giving the vine practically several main stems.

High Renewal. — This system, or modification of it, are probably more generally adopted throughout Ontario than any other. It aims at starting the head about two feet from the ground, so that the main branches are tied to the lower wire. The vine is usually started the second year with two canes striking out in Y-shaped fashion. In the fall of the same year all side shoots are cut back closely and the main canes cut back to four or five buds each. The third season three or four of the strongest roots springing from the centre of

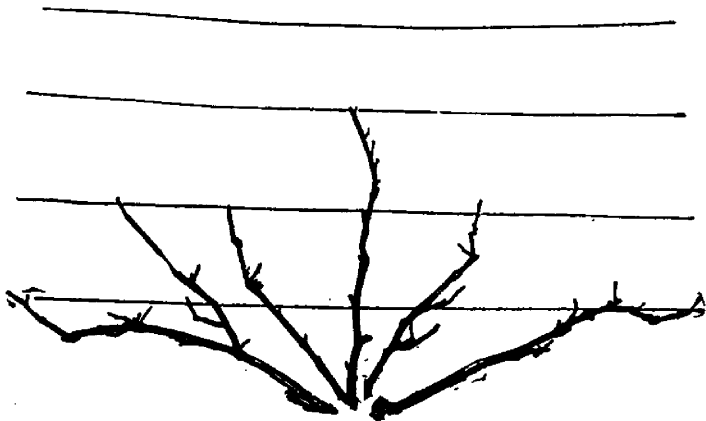


FIG. 1335.—FAN SYSTEM PRUNED. (From a photograph.)

especially when it is young. The vine should not be allowed to bear the second year after setting out, and only a small crop the third year. I quite realize that instructions of this kind are much easier given than understood and carried out. A heavy crop of fruit borne by young vines the third year after planting will sometimes ruin the yield for two or three succeeding years, and often destroy the vines. The prospective crop may be more or less accurately estimated by multiplying the number of buds by two, this kind of estimate may be used as a guide in pruning. The fan system aims, at starting the canes

the head are allowed to grow. In the autumn these replace the outer arms, and in turn are replaced by them the following season. The aim is, then to renew the fruiting canes from different parts of the old wood every year. The number of buds to be left will depend upon the strength of the variety and the individual plant. Concord, Niagara and Worden will carry with safety more wood than Moore's Early or Delaware. As the canes grow they are tied to the wires of the trellis, distributing the foliage as much as possible. It is usually found necessary to go over the vineyard two, three and, occasionally four times,

THE VINEYARD.

during the summer, in order to properly secure rapidly growing wood, so that the bunches are held clear of the ground. When the head becomes weak, as it may, after a few years, it is necessary to train up a new shoot from the ground.

Horizontal System.—This method of training is especially adapted to sections of the country where it is advisable to give the vines winter protection. Two strong canes are trained in opposite directions. The laterals springing from these are trained perpendicularly. In the autumn the laterals are cut back to two spurs. When the spurs become weak they are renewed, as is an entire arm occasionally. This system calls for a four-wired trellis, in order to properly tie the strong laterals. The three methods of training described thus far, are all on the upright plan; in those which follow, the vines hang down and are termed drooping systems.

Four Cane Kniffen.—In this system the trellis consists of two wires. The main cane is carried to the top wire and from it an arm is trained each way on the two wires. The side canes are tied to the wires and the lower ends allowed to hang free. The advantage of this system over others is that it obviates a large amount of tying and perhaps lessens the amount of summer pruning.

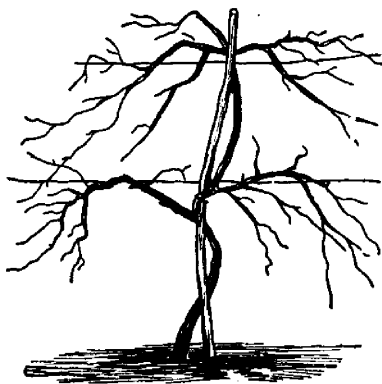


FIG. 1336.—KNIFFEN SYSTEM.

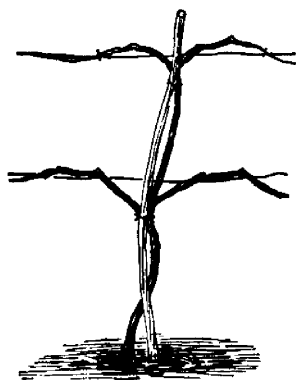


FIG. 1337.

This Kniffen system is largely used in the Hudson River Valley, N.Y., where it originated. It has been strongly recommended and is in favor for strong growing varieties. In pruning a full grown vine, the upper arms are usually allowed to carry a greater number of buds than the lower. Thus, many allow ten buds to the upper, and five buds to the lower canes. The arms should be stretched along and attached firmly to their respective wires; from these the laterals droop. When the arms become weak they are renewed from the head.

Modifications of this system are found—one umbrella, falls from a single high wire only, others carry six or eight canes, but all are drooping.

Over-head or Arbor-Kniffen. This method of training is practised by a few prominent fruit growers in Ontario. The vines are carried up seven foot posts and allowed to rest on cross wires, forming in this way a kind of arbor. One plan is to nail a cross piece to each post at right angles to the pole. This extends three feet on each side. Three wires are stretched on these, one at each end, the other in the middle to the posts. The trellis is thus a horizontal one and six feet above the ground. An unbranched trunk is carried up to the

middle wire and the canes spread either side from this point. A T-shaped head is considered the ideal form. Another over-head system is known as the "Cross Wire Kniffen." In this a small post six or seven feet high is set for each vine.

The tops of the posts are connected by cross wires. The vines are trained up the posts, and on reaching the top four arms are trained outwards, one on each wire. In the autumn the arms are cut back to six or eight buds each. In the case of the over-head systems, movable platforms may be used in harvesting the fruit.

Post Training.—This has been used at Ottawa in order to compare it with trellised vines. It has not given satisfactory results. When the foliage is crowded on a small post the fruit colors slowly and unevenly, and mildew and rot are encouraged.

Summer Pruning.—It is always desirable to remove the shoots that spring from or near the base of the vine, except when they are required for a special end. These shoots are quickly broken out, or nipped off when still soft and succulent. A certain amount of shortening back is also desirable. This should not be done too early in the season. In summer pruning of Lindley, for instance, I have found it best to shorten back after the first strong growth has taken place. If pinched early in the growing season a great mass of laterals is produced and the amount of work very much augmented.

The Trellis.—It is well to set the posts the year following the planting of the vineyard. If trained on the upright system, the posts should stand five feet to six feet above ground, and be not less than six feet high if the over-head system is adopted. Cedar or oak are preferred on account of durability. The

end posts of each row should be thoroughly and efficiently braced, either with a brace on the inside, or on the outside, with a strong wire running from the top of the post to a stone firmly imbedded in the ground. No. 12, plain annealed wire is ordinarily used and is fastened to the posts by wire staples. The posts are usually set far enough apart—in the upright systems—to allow of two vines being planted between each two posts. The wires should be run through the end post and be attached and wound around a piece of wood, which will act as a spool, to enable the growers to tighten them in the spring and to loosen them in the autumn, thus allowing for contraction. Raffia—the product of a palm-like plant—wool twine and osier willows are used in tying the canes to the trellis. The first named, is a cheap and very satisfactory material for the purpose.

CARE OF THE FRUIT.

Thinning.—Reference has already been made to the desirability of pruning with a view to restricting the quantity of fruit and of providing for its even and irregular distribution upon the vine. The size of the bunches may be materially enlarged by a judicious removal of the smaller clusters. The size of the berries may also be increased by thinning the berries on each bunch where they are closely set. The average grower cannot afford the time required to do the latter, except, perhaps, in the case of exhibition samples—nor do all varieties call for this treatment. In this age of keen competition it will, I believe, pay growers to remove a portion of the smaller bunches when "tying" and "suckering." The effect will be seen in the improved size and appearance of the remaining product. "Ringing"

THE VINEYARD.

canes, which produces large clusters and berries, at the expense of quality, should be discouraged.

Spraying.—This is not always needed. If properly done, it is always effective. Downy mildew attacking leaves and fruit, may be prevented by using Bordeaux mixture. Make the first application as the buds are bursting, the second, just after the fruit has set, and the third, two weeks later. If later applications are needed, ammoniacal copper carbonate should be used. Powdery mildew also yields to Bordeaux mixture. "Anthracnose" or "Bird's Eye rot," is one of the most serious troubles affecting grapes in Eastern Ontario and the province of Quebec. It is kept in check only when the utmost care and vigilance is exercised.

1—Spray the canes when uncovered and still dormant, with copper sulphate, one pound to 25 gallons of water.

2—Follow this with Bordeaux mixture, as directed above.

3—Remove and destroy diseased foliage and fruit as soon as it makes its appearance.

4—Fertilize with wood ashes and bone meal, supplemented with light dressings of well rotted barn-yard manure.

Picking and Packing.—Growers almost invariably pick into the baskets that are shipped to market. Thin skinned grapes of fine quality, like Delaware and Brighton, should always be packed in small baskets. A ten-pound "vener" basket is a favorite in the Niagara district. A basket rack, holding two baskets, is a convenient device to use in the vineyard. The bunches may be cut with a sharp knife or pruning shears, as preferred. They should be cut off close to the cane and placed stem end down in the baskets, laying the bunches regularly till the receptacle is filled. The filled baskets are taken to the packing house, weighed, the finishing touches put on, in the way of facing, etc., and then covered. A leno cover of suitable color attached to a vener frame, when fastened down, completes the package, the name of the variety being stamped upon the end or top. The bunches should always be handled gently to prevent bruising and cracking. Concord and Worden are usually shipped in 20-pound baskets. Good keepers like Vergennes and Catawba, are sold, advantageously in winter in 5-pound packages.—*Report of Horticulturist Central Experimental Farm.*

THE WAY TO HANG A HAMMOCK.

The ideal way to hang a hammock is to place it six and a quarter feet from the ground at the head, and three and three quarters at the foot. The rope that secures the head should measure about one foot—it is better to be less—

and at the foot about five times that. The object of this is to keep the head comfortable, by being nearly stationary, while the lower part of the hammock will swing freely.

SUMMARY OF REPORT OF WILLIAM M. ORR,

SUPERINTENDENT OF SPRAYING EXPERIMENTS,

Conducted throughout Ontario, by direction of Department of Agriculture of Ontario, during 1897, showing the kind of fruit sprayed and the gain made.

NAME OF APPLE.	W. A. Warren's Orchard, at Trenton.		George Adams' Orchard, at Smithville.		J. R. Thorn's Orchard, at Picton.		G. Moffat's Orchard, at Wingham.		Alex. Cameron's Orchard, at S. Lancaster.		All the Orchards Sprayed. Total.		Average.	
	Spr'd.	Unsprayed.	Spr'd.	Unsprayed.	Spr'd.	Unsprayed.	Spr'd.	Unsprayed.	Spr'd.	Unsprayed.	Spr'd.	Unsprayed.	Sprayed.	Unsprayed.
Spy	76	8	90	0	90	10	80	0	100	60	386	18	84	4½
Snow	75	0	80	0	75	25	100	5	100	60	430	30	86	6
Wealthy	90	20									90	20	90	20
S. Permain	75	5									75	5	75	5
Baldwin	90	10									90	10	90	10
B. Greening	76	5									90	10	90	10
Swaar			80	0	75	10	95	30			171	35	85½	17½
Rox. Russet			90	0							155	10	77½	5
Canada Red			90	0							90	0	90	0
Newton Pipp.			90	0							90	0	90	0
Colvert			90	0							90	0	90	0
St. Lawrence					90		90	40			180	40	90	20
Golden Russet					75	10			90	10	165	20	82½	10
Bellefleur					90	25					90	25	90	25
Red Astrachan					75	10					75	10	75	10
Pippin					80	15					81	15	86	15
Duchess							90	0			90	0	90	0
Maiden's Blush							100	50			100	50	160	50
Tal. Sweet							95	50	100	00	195	50	97½	25
Alexander							95	2			95	2	95	2
Baxter									100	10	100	10	100	10
Hass									90	10	90	10	91	10
									100	20	100	20	100	20
Actual Results	482	48	520	00	650	105	745	177	520	70	2977	3400	Average	87½%
Total Possibility	600	600	600	600	800	800	800	800	600	600	3400	3400	Per Ct.	11½%

The above table will show the individual orchard sprayed, and in column 7 will be seen the results of spraying each kind of fruit in all the orchards. As an example, take Spy: it will be seen this kind was sprayed in four places, at Trenton 76%, Smithville 90%, Picton 90%, and Wingham 80% of good fruit, or 336 barrels of good fruit out of a possibility of 400 barrels; whereas those unsprayed gave 18 barrels only, of good fruit, out of a possibility of 400 barrels; or, in the case of the sprayed, 84% were good, and only 4½% were good of those unsprayed.

All the kinds are shown in the same

way, and the total of all kinds sprayed show 2977 barrels of good fruit out of 3400 barrels, or 87¼%; while of those unsprayed, only 380 barrels were good, out of 3400 barrels or 11%. In point of range and gigantic proportions, nothing of the kind, in the manner of this report, has ever before been attempted; and when the method, quality, standing and disinterestedness of the authorities is considered, it leaves nothing further to be desired. To put it mildly, the report is startling, and should be one of the most awakening sensations the farmers and fruit growers have experienced for a long time.



Flower Garden and Lawn. ❀



FIG. 1338.—*G. GANDAVENSIS*, GRANGE ROUGE.

STANDARDS of beauty differ the wide world over. Types regarded as perfection in one country find but little acceptance in another. This is true not merely in regard to fair woman's kingdom, but also in the scarcely less beautiful realm of flowers. Even while gen-

eral opinion may favor the rose, the lily has never been without its worshippers; and, of all the lily family, no class is now so generally cultivated and so universally admired as the gladiolus. Its cheapness, the ease with which it is grown, its adaptation to widely different conditions of climate and soil, its variety in the color, shape and disposition of its flowers, their excellent keeping qualities when cut, the length of its season in bloom—all these combine to make it the most deservedly popular flower of the day. There are many strains of this beautiful member of the lily family. The oldest and, in my opinion, still the best, are the hybrids of *gandavensis*. An ideal variety of this strain is said by Mr. James Kelvey,* the highest English authority, to be robust in constitution and habit, tall in growth and with broad foliage. The spike should be long, stout, erect, and closely set with flowers, at least eight or ten of which should be open at the same time. All the flowers should face in the same direction. The individual blooms should be large—not less than four inches across—and widely expanded. The petals should be broad and of good substance and finish. As to color,

* In a paper read before the Royal Horticultural Society, September 9th, 1890.

there will naturally exist a wide difference of opinion, but Mr. Kelwey's view is as follows:—"The ground color should be pure, but if containing two or more tints, the flakes should be of a deeper shade and the lines in the centre of the petals should be clearly defined."

Grand Rouge, the variety figured above, in almost all respects conforms to Mr. Kevley's standard, while it surpasses it in others. The petals are not as broad toward the tips as in some of the later varieties. Otherwise *Grand Rouge* represents the best types of *G. gandavensis*. The flower is a clear bright scarlet, with small violet blotches in the throat. It is an old variety, but one of the very best, and can be bought for a few cents per bulb.



FIG. 1339.—
G. nanceianus, Simon Lorenz. *G. Lemoinei*, Incendiary. *G. Childsi*, Henry Gillman.

In France a different type is admired, and two other forms widely different from the first, and from each other, have become very popular. They are known as *G. Lemoinei* and *G. nanceianus*. The former is hardy in climates scarcely less severe than ours. The stalk is thin, and as growth is very rapid, it is disposed to bend with its own weight. The plants accordingly require to be staked as soon as the spikes show and should be tied anew every day or two. It is seldom that more than seven or eight blooms are open at the same time. The flowers are smaller than in the *gandavensis* section, less closely set on the stalk, and not so widely expanded. Their coloring is however more vivid, abounding in strong contrasts. They run the entire chromatic scale from white to deep purple and violet, with large spots—usually darker than the main color—on the lower petals.

The variety, *Incendiary*, shown in the centre of the figure, is one of the largest and most brilliantly colored forms. *G. Lemoinei* multiply rapidly, and varieties only a few years introduced may be purchased at a very low price.

G. nanceianus is a race of daily increasing popularity. The French and German growers, and latterly, the English, are producing great numbers of new varieties, which have all the beauty of coloring of *Lemoinei*, while they greatly exceed that strain in the size of their individual flowers. The two upper sepals are usually very long and broad, but the flowers lack the substance of *Lemoinei*. The spikes of both strains have a lightness and grace which make a pleasing contrast with the somewhat stiff arrangement of the flowers of the *gandavensis* hybrids.

WHY I GROW THE GLADIOLUS

The variety figured is of German origin, but it is not truly typical of the strain.

The variety of *G. Childsi* shown is fairly representative of the class. The plants are strong growers, the spike is stout and rigid, and well set with numerous large flowers, but few of which however are open at the same time. The older forms are chiefly shades of red, and are wanting in variety. Recently however many new colors, including whites and blues, have been introduced. A defect which this strain shares in common with *nanceianus* is, that the petals are thin, and they do not accordingly stand the great heat of our summer sun. In time, doubtless, varieties will be selected which will be

of better substance and finish. If the spikes are cut when the first flowers open, they will last almost as long as the more substantial *Lemoinei*. A bouquet of the four strains, arranged with due regard to color and form of flower and spike, cannot be excelled in beauty. The large flowering gladiolus still lacks odor, but considering the progress made in hybridizing and the possibility of introducing odor through *G. blandus*, it is not too much to hope that the future has in store for the lovers of the gladiolus, varieties which shall rival the rose in sweetness, as they now rival it in form and color.

F. R. LATCHFORD.

Ottawa, Feb. 22, 1898.

WHY I GROW THE GLADIOLUS.

SIR,—Having wished for some time to explain my interest in the Gladiolus, I beg to write to you from a strictly amateur standpoint, with the hope that I may touch a sympathetic cord among some of your many readers.

You are aware that I am not a florist or a gardener—but a business man. From early childhood I have had a love for horticulture in all its branches, and few amateurs have devoted more time and money in the material aspect of work and in gaining experience.

While my interest in the Canna is on account of its value as a bedder in tropical decoration, the gladiolus appeals to me in a way no other flower can, on account of its wonderful beauty and limitless variation in form and color. Imagine varieties of distinct character by tens of thousands, no dull monotony here, but endless variation and ever increasing beauty in coloring, and improvement in quality.

At our annual meetings I have felt the necessity for restraint in depicting the present condition and future possibility of this flower, for unless my hearers have had more than average experience it is not possible to make the desired impression.

My reason for urging cultivation as a cut flower is, that owing to periodic unfavorable weather conditions the flower can never be developed in all its beauty and quality in the open ground, where it must be grown. Then when bloomed in the house the spikes last longer by many days.

Speaking of its durability as a cut flower, I claim that on this point it is only excelled by the Orchid, but in exquisite beauty and combination of color this rare flower has its most successful rival. As Orchids are impossible excepting under special and artificial conditions, and before they become the people's flower, the Gladiolus will have

THE CANADIAN HORTICULTURIST.

so improved under the refining influence of scientific selection, as to make it the most desirable flower, even if both could be produced with equal simplicity of culture.

My reason for this statement is : that if from the comparatively few species used in the production of our hybrid Gladioli we have seen developed such marvels of beauty, and more within the past five years than in the preceding fifty, it is not unreasonable to expect an even more rapid proportionate increase in beauty and variation in the future, not only from the results of close selection from these perfected hybrids, but through the many newly discovered species yearly increased by botanical exploration, each bearing such special and distinct characteristics as to give greater promise for the future.

When first I became interested in the flower and purchased my amateur supply by the thousand, it seemed desirable to select the most beautiful ones and discard inferior sorts—so I began my first selected mixtures. During the long and dreary winter I cheered myself with thoughts of the pleasure awaiting me, but when the "selected" bloomed I concluded that a mistake had been made, for I could never have thought such flowers worthy of perpetuation. Of course I wanted to know the reason for the non-appearance of my favorites, and found this inability to reproduce characteristic flowers due to lack of vitality and fixity, caused by the self fertilization of a long in-bred and degenerated parentage.

Hybridizing and cross-breeding of selected varieties being the only path to my ideal, I gathered the best material obtainable and commenced work, and so absorbing and interesting has it become, that I never expect to abandon it entirely.

As a flower for amateurs the Gladiolus demands a first place on account of ease of culture, unequalled range of color and variation, and general adaptability for home, cemetery, and church decoration. Few flowers cover the whole range of color equal to the Gladiolus, and when fixed types are secured they can be reproduced year after year without loss.

Horticultural societies are justified in giving them prominence, but they may never hope to understand the flower, by always buying low grade and low priced stock. I cannot do it—and advise societies to advance the quality of their selections each year, for they will never secure more than fair stock at best, in comparison with the gems obtainable.

On one occasion in reply to an enquiry made by me, a society said, "We bought Gladioli last year," as though one, or even ten purchases of yearly advanced quality in low grade stock, would do more than give a glimpse of the true character and value of a flower that has been so recently improved.

This year a lady writing from Central York, asked me to exclude certain hybrids from her collection, saying, "I just hate them." Fancy beautiful and refined woman hating a flower—but her experience had not extended beyond the earlier hybrids of a section which excels the whole group in form, size, substance, quality, beauty, and range of color.

A large dealer last year expressed his objection to the form and size of a certain section, and was surprised to learn, that not only was the form referred to out of date in this section ; but was the largest and best formed flower bloomed by me in contrast to the world's best and latest introductions in that season, was of this condemned family.

I simply give these instances in sup-

CANNAS.



FIG. 1340.—MR. H. H. GROFF.

port of my contention, that this flower, beautiful and popular as it is, is practically unknown to the amateur, the trade, and the average grower.

Societies should secure as object lessons of the effect of scientific selection in horticulture, small collections of higher quality, in preference to large quantities of material utterly failing to represent the improved condition of the flower to day.

Simcoe.

H. H. GROFF.

GLADIOLUS.—The most attractive of all summer flowering bulbs are the gladioli. Wonderful improvements have been made in recent years in the size and beauty of these flowers. Their cultivation is very simple, as they will thrive in any ordinary garden soil. Plant six inches apart, in beds or double rows, and three inches deep.

CANNAS.

ONLY a few years ago they were grown only for their foliage, which was magnificent, but the flowers were small and not showy. But lately every year has with it brought new and splendid varieties, not only in leaf but in flowers that are simply grand. And as cannas are one of the few flowers that make a good display from the time planted (1st of June) till the frost destroys them, and as the bulbs can be kept in the cellar if taken up with a little earth and given a little water in the spring, and then only if seen to shrivel up, it makes them a cheap flower after the first year. They like well enriched soil and plenty of water for the best results.

I have always been on the out look for the best to be had, and will give a list of the ten best I have had, or seen in their order after its kind. In gilt edges with scarlet centers is Queen

Charlotte, 32 ft., and Madam Crozy, 32. In crimson, Alphonse Bouvier, 5 ft., a great flowerer. Charles Henderson, 3 ft., Flamingo, 3 ft., which has perhaps the best flower, but the foliage seems to be less healthy than the others. In yellow with bright marks is Florence Vaughan, 5 feet, will please everybody. In vermilion is Chicago, 4 ft., and Sophia Buckner, 5 ft., two grand flowers. In dark foliage, I. D. Cabos and Egan-dale, 4 ft., two bright flowers. Two that will not give satisfaction, though they get great praise, is Italia and Austria. They have flowers as large as described, but have no substance and two days' sun burns them up, though as each petal comes out it will give a fresh flower, but two petals will seldom be able to get out at once, but the foliage is grand and is a great grower.

WM. DUNCAN,

Hamilton.

City Gardener.

* Doings of Other Societies. *

ORILLIA. The Horticultural Society here has issued a circular providing for a new departure. This Society has been long working on the old lines, and not wishing to discontinue the prize system at its exhibition now proposes two classes of members, viz., (1) those paying \$1.00 who shall be entitled to entry of articles for prizes, and free admission to exhibition, and (2) those paying \$1.50 who in addition shall be made members of the Ontario Fruit Growers' Association, receive the journal and plant given by it, and in addition one dozen flowering bulbs from the Orillia Society.

MR. ALEXANDER McNEILL, of Windsor is lecturing to eighteen of our societies, taking more especially those East of Toronto. He writes :

"The Picton meeting came off in good shape and had, perhaps, 150 people present. I gave them "The Possibilities of a Town Lot," and "Flowers, Their Forms and Functions," illustrated with a splendid chart belonging to the late Prof. Panton. It makes a very interesting talk, which I gave again last night at Iroquois, with every evidence of attention on the part of the audience. The Napanee meeting was well attended. The secretary has some most willing assistants in the persons of Mrs. Wilkison, Mrs. McGill, Mr. Symington, Mr. Herrington and others. The hall was neatly decorated during the afternoon by the ladies and gentlemen, with flowers, draperies, rugs, etc., so that it looked most inviting for the evening meeting. We had an oil lantern but it was not a success.

Our new pictures are all right for a calcium light but the details are not developed at all with an oil lamp. My insert slides were better. The Iroquois officers are "all right." The Secretary has a home on the bank of the St. Lawrence, very beautifully situated and which he is very anxious to plant for the best effect. The President is Mr. Whitney, our new Director for this district, a very fine old gentleman, likely to be of use on our Board.

I urged Mr. Ross, of Picton to prepare a paper for the *HORTICULTURIST*, on his experience with some of the common exotics when treated as window or house plants. He has a good collection, many of them in good shape.

I enclose in a separate envelope some of the

questions put in the "drawer" at Picton and Napanee.

GRIMSBY. The following is the list of plants to be given each member of the Grimsby Horticultural Society on paying his subscription for 1898 :

1 Genista	20c
1 Rudbeckia.....	20c
1 Swainsonia.....	20c
1 Hydrangea paniculata.....	25c
1 Peony	30c
1 Heliotrope.....	10c
1 Dwarf Salvia	10c
1 Liliun Auratum	25c
1 Gladiolus.....	10c
1 Packet, Sweet Peas.....	5c

\$1 75

WOODSTOCK.—The Secretary of this Society has sent out the following circular, dated 16th February :

At the monthly meeting of the Woodstock Horticultural Society held last night it was decided to distribute to its members, who have paid their annual subscription of \$1 to the Treasurer for 1898, on or before March 15th, the following premiums: *THE CANADIAN HORTICULTURIST* and its premium; also 4 bulbs "Groffs" new Hybrid Cannas 1898; cherry tree (Windsor); peach tree (Elberta); hydrangea, plant for pot culture; 1 oz Eckford's new large flower sweet peas; 1 pkt. mixed Victoria aster or other good sorts; 1 pkt. stocks, large flower, 10 weeks mixed; 1 pkt. phlox, large flower, mixed; 1 new Japanese morning glory; 1 pkt. pansies, English, large flower, mixed; also 4 pkts. of good common annuals not generally grown.

WOODSTOCK. -- The Woodstock Horticultural Society is a live organization which is doing much to create an interest in floriculture and other branches of horticulture. The meeting in the council chamber last night was attended by upwards of a hundred, and included a few ladies who took a lively interest in the proceedings.

The greater part of the evening was given up to a paper prepared and read by William Gammage, florist, of London, on "house and bedding plants." The paper showed a thorough grasp of the subject, and contained many useful hints to those engaged in the culture of flowers. Among the plants dealt with were the decorative, flowering, bulbs and bedding classes. The speaker spoke of flowers as having an ennobling and elevating influence. Every home should have a win-

DOINGS OF OTHER SOCIETIES.

dow set apart for their cultivation. This window should be the largest in the house and facing the sunny side, with lots of ventilation.

The paper was listened to with close attention and Mr. Gammage was accorded a hearty vote of thanks at the close. Many of those present showed their interest in floriculture by questioning Mr. Gammage, which elicited additional information. The membership of the society now numbers about 95.

T. H. Parker presided in the absence of the president.

BRAMPTON HORTICULTURAL SOCIETY.—This Society held a meeting in the Town Hall at 8 p.m., on March 17th, 1898, for the purpose of hearing the lecture delivered by Mr. McNeil of the Fruit Growers' Association of Ontario. There was quite a big turnout, the number being about 300, who gave the lecturer a very hearty reception. The lecture was a very instructive and very interesting one, and the question drawer which followed was a large one and brought forth replies that were practical, and no doubt will be acted upon with advantage. The chair was occupied by the mayor of the town, E. H. Crandell, Esq., who was introduced by Dr. C. Y. Moore, the president of the Society. The music was rendered by the Brampton Orchestra, under the able leadership of Dr. French, one of the directors of the Society.

The beautiful flowers which graced the platform were given by Messrs. Dale and Jennings, florists and members of the Association, the flowers being distributed to the ladies after the lecture by the Secretary and Mr. F. Dale.

After a most enjoyable evening the company dispersed at 10.30 o'clock.

H. ROBERTS, Sec.

LINDSAY.—The lectures given by Mr. W. McNeil, of Windsor, last Wednesday evening, under the auspices of the Horticultural Society, was very largely attended and was extremely interesting. In opening he alluded to the growing importance of horticultural societies and the good work they are accomplishing all over the Dominion. In the first part of his lecture Mr. McNeil dwelt upon plants and flowers, giving many interesting particulars of the habits, functions and peculiarities, and explained very clearly nature's plans for perpetuating their species, birds, bees and moths being made unconscious agents for carrying the pollen. By means of a large chart Mr. McNeill made his meaning very clear to the audience. Proceeding, the lecturer gave hints for the successful growing of plants, and described some of their common enemies and the remedies to be applied. A number of the views illustrating the decoration of home grounds were then thrown on canvas by Mr. W. H. Stevens, of the Collegiate Institute, Mr. McNeill giving many valuable hints regarding the best method of

treatment. Fruit trees infested with the San Jose Scale were also shown, and a brief history of the pest given. The final series of views represented insects destructive to plants, and the lecturer stated that nearly all bright, metallic-colored insects should be spared, as they devoured great quantities of the hurtful kinds in the larval stage.

PICTON.—I enclose you an article from the Picton Gazette, with reference to Mr. McNeil's lecture here on Tuesday evening last. We had a very good meeting, in fact, we had to bring in extra chairs, so the attendance was larger than we expected, the lecture was interesting and instructive, and all seemed to enjoy it. I think these lectures are a benefit to a Society, and will have the effect of increasing the interest in horticulture.

Yours truly,

WALTER F. ROSS.

Mr. Alex. McNeil, of Windsor, Ont., gave an interesting talk to the members of the Picton Horticultural Society, in Shire Hall, on Tuesday evening. The lecturer discussed the subject of the fertilization and cross fertilization of flowers in an entertaining manner, and talked upon the "Possibilities of a Town Lot," showing what could be accomplished by superior cultivation. He was accorded a hearty vote of thanks. Mr. J. Roland Brown occupied the chair.

ORILLIA.—The Horticultural Society has completed arrangements for holding its projected public meeting on the evening of Thursday the 24th inst. Prof. Hutt, B. S. A., Agricultural College, Guelph, will deliver a lecture on window gardening and out-door garden work for ladies. Mr. J. C. Morgan, M.A., has also kindly promised his services, and will deliver an address on Horticultural topics. Mr. G. C. Caston will be present as representative of the Fruit Growers' Association of Ontario, and he will be competent to speak from the fruit growers' stand point. The Opera House has been engaged for the occasion, and a musical programme is in preparation. A most pleasant and profitable evening is anticipated. Everybody is welcome to attend, and all are invited. No admission fee will be charged. It is to be hoped that everyone who can possibly do so will be present, and thus indicate their appreciation of the efforts put forth by the Orillia Society to increase public interest in the various branches of horticulture. The gallery will be reserved for ladies and their escorts.



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, 5,000 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. ✧

MR. GEO. E. FISHER, of Burlington, has been appointed Inspector of Orchards in the Niagara District; more especially with a view of guarding against the San Jose Scale.

GAULT RASPBERRY.—Owing to the prohibition of American stock, we cannot get the Gault raspberry for our plant distribution, but will substitute the *Older*, a variety probably equally good.

PRODUCERS OF EVAPORATED FRUIT should send their names and addresses, with circulars, etc., to Mr. H. Watson, Imperial Institute, London, S. W. England, who is receiving enquiries for names of Canadian exporters of such goods.

SWEET POTATOES in Canada. We have an interesting article on this subject

for May number, by Mr. Leadbeater, of Woodstock. He shows that these can be successfully and profitably grown. The plants need to be obtained between May 1st and June 1st.

THE GRIMSBY HORTICULTURAL SOCIETY will distribute one each of the following plants to their paid members this spring, viz.: Senista, Rubbeckie golden pod, Swainsonia, hydrangea, peony, heliotrope, Dwarf Salvia, Lilium auratum, gladiolus, sweet peas. Arrangements are being made for an address on flowers from Wm. Bacon, of Orillia, on the 28th inst.

THE vacancy in the staff at the Central Experimental Farm, caused by the resignation of Mr. John Craig, the late Horticulturist, has been filled by the appointment of Mr. W. T. Macoun to that position.

NOTES AND COMMENTS.

Mr. Macoun, who is a son of Professor John Macoun, Dominion Botanist and Naturalist, was born in 1869, at the city of Belleville. He attended the Central school there until 1882, when he removed to Ottawa with his father, where his education was further continued at the Ottawa Collegiate Institute.

During the summer of 1883, 1884, 1885 and 1887, he acted as his father's assistant in his botanical and biological researches and travelled through parts of Nova Scotia, Northern Ontario, the North-West Territories, and British Columbia. Having concluded his preparatory studies, he obtained employment in 1888, at the Central Experimental Farm, where he has been ever since.

After the resignation of the former Horticulturist, Mr. W. W. Hilborn, in the winter of 1888 and 1889 Mr. Macoun assisted the Director in carrying on the work of the Horticulturist during the following spring and summer. He was continued in this work until the appointment of Mr. John Craig in 1890, and at that time paid special attention to the study of varieties of fruit. Since 1889 Mr. Macoun has had charge of a large proportion of the agricultural experimental work on the farm. During the autumn of 1892 he went to Europe and visited some of the more important institutions there, where experimental work is being done, particularly Rothamstead, established by Sir John Lawes; the Royal Agricultural Society's Experiment Grounds, Woburn Sands, and the trial grounds of Henry Vilmorin, Esq., of Paris. In 1893 he was appointed as Assistant to the Director, and Foreman of Forestry, and since that time has carried on the work of the forestry belts and on the ornamental grounds. In 1896, at the request of Dr. Fletcher, who has hitherto managed this part of the work, Mr. Macoun was placed in

charge of the Arboretum and Botanic Garden.

The reports prepared by Mr. Macoun, concerning the branches of the work carried on under his charge—which were included in the report of the Director during the years 1893, 1894, 1895 and 1896—give evidence of much careful work and are very creditable to the author.

Mr. Macoun has been of great assistance to the Director in carrying on the work of the cross-fertilization of cereals and fruits, and many of the more promising varieties now under trial are the result of his careful work.

AN INSPECTION bill is now before the House of Commons of Canada, providing for the addition of a paragraph providing for the inspection of fruit. This paragraph requires all fruit packages to be marked with the name of the kind of fruit, the grade, the name of the packer, whether grower or shipping. The qualities are to be graded 1, 2, 3, 4 and culls. The inspector is to inspect five packages, or more, and if according to brand, he will consider the lots so represented as duly inspected; but if the fruit in any of the packages does not correspond with the marks, then he shall confiscate it.

This bill is no doubt on the right track; for it is quite time that some steps were taken to prevent fraudulent packing. We do not believe the blame of this all rests with the growers; it rests more probably with those shippers who buy No. 2 or No. 3 fruit in bulk, face it up with good, and then sell it for No. 1. We understand that these men are opposed to the bill, and no wonder. We do not hear of any growers objecting.

The only criticism we have is the useless number of grades. Surely No. 1, No. 2 and culls should be grades enough for anybody.

THE CANADIAN HORTICULTURIST.

A LARGE NUMBER OF FRUIT GROWERS met at Grimsby on the 12th of March, to discuss freight rates, and the best methods of packing and shipping fruit. There were two Commission Merchants present, viz., J. T. McBride, of Montreal, and G. N. Hunt, of Ottawa, whose addresses were closely listened to. They advocated more careful handling, better grading, and better packing of our tender fruits; and the shipping in refrigerator car lots to save freight.

POSSIBILITIES OF AGRICULTURE in the Yukon District is the title of a recent bulletin issued from the Experimental Farm, Ottawa, prepared by the Director. As stated by him, "With the comparatively low temperatures all through the summer, the prevalence of frost during the early part of June, and again before the end of August, which shortens the growing season at both ends, there seems to be no prospect of ever being much done in the way of agriculture in such a climate." The bulletin proceeds to give a list of fodder crops and vegetables which may be grown with success.

SEVERAL CARLOADS of American nursery stock arrived at the border on the day the San José Scale act was passed at Ottawa. The Minister of Customs refused them admittance. This will be serious loss to those American nurserymen who had made the sales in Canada, but of course the interests of our fruit growers generally are more important than those of a few individuals. We must stamp out and keep out this pest, lest our orchards become ruined and the best markets of the world be closed to our fruits. What would be the prospects of the Canadian fruit grower, if England and Germany, and other great markets should bar our fruits? We must have

these and other new markets, or go out of the business of growing fruit.

FRUITS NOT BARRED OUT. — The Dominion Act does not prohibit the importation of fruit from countries infested with San José scale. Our own Provincial Act makes it unlawful to import or sell such fruit, and it would be a great additional safe-guard if the Dominion Act could also have been made to include it. The following remarks on this head are from Farming.

"Recently the Ontario Fruit Growers' Association urged upon the Dominion Minister of Agriculture that the Government should prohibit the importation of foreign fruits into Canada, because of the danger from bringing in the San José scale. The Winnipeg Board of Trade took the matter up, and has received word from Mr. Fisher that the prohibition of the importation of foreign fruits is practically impossible. Such a prohibition would be manifestly unfair to the people of Manitoba, who depend largely upon California for fresh fruit. No pears, plums or peaches are grown in Manitoba and the North-west, and nearly every attempt to bring fruit from British Columbia or Ontario has resulted in loss, therefore the prohibition of foreign fruit coming into the country would almost deprive Manitoba of these luxuries.

GODERICH.—At the last meeting of the Goderich Horticultural Society, Mr. Wm. Warnock gave a paper on "How to use Fertilizers." He showed the importance of cultivation in connection with fertilizers, as otherwise much fertility might remain in the soil. For tomatoes he discouraged the use of stable manure as causing them to run too much to vine; he advised a fertilizer that is a complete manure, applying a handful to each plant

NOTES AND COMMENTS.

after setting, and then thoroughly raking in. For grape vines he advised $\frac{3}{4}$ of bone meal and $\frac{1}{4}$ of muriate of potash. For ordinary farm crops he advised 2 parts of lime and 1 part of salt, mixed with sods and left to stand three or four months. For mucky soil add bone meal and ashes.

SAN JOSÉ SCALE BILL PASSED.—Our readers will be pleased to note that the Dominion has passed the Hon. F. Fisher's bill to protect Canada against the introduction of the San José Scale. Notwithstanding the sweeping nature of this bill which empowers the Governor-General in Council at any time to prohibit the importation of nursery stock from any country in which the Scale is known to exist. The following is the text of the bill :

2. The importation of any trees, shrubs, plants, vines, grafts, cuttings or buds, commonly called nursery stock, from any country or place to which this Act applies is prohibited.

3. Any nursery stock so imported shall be forfeited to the Crown and be destroyed, and any person importing nursery stock from any such country or place, or causing or permitting it to be so imported, shall be deemed to be guilty of an offence under section 6 of *The Customs Tariff, 1897*, and shall be liable to the penalty prescribed by that section.

4. The Governor in Council may from time to time declare that this Act applies to any country or place as to which it has been made to appear that San Jose Scale exists therein ; and, when satisfied that the importation of nursery stock from any country or place to which this Act has been applied may safely be permitted, he may in like manner declare that this Act no longer applies to such country or place.

5. The Governor in Council, upon its being made to appear to his satisfaction that any class of plants is not liable to the attack of the San Jose scale, may exempt plants of such class, and grafts, cuttings or buds thereof from the operation of this Act.

6. The Governor in Council may from time to time, notwithstanding anything contained in this Act, permit the importation from any country or place to which this Act applies of such nursery stock as is required for scientific purposes.

This act may seem at first to be in the interests of nurserymen, but it is equally in the interests of all fruit growers and farmers. For if once our orchards became infested with this scale,

our export trade in fruit will be closed, and our fruit growers may as well dig out their orchards. Already the German ports have been closed against United States fruit on this account, and England will no doubt follow suit against all countries where orchards are known to be infested.

Our Association has done a wise thing in making a strong appeal to the Dominion for legislation.

THE APPLE PUZZLE.—We have received several correct solutions of the apple puzzle which appeared on page 114, and give place to one or two. Mr. F. T. Morson, St. Thomas, writes :

Regarding the Apple Puzzle published in March issue of the "CANADIAN HORTICULTURIST," would give my explanation as follows : calling them respectively the 2-Appleman and 3-Appleman, the 2-Appleman goes to the market and after having made 10 sales at the rate of 5 apples for 2c. the 3-Appleman's apples are all sold, while the 2-Appleman has 10 apples left and has received 20c. These remaining 10 apples, as they belong to the 2-Appleman, should have been sold at the rate of 2 for 1c., which would bring him 5c. more, thus making a total of 25c. He, however, sold remaining 10 apples at the rate of 5 or 2c., realizing 4c., making a total of 24c. The mistake being that he sold 10 of his own apples at a cheaper rate than he should have done.

ALICE M. DUDLEY, TORONTO, writes :



For every 5 he sells 2 are out of A.
 " " 60 " $\frac{2}{5} \times 60$ " " A = 24
 " " 5 " 3 " " B
 " " 6 " $\frac{3}{5} \times 60$ " " B = 36

But there are 30 apples in A to begin with, and only 30 in B also ; where did the 36 come from ? and what happened the 6 when only 24 were sold out of A ? The 6 out of A were counted with the apples in B ; i.e., instead of selling 6 at the rate of 2 for 1 cent, they were sold at the rate of 3 for 1c., which gives a difference of 1c.

APPLE PUZZLE.—Solutions have also been received from S. Spillett, Nantyre, and from Harold Ward, Napanee.

✧ Question Drawer. ✧

We shall be glad to answer all questions relative to Horticulture, Floriculture, and Forestry, in these columns, but cannot undertake to send answers to such questions by mail.

Apple Growing.

988. SIR,—I am going into the growing of small fruits and apples. I have six acres of high level land for the apple—high level land, sandy loam, sandy subsoil. People tell me trees will do well for three or four years, then gradually die of starvation. Now if well fed from top manure, and sowing peas and clover, and plowing under, I think they should flourish. Kindly give your views. What varieties of winter apples would you advise me to plant? The thermometer sometimes goes down to 20° below zero.

J. L. LAIDLEY, *Omemee.*

No doubt the local experience is quite correct, that in such a soil, without the addition of much manure, or any special cultivation, apples would soon starve. But if moist and well drained, such soil might be suitable for an apple orchard, under certain treatment. A liberal annual application of wood ashes—about 50 bushels to the acre would have an excellent effect, not only supplying the needed potash, but also, tending to give greater compactness to the sand. This with plenty of barn manure, and ploughing under a leguminous crop should give success in apple growing.

As to varieties of winter apples, we can only suggest, for actual experiment is the only final means of answering the question. The following are excellent and probably hardy enough: Blenheim, Snow, MacIntosh, Wealthy, Ben Davis.

Ashes.

989. SIR,—Are ashes worth three cents a bushel good as a fertilizer for red and black cap raspberries, and are they good to use around trees and strawberries on sandy loam?

J. L. L.

Yes, they are worth 25 cents a bushel for sandy soil for any kind of fruit crop. At the price mentioned by enquirer, no

cheaper or better fertilizer could be purchased for sandy soil. On clay soils, however, ashes are objectionable, tending to make the soil more tenacious.

Carnations in Ontario.

990. SIR,—I am desirous of obtaining information respecting the growing of carnations in Ontario more particularly the latest and newest varieties and the amount of glass employed in growing them. For this information I have been referred to you, and I shall be glad if you can give me this information. Perhaps you have articles in the past numbers of your journal which deal with the subject. Are the carnations grown here for winter flowering a separate species, or are they allied to the English Tree carnation?

D. WILLIAMSON, *Montreal.*

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

The following are among some of the leading varieties of carnations, grown in commercial establishments:—white—Lizzie McGowan, Silver Spray, Ivory and Storm King; pink—Daybreak, Wm. Scott, Tidal Wave and Bridesmaid; scarlet—Portia; yellow—Goldfinch and Dean Hole; pink and white—Hellen Keller, J. J. Harrison. Many new varieties are being introduced every year, some of which will no doubt take the place of those mentioned. It would be impossible to give a close estimate of the amount of glass employed in growing carnations in Ontario. Dale, of Brampton; Dunlop, of Toronto; and Miller, of Bracondale, have several acres under glass, a large portion of which is devoted to carnation culture. The English Tree carnation and that grown here belong to the same species (*Dianthus Caryophyllus Somperflorens*). For a book on that subject I would refer the dealers to American Carnation Culture, by I. L. Lamborn.

QUESTION DRAWER.

Fruit Trees to Border Tennis Court.

991. SIR.—What varieties of plums, pears, cherries and early apples are best to plant on three sides of a tennis lawn, about 90 x 90 x 80?

E. COWDRY, *Simcoe*.

The following list would give an interesting variety; the apples 30 or 40 feet apart, and the others 15 or 20: Plums—Abundance, Bradshaw, Washington, Reine Claude. Cherries—Geo. Wood, Knights Early, Black Tartarian, Napoleon, Windsor. Pears—Giffard, Marguerite, Bartlett, Anjou. Apples—Astracan, Duchess and Wealthy.

Flowering Hedge.

992. SIR.—What would make a pretty flowering hedge?

E. C.

Spiræa Van Houtti makes a wonderfully fine show of white bloom, and bears the shears well; Privet is an old stand by, but shy in bloom; Japan Quince has an abundance of red bloom in early spring; *Clethra Alnifolia* is fragrant.

Flowering Shrubs.

993. SIR.—Please name six uncommon flowering shrubs for a front lawn?

E. E., *Simcoe*.

Elæagnus longipes, *Exochorda grandiflora*, *Cotoneaster vulgaris*, *Hibiscus*, *Hydrangea paniculata grandiflora*, *Rhus cotinus*.

Grapes for Garden Fence.

994. SIR.—Please name three varieties of grapes to grow against a trellis fence?

E. C., *Simcoe*.

Three good varieties, one of each color, would be Lady (white), Wilder (black), Lindley (red).

Diseased Plum Twigs.

995. I enclose samples of twigs of plum

trees dying apparently from some disease. Can you explain?

A SUBSCRIBER.

Reply by Mr. John Craig, Ithaca, N. Y.

The plum twigs marked with circular or oval pustular spots appear to be affected by a shot hole fungus or one closely allied such as *cercospora* or *phyllosticta*. In twigs of this kind the mycelium of the fungus is probably the only form present, and from this it is difficult to identify the species.

These leaf spot diseases injure pears and plums immensely. They may be prevented by spraying with Bordeaux mixture.

Pear Twigs Injured.

996. SIR.—I have a few trees of dwarf pears marked like the enclosed, is this the San José Scale? If you will kindly reply you will oblige me, for if it is the scale I will burn the trees affected.

G. H. STANFORD, *Hamilton*.

Reply by Mr. John Craig, Ithaca, N. Y.

The pear twigs are not affected by San José Scale. The small swellings on the bark does not seem to be due to a fungus, these swellings are merely a deposition of corky tissue caused by some form of mechanical injury.

Larger specimens should accompany an inquiry of this kind.

Sacred Lily (so called).

Reply to Question 975.

With reference to Mr. John S. Landus enquiry, and Messrs. Webster Bros. reply.—If planted in the ground like any other "*Polyanthus Narcissus*" it does perfectly well and may be left to bloom year after year but when it blooms in water the bulbs become exhausted and had better be thrown away.

J. R. ANDERSON, *Victoria, B. C.*

THE CANADIAN HORTICULTURIST.

Farmers Institute Report.

997. SIR,—Where and how may I obtain a copy of the Farmers Institute Report of Ontario.

HERBERT, *Ottawa.*

Write F. W. Hodson, Parliament Buildings, Toronto.

Black Currants Not Productive.

Reply to Question 978.

If Mr. Collins will try mulching his black currants, instead of cultivation in the early part of the season I think he will have better results. As soon as the fruit is picked the mulch may be removed, and cultivation resorted to for a short time. I prefer to apply mulch in the fall.

STANLEY SPILLETT.

Roses and Red Spider.

998. SIR,—Your letter replying to my enquiry regarding the culture of pot roses was duly received, and I thank you for the information contained therein.

In February the plants commenced to grow nicely and one is now coming into bloom. I find the leaves dropping, however, and there appears to be some insect at work. I enclose samples of the infested leaves. The insect is very tiny, looking like a small white dot and always appears to be under the leaf. I shower the plants daily with clear water and occasionally with soap-suds. In watering them, I put a teaspoonful of ammonia to a quart of water, about once a week. I am a great lover of roses and desire to succeed with them, and if you can tell me how to exterminate the insect that is troubling them, I shall be greatly obliged.

(MRS.) B. KELLY.

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

The destructive little insect at work upon your rose is the red spider, a pest much more common upon house plants than is generally supposed. To the casual observer his work may be apparent in the yellow leaf and sickly appearance of the plant, but it is only by close inspection that the tiny little spiders are

seen, unless they become very plentiful, when their small webs on the under side of the leaves betray their presence. The warm dry atmosphere of most dwelling houses is just what the red spider delights in, and is what is most trying upon house plants. The atmosphere should be kept as moist as possible by means of water evaporating on the stove or furnace.

The best way to get rid and keep plants free from red spider is to syringe them daily with water, forcing it well up under the leaves. Showering it on from above will not be effective, as the spider works mostly on the under side of the leaf. If the syringing cannot be conveniently done, dip the plants frequently until the spiders take their departure.

Strawberry Rust or Leaf Blight.

999. SIR,—When is the best time to spray and what should be used to prevent it? and how much liquid is needed per acre?

T. H. ALTON, *Woodbank.*

Spray with Bordeaux mixture after first blossoms fall, repeat after picking season, and again about two weeks later—or, instead of second and third sprayings, burn foliage. The quantity of Bordeaux per acre would depend upon fineness of spray; probably from 60 to 80 gallons.

Raspberry Plants.

1000. SIR,—Should raspberries be dug up in the fall and trenched, or dug up in the spring, when time to plant?

T. H. ALTON, *Woodbank.*

Either plan will do, but the first is preferable for yearling plants. Many wait for the young red raspberry shoots that come up in May, and plant them as they would tomato plants, and with good success.