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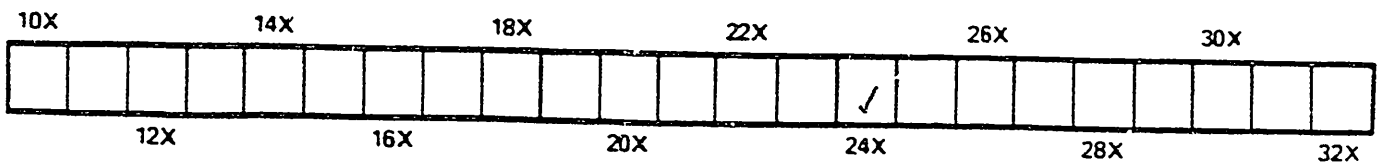
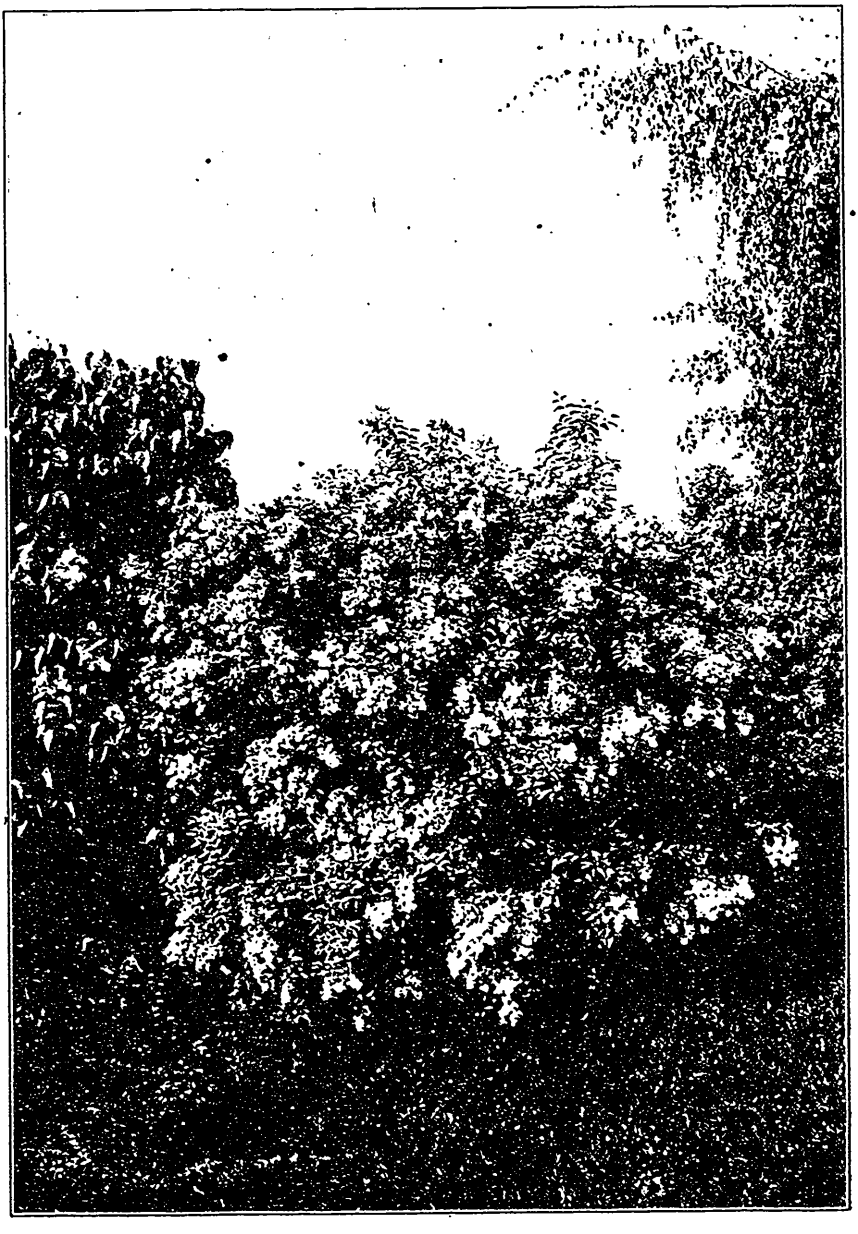




Syringa Chinensis or Rothamgensis.

THE
CANADIAN HORTICULTURIST.

VOL. XXII. 1899. No. 5

LILACS.

AT THE CENTRAL EXPERIMENTAL FARM, OTTAWA, ONT.

THE lilacs or syringas are among the most valued of all shrubs for the garden. They are favorites everywhere and almost universally grown. Their hardiness commends them, for they thrive not only in Eastern Canada but many of them endure the colder winters of the North-West plains without injury. They are easily grown and the beauty and fragrance of their flowers, so freely produced in the early spring, and the richness of their foliage throughout the season, are qualities which make the lilacs deservedly popular.

This useful group of ornamental shrubs contains about ten species, seven or eight of which, with many splendid varieties which have been produced from some of them, are now more or less generally available for the decoration of our gardens.

The common lilac, *Syringa vulgaris*, was introduced to cultivation in 1597 and has hence been an object of admiration among lovers of flowers for more than 300 years. It is a native of Persia and Hungary, and when planted in good soil grows to a height of 10 to 15 and sometimes 20 feet. Although it suckers freely, if the suckers are persistently cut away it may be trained to a handsome tree-like form.

Lilacs may be propagated from suckers also by budding. They are sometimes grafted on the privet, but this stock is undesirable on account of its tenderness and lack of vigour. Of late years many of the best varieties have been grown from cuttings which, when placed under suitable conditions, are said to root without much difficulty. Lilacs on their own roots are much to be preferred since when grafted on the common stock the suckers thrown up from the roots are sometimes so numerous and vigorous as to crowd out or weaken the graft.

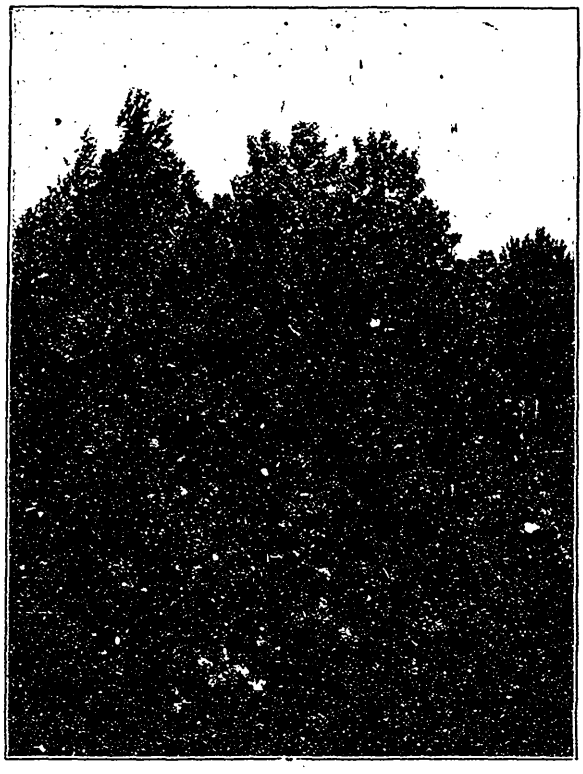


FIG. 1582.—SYRINGA VULGARIS, CHAS. XTH.

Among the earliest recorded varieties of the common lilac is the single white form *S. vulgaris alba*, and a reddish known as *rubra major* or *Syringa de marley*. The first of the double forms, which are now so numerous and popular, was brought out in 1870, and since then most of the very best sorts now so much admired have been produced.

More than fifty varieties of *Syringa vulgaris* are included in the collection at the Central Experimental Farm embracing all the newest and finest sorts. As yet only a few of these have bloomed and every season reveals new attractions in this wonderfully interesting group. Among those which have bloomed are some superb varieties, a few of which will be referred to. The illustrations given are all from specimens grown at the Central Farm.

S. v. Charles 10th. A specimen bush of this fine sort is shown in Fig. 1582. This is one of the freest bloomers of all the varieties thus far tested; the flowers are of a rich reddish purple hue, are highly fragrant and are most freely produced in large trusses. A bush of this sort when in full bloom becomes a striking and most interesting object. This variety has been thoroughly tested in the most exposed situations and is thoroughly hardy.

S. v. Emile Lemoine. In this form an example of which is shown in Fig 1583 the flowers are of a reddish lilac, very full and double, a handsome and valuable sort and a free bloomer; one of the best.

S. v. Frau Damman. This is a pure white single lilac of great beauty. The flowers are produced in large trusses which are loose and graceful. The bush is also a very free bloomer. A single cluster of bloom is shown in fig. 1584.

S. v. Alphonse Lavelle. A flower truss of this variety is shown in fig. 1585. It is a very handsome form, the flowers are of a beautiful bluish violet color and are produced in abundance in very large panicles.

S. v. President Carnot. This is an excellent sort which produces fine trusses of large single reddish lilac flowers, clusters of this variety are shown in fig. 1586.

S. v. Madame Abel Chateau. This is perhaps the finest of all the flowers yet produced at Ottawa in this wonderful group of lilacs. The panicles are large and the individual flowers of unusual size, of a pure white very double and of great substance. It is also a free bloomer. A single cluster is shown in Fig. 1588.

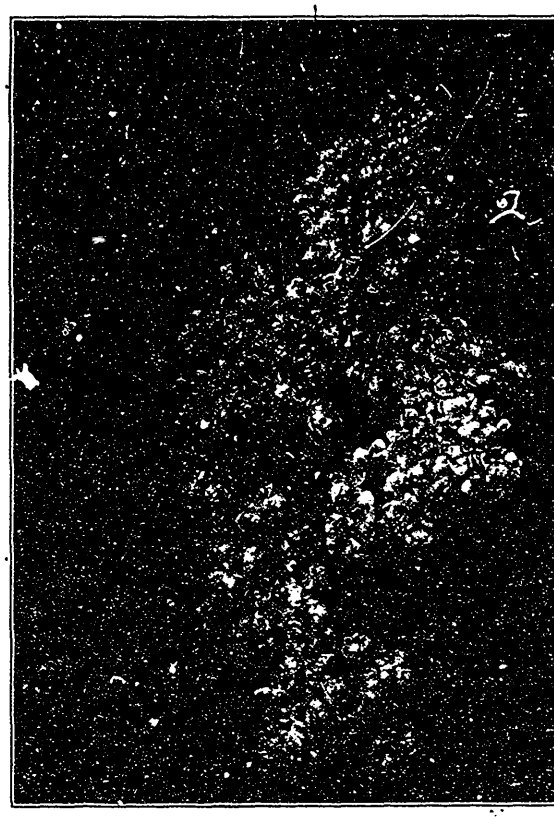


FIG. 1583.—S VULGARIS EMILE LEMOINE.

Syringa Josikea, Josika's Lilac. This is a robust growing species, a native of Hungary, which was introduced into cultivation in 1588 and is now very widely distributed. Its leaves are large glossy and of great substance of a deep green color above and paler below. This shrub is well worth growing for its foliage alone. The flowers which appear from ten days to a fortnight later than *Syringa vulgaris*, are of a bluish purple, the clusters are smaller than those of the common lilac, they also lack perfume. When well established this variety blooms very freely and attains a height of from 6 to 10 feet. It makes a beautiful hedge, its rigid habit and glossy laurel-like leaves produce a fine effect. For this purpose young plants should be chosen and put out in a single row about 15 inches apart.

Syringa Persica, the Persian Lilac. This species is a native of Persia and was introduced in 1640. It is a shrub smaller in size and less robust in habit than most of the other species, growing usually from four to six feet in height. The flowers which are borne freely in good sized clusters are bluish purple; another variety of the Persian lilac produces white flowers; both these forms are common in cultivation. This species is not quite so hardy as most of the other lilacs. A cut leaved form *S. P. laciniata* has also been produced.

Syringa Chinensis known also under the name of *S. Rothamgensis* or Rouen lilac. This is a very desirable shrub, well known and much appreciated. It was introduced into cultivation in 1795 and is said to be a hybrid between *S. vulgaris* and *S. persica* which was raised at Rouen by Mr. Varin then director of the botanic garden there. This variety is loose and graceful in

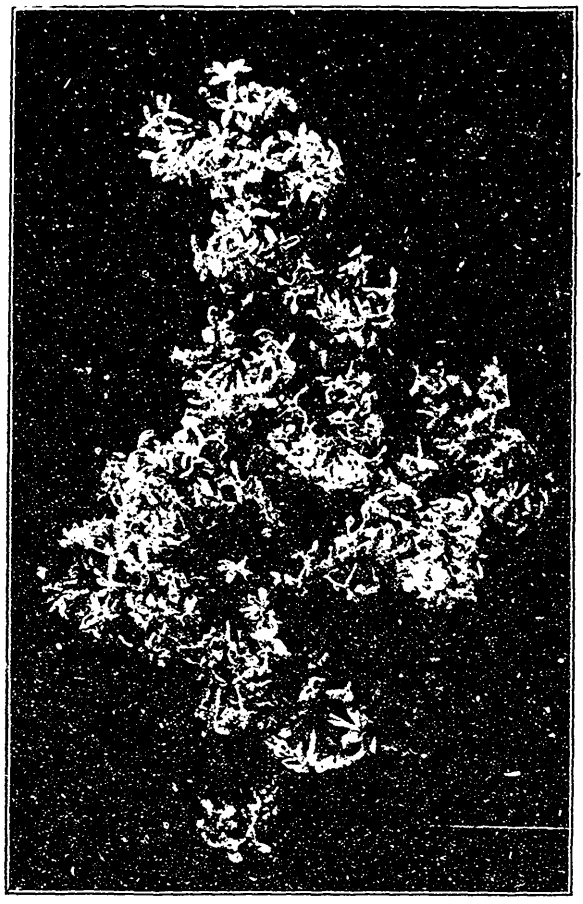


FIG. 1584.—S. VULGARIS FRAU DAMMAN.

habit, the foliage is intermediate in size and form between the common lilac and the persian, the flowers which are of an intense purplish violet color are borne in large clusters produced in abundance. Our frontispiece shows an example of this shrub in bloom.

A form of *S Chinensis* is also in cultivation known as *S. C. Saugeana*, the flowers of which are of a reddish purple color.

Syringa Emodi—From Mount Emodus in the Himalaya mountains. This species was introduced to cultivation in 1840, and is quite distinct in its character. It grows to a height of about six feet, and is somewhat rigid in form. The leaves are considerably larger than those of the common lilac, with the underside more prominently veined, and the flowers which are purplish or white are arranged in longer and looser panicles. A form of Emodi with variegated leaves has been introduced, which is quite attractive. Both of these have been found less hardy than the common lilac at Ottawa.

Syringa villosa, is a native of the northern parts of China of quite recent introduction, having first been brought into notice in 1880. It is lower growing than many of the other sorts of lilac, varying in height from three to six feet. The leaves are of medium size, ovate in form and rather obtuse, the flowers are of an attractive shade of pale bluish rose less fragrant than those of the common lilac. This shrub is a free bloomer, but the flower clusters are not so large as in some of the other varieties. Its time of blooming is about two weeks later than the common lilac, it has been tested for four or five years at Ottawa and found to be perfectly hardy.

Syringa oblata. This handsome variety has not yet found its way into very general cultivation. It is a native of China and was introduced in 1859.

The leaves are large and wide, oblate or heart-shaped, and rather thick and fleshy. The flowers are purple, larger than those of the common lilac, and produced in large and handsome clusters, which are very attractive. In its habit of growth this species much resembles the common lilac. There is a form of *oblata* which produces white flowers. The purple variety has been tested for several years at the Central Farm at Ottawa, and has been found quite hardy.

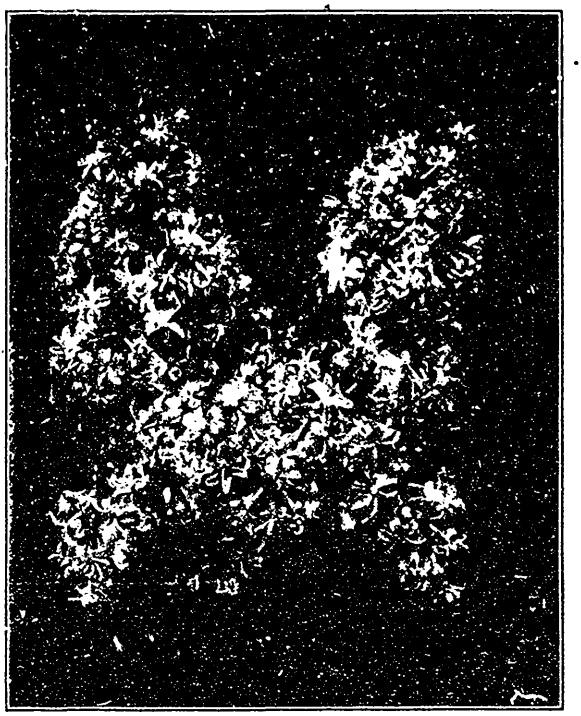


FIG. 1585.—S. VULGARIS ALPHONSE LAVALLE.

Syringa Amurensis is a native of Manchuria, China and Japan, and is common in the valley of the Amour. It was introduced in 1863. This shrub has a somewhat spreading habit and a graceful form, and grows to a height of from six to eight feet. The flowers are small, creamy white and produced in panicles of varied form, some being short and compact, others long and sparsely flowered. It usually blooms during the third week in June. This is a hardy and desirable species.

Syringa Japonica. This is a native of Japan and was introduced to cultivation in 1885. It is the latest in blooming of all the lilacs and does not usually flower in Ottawa until the first week in July. The flowers are small, creamy white, and are produced in large dense clusters. They have a fragrance quite distinct from the ordinary lilac, reminding one of the hawthorn or the privet. The leaves are large and of a dark green color. This species grows taller than *Syringa vulgaris* and forms an attractive tree-like specimen.

With a judicious selection of the species and varieties referred to one may have a succession of lilacs in bloom for from four to five weeks.

WM. SAUNDERS.

Ottawa

STOP THE WASTE.

FIG. 1586.—S. VULGARIS PRESIDENT CARNOT.

IN THE fruit industry the waste often consumes the profits. An inopportune rain or wind at the time when the fruit is just ripening often ruins the hopes and anticipations of a whole year. The failure to use the right kind of a package, and to make the fruit look its best in it, often degrades the quality, in the estimation of the buyer, from first to second class with the corresponding reduction in price. The crowded market of Saturday often leaves on the hand of the grower a few crates of berries which are worthless when the market ripens on the following week. The insects somehow find their way to the fruit, and just at the time when it should ripen, we find that it is ruined. Nine cases out of ten of failure in the fruit business come through loss due to waste.

The successful fruit grower must learn early in his career that his products are at all times tender and quickly perishable. He must, so far as he is able, prevent the contact of any agent that destroys or reduces the value of his fruit. This is not something that is beyond his power. By a vigilant war against insects he can greatly increase the quantity and improve the quality of the crop which he is to receive.

Cold storage affords one of the most practical means of preventing waste in the fruit crop that we have. Apples that fall from the tree when almost ripe, and are lost, are frequently ripe enough to be picked and placed in cold storage. The fact, that apples for cold storage should be picked while solid, is valuable information to those who realize that their fruit is dropping badly while in that state. An ice and cold storage house on the fruit farm is of immense value in preventing the waste in summer fruits that comes naturally through rapid decay. Berries, cherries, plums, and peaches can be kept a number of days, even weeks, and there is thus afforded ample opportunity for using or disposing of them. W. L. HALL, *Kansas.*

FRUIT PULP.

IN view of the excellent demand this season for this article in Great Britain, and the efforts having being made by a committee appointed by our Association to make extensive trial shipments of raspberry pulp, our readers will be interested in the following from the Agricultural Gazette c New South Wales.

FIG. 1587.—S. VULGARIS LOUIS VAN HOUTTE.

Pulping is a very simple and efficacious method of preserving fruit for storage or transit, to be converted into jam at some later date. When one considers the thousands of tons of fruit that literally rot and are wasted in these colonies simply from lack of the adoption of such simple process as pulping, one is apt to accuse the Australians of being neglectful of their opportunities. If a good class of pulp were placed on the London market instead of letting your fruit rot on the ground it would give you a very remunerative return. Now, I am not going into figures; I will leave that to a more mathematical pen, and a head better fitted to statistics to convince you of this fact. All I say is it will pay, and pay well, as some of the more enterprising Australians have shown. The fruit is gathered in the same condition as for canning (that is, firm, yet ripe and sweet), at the same time there is no waste, as the over-ripe fruit may be used as well.

All the stone fruits are pitted and placed in a steam-jacketed kettle, a little water added. The whole mass must be constantly stirred, no sugar being added. Now, the most essential thing in pulping is the cooking. The old theory of cooking merely for the expulsion of the air has exploded, and we find that the pulp must be cooked for such a time as to kill all germs of fermentation.

Immediately the pulp is cooked it is placed in tins and the caps soldered down, care being taken to fill the tins to the brim, the size of tins generally in use being 10lb. tins, these being round, and 45lb. tins being square. If, after the tins have been closed down, any of them exhibit signs of swelling, it is a

FIG. 1585.—S. VULGARIS MADAME ABEL CHATEAU.

sure sign of insufficient cooking. The pulp from these must be emptied out and re-cooked for as long as originally; in fact, a few minutes longer. It is quite optional as to whether you peel your fruit for pulping or not.

The time required for cooking the several kinds of fruit for pulping is as follows: Apricots, about 25 minutes; peaches, nectarines, plums, soft pears and cherries, about 30 minutes; figs, hard pears, quinces and apples about 35 minutes. These periods for cooking do not apply to every condition of the fruit; you will only become perfect with practice; at the same time they are sufficiently adequate to start from.

Now, supposing you are the recipient of a tin of pulp, and you wished to convert it into jam. For every pound of pulp add about ¾lb. of sugar, and boil for about 30 minutes.

THE HONOR BRIGHT AND OTHER TOMATOES.

Mr. R. Brodie, of Montreal, sends us the following note about tomatoes:

Mr. J. Caven, Columbus, O., advises a small trial of the Honor Bright tomato. With us it is a heavy cropper, but too late a variety and ripens very little of its fruit. I tried a few bushels (in the yellow stage of ripening) in my cellar, and they did not ripen as well as the Beauty alongside. My selection of tomatoes would be: for 1st early, Henderson's Ruby; it is the largest and best extra early tomato. $500 worth was sold off two acres in one week, about the 20th July last year.

In the purplish crimson varieties, Rennie's Canada is a splendid tomato. The Imperial is a little earlier, but not so large or as heavy a cropper. Livingstone Beauty is a very close third.

In the scarlet tomatoes, Ignotum and Livingstone Favorite are two very good varieties.

Most of the red varieties are subject to crack round the stem.

DISHONEST APPLE PACKING.

SIR,—In your article on "Packing Apples for Export" in March number, you go out of your way to recommend legislation to hamper the apple growers of this country. You advocate a size test for apples of all varieties, putting Snows, Russets and Spitzenberg, etc., in the same category as Spys and Baldwins, which you must admit is impracticable.
W. F. FISHER, *Burlington.*

Our article on this subject was not intended as final by any means, but simply to invite discussion from our readers. That something is necessary is evident from the heterogeneous collection of grades and sizes now being shipped by Canadian fruit growers. It will surely not *hamper* our growers to impose such legislation as will tend to bring about some uniformity and system in packing our apples and other fruits, so that foreign buyers may buy Canadian stock with greater confidence, and consequently at higher prices.

Of what use will it be for A and B to grade their apples to a uniform size in the barrels, and send all that will pass through a 2½ inch hole as "Seconds" to the evaporator, or to the cider mill, if C and D *will persist* in facing up the heads of their barrels with 3 inch apples, and in hiding, beneath the two top layers, apples of all sizes, from 3 inches down to 1½ inches. C and D may possibly get as good sale for their car as A and B, but the buyers who are robbed will class A, B, C and D all together as Canadian rogues, and give them a wide berth next season, and all will suffer for the dishonesty of one or two. Now, it is not simply the interest of two or three, but the interest of the thousands of honest apple growers in Canada which we wish to champion. And have we not a right to insist on honest packing, and insist upon inspection and confiscation of dishonest packages, just as much as in the case of short weight loaves of bread. We grow in Canada the finest apples in the world, both in color and in flavor, and the markets of the world are just opening to us; they want all our apples, and will pay top prices if we will but assure them that they are uniform in size and No. 1 in quality.

Perhaps somebody may say inspection is not necessary—it is impracticable—let every man ship his own apples under his own name, and all will come out right. Indeed! Will it? We beg to differ. The steamer *Castilian*, which was wrecked the other day off Yarmouth, N.S., carried 6,500 barrels of CHOICE CANADIAN APPLES, packed for the British market, the heads of the barrels were decorated with XXX, and with the names of the shippers. These apples were saved and sold in Yarmouth, wet apples bring $1 per barrel, dry $3, and some of the readers of THE CANADIAN HORTICULTURIST there are taking notes as these are opened, and are reporting to us the honest and the dishonest shippers; but we mercifully suppress the names. Mr. Chas. E. Brown, of Yarmouth, an honored life member of our Association, sends us six samples from a barrel of *Phœnix apples* marked XXX!! and we have photographed their *exact size*, that all may see whether an inspector is needed or not. (Fig. 1589) Not one of these apples are even two inches in diameter, and we maintain that *no apples*, not even Fameuse apples, should be marked grade No. 1, which are below 2½ inches in diameter. Crabs, Lady apples, etc., are not in competition and need not have the regular grade mark, and the same may be said of even small-sized Fameuse, or Swazie Pommegrise. Our Burlington correspondent objects to Spitzenberg, Snow and Russet coming under these grades, but if he will take the trouble to measure these apples he

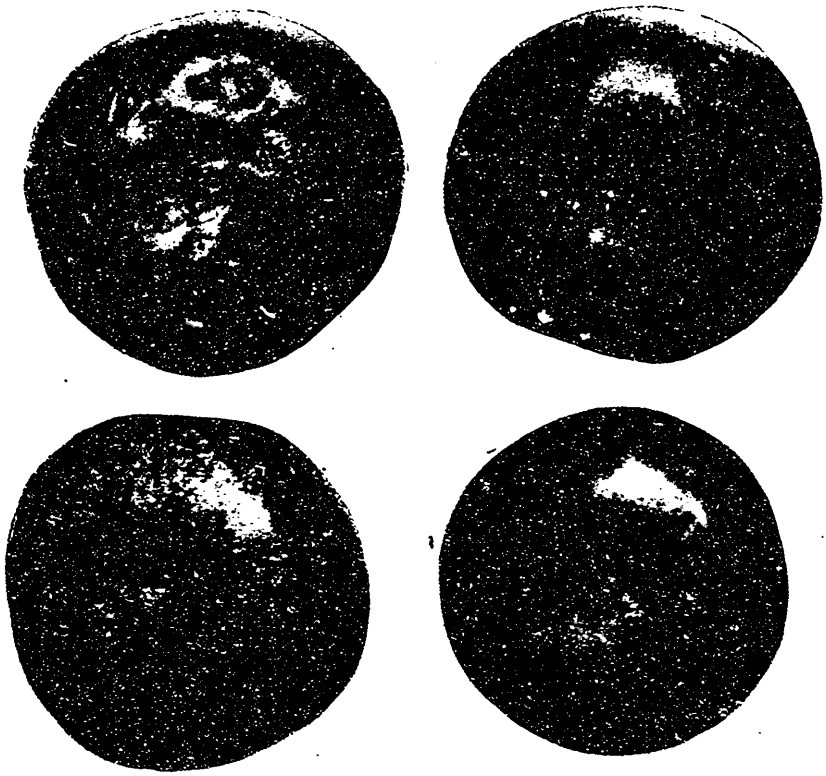


FIG. 1589.—EXTRA SELECTED ! Apples From Wrecked Str. Castilian.

will find that they will average 2½ and over, while Spy often reaches 3½ to 4 inches, and would deserve to be marked Extra No. 1. If preferred, however, grade marks and size marks might be separately indicated on each barrel.

Mr. Chas. E. Brown, writes :

It is now probably twenty years since we began to import Ontario apples to supply the local market ; latterly, one or more car loads came every fall, via Boston, at the low through freight rate of sixty cents per barrel Occasionally, there would be a few barrels in a car load that failed to come up to the standard of No. 1, but on the whole, we got to feel confidence in Ontario Fruit Growers, Packers and Shippers, that a barrel of apples marked Extra, Fancy, or No. 1, meant a quality of fruit that the buyer would have no cause to complain of. This confidence has however been recently sadly shaken, and hereafter in Yarmouth, it will not be enough to say to a prospective buyer that his barrel of apples was exported from Ontario, grown or put up by ———— and marked XXX or Extra Extra Extra. I enclose a slip from yesterday's local paper, and I send you in a small box a few specimens from a barrel of Phœnix apples that I bought myself, in confirmation of the statement made.

Extract from Yarmouth Herald.

Some years ago complaints were made frequent and often, of the dishonest packing of apples by the growers of the Annapolis Valley, but we are pleased to note that for the past two years these complaints have been few, and, in fact have almost entirely ceased, so far as we can ascertain.

There were on board the wrecked *Castilian* some 6,500 barrels of Ontario apples. Many of these have been saved and sold at auction. In several instances the fruit has proved first-class in every respect, and of even size all through. But we regret to state that many barrels have been of the most inferior kind. One or two of the top layers look fine, but after these have been removed the remainder have turned out to be scrubs, and the size as small or smaller than crab apples. They are totally unfit for table use, and would hardly pay to gather to feed to pigs.

We are surprised to know that such dis-

FIG. 1590.—SPYS, from top and middle layer of barrel.

honesty prevails in Ontario, as this would indicate. It not only injures the sale of fruit from that province, but as each barrel has "Canada" branded upon it, also affects the sale of apples from our own province of Nova Scotia. It is time that some law was passed for the inspection of apples for shipment to the English market, and the punishment of such dishonest packers.

As a consequence of the fine appearance of some of the barrels that were opened at the sale, a good price was realized, but several of the purchasers, upon examining their lots, were very indignant at the dishonest packers of the fruit.

As a Life Member of your Association, I regret extremely such a suicidal policy as these mean shippers are pursuing, packing apples for the English, or for any other market, that are not even worth the barrel they are packed in, and so far from there being any chance for profit in such a business, I do not see how they can escape a claim for freight and charges beyond what the apples can possibly bring.

I read with much interest THE CANADIAN HORTICULTURIST that comes with great regularity, and always contains something to instruct and entertain.

Since writing the above, we have received another letter from another gentleman in Yarmouth, N.S., with an accompanying package containing two apples from a barrel he had purchased, belonging to the same ill-fated cargo. He gives the name and address of the packer, who lives in a prominent apple growing section of Ontario; but the names we withhold in the meantime.

We have photographed these samples also, natural size, and think the expense of so doing justifiable in the interest of Canadian fruit growers. Mr. Geo. H. Guest, Sheriff, Yarmouth, N.S., who sends these samples, writes :—

You will notice a great difference between the second layer and one farther down. The top layer was better than the second. I always had an idea that the very best was sent to the English market, (where these were intended for by *S. S. Castilian*)

As I get down in the barrel they are all about like the small sample, and badly bruised. Such rascals should be exposed.

THE PEACH ROT AND CURL LEAF.

FOR a long time it was supposed that the rot of cherries, plums and peaches was entirely climatic, being directly the result of continued wet weather. Now it has been clearly proved that this evil is caused by a fungus called *Monilia fructigena*, which grows readily in hot moist weather, and very slowly in dry weather. In California this rot of the cherry and peach is little known, because the climate is so dry it cannot grow; and as a result, their cherries are shipped to eastern markets in good condition—varieties too which, with us, often rot on the chief consideration, for the present, is that the rot fungus is always found in the decaying fruits. We may rightly, then, turn attention to the fungus in question. Fig. 1591 will show something of the character of this fungus. At 1 are shown two rotted and dried up "mummy" peaches which were gathered in midwinter. Upon wetting and placing these in a moist chamber for twenty-four hours, it was found that the fungus still lived in the mummies. Some of the forms of threads are shown at 2 *a*, *b*, *c*. At the same time a great abundance of ash-colored spores was

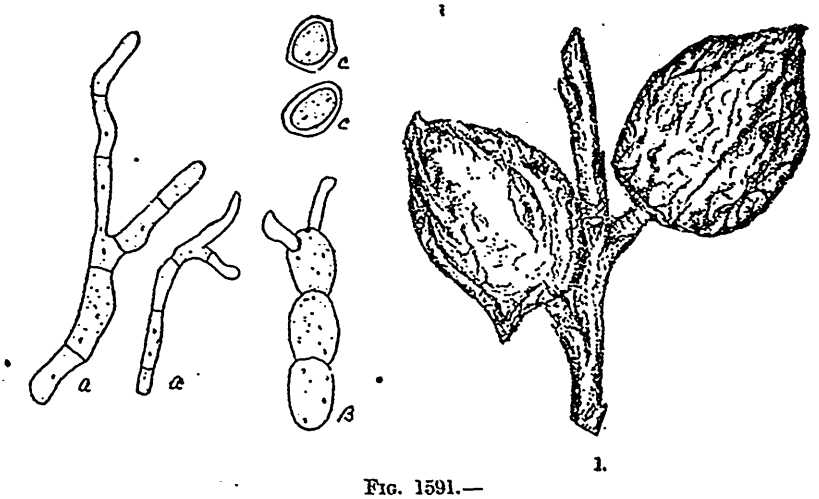


FIG. 1591.—

Monilia fructigena in mummy peaches. At 1, midwinter mummies are shown, natural size. 2 *a*, *a*, *b* threads and resting cells or *gemmæ* (?) *c* from the preceding, both magnified about 760 diameters.

trees, or will scarcely keep over night.

Bulletin 92, of Ohio Experimental Station gives some interesting information concerning this rot, as follows:

This rot fungus, as indeed have most fungi, has its growth favored by warm, or hot weather, and abundant moisture. If this warmth and moisture come together near ripening time we may expect serious loss of fruit. But the produced upon the outside of the rotten peaches. Similar results may be had if one places a freshly rotted peach under a tumbler or dish where it will be kept moist. These ash-colored, powdery masses of spores are easily scattered by the wind and rain and will cause mischief where they find a suitable place. Favorable places are numerous; such will be found in a dense cluster of fruit

or where the fruit is densely shaded by leaves in contact; and in case of warm, April showers at the time of blossoming, these spores from the mummy peaches may enter through the blossoms and cause sad havoc in the form of twig blight. It may be a matter of surprise to some to hear that this rot fungus destroys the twigs and blossoms of the peach. But close observers in the orchard at harvest time have often called my attention to the death of the twigs and branches bearing rotten fruit. Yet, even these observers have usually missed the early spring blighting of twigs and destruction of blossoms. Unquestionably this fungus is responsible for the injuries just named. Therefore, in dealing with it we must know where and when to strike.

It is first to be observed that the loss of fruit from the monilia is much more a matter of weather conditions than is even usually supposed. We are accustomed to find much rot among early varieties like Hale, Alexander and Crawford's Early, and are consequently likely to call these susceptible varieties. The large grower sometimes finds that Smock and Salway show the greatest losses. A large amount of rot in any variety may be expected during hot, wet weather at ripening time, and there seems no sufficient reason to regard early sorts, on the whole, as more liable to rot than late sorts. As before stated, the favorable conditions determine the amount of rot, though it may also be true that these conditions more commonly occur about the ripening time of the early varieties. Late varieties succumb when met by hot, rainy weather at ripening. To induce rot, the spores of the fungus must gain entrance into the peach, and a decided difference in the texture of the peach skin would have some effect. This difference, however, may be given too much weight. The pin punctures of the curculio with early peaches as with plums are a fertile source of rot infection.

THE PREVENTION OF PEACH ROT.

As shown above the rot fungus survives the winter in the mummy peaches; and the same holds true for mummy plums and cherries, since the same fungus is found in all the stone fruits. To what extent it may survive in twigs cannot be stated. The resting forms of the fungus are shown above, Fig. 1591, 2, *b*, *c*. All that is needed to induce their growth is a period of warm, rainy weather, such as commonly comes in April and May of each year. So long, therefore, as the mummy fruits are permitted to remain on the trees, we must expect an abundance of rot fungus and the losses it causes. All rotted peaches should be removed from the trees as soon as they appear, and before the advent of spring rains. This is the first step in preventing rot. If these are permitted to remain on the trees over winter, they should be burned when gathered; the better plan is to remove the rotten fruits as they appear in the fall, or in early winter, when they may be dropped on the ground.

Without this destruction of the mummy fruits, other methods will not be likely to succeed, though the disease may not succumb to this alone. Chester* has conducted experiments in spraying peach trees for the prevention of rot. Results of the second season show a three to four fold increase of sound fruit on sprayed trees of Hale and Early Rivers. In this work Bordeaux mixture and Paris green is recom-

*Bull. Del. Exper. Station, 34.

mended to be used just before the blossoms open, Bordeaux mixture and Paris green when the fruit has set, copper acetate solution (8 oz. to the barrel) when the fruit begins to color, and a repetition of the treatment in case of weather favorable to the rot.

The prompt removal of rotted fruit is urged under all circumstances; spraying may or may not prove profitable. The careful thinning of the fruit may also be sometimes helpful in preventing rot.

FIG. 1592.—

PEACH CURL.

Every year we add a little to our knowledge of the fungus disease of our fruit trees and learn better how to destroy them. The leaf curl was for many years thought entirely uncontrolable, and peach growers viewed with much alarm the wholesale destruction caused by it in 1892, 1893, 1897 and 1898, when the abundance of cool rainy weather in April and May favored its development.

The leaf curl has been proved to be caused by a minute plant parasite, *Exoascus deformans*, which attacks both the leaves and the new shoots, thickening and distorting the former and enlarging the latter. The hyphae of the fungus is easily recognised under the microscope, the cells being more or less triangular or wedge shaped. It lives through the winter in the leaf buds, and

in the spring when the growth starts the fungus also starts to grow, and the young leaves and shoots are affected with it. It is evident, therefore, that this disease can only be routed by persistent application of fungicides year after year, by cumulative effect, if we like to call it so. Results obtained from spraying at the Ohio Station led to the following conclusions:

1. That two applications of the Bordeaux mixture in a season favorable to curl leaf, will sufficiently prevent the disease to enable the tree to carry a crop of fruit without very great loss through dropping.

2. That unsprayed trees, in a season like 1897, especially of varieties susceptible to curl leaf, can scarcely carry the crop of fruit when suffering from such injury to the leaves.

3. That thorough spraying the preceding season is even more effective in the prevention of curl leaf than during the season of its occurrence.

The orchardist must judge by the weather in April, whether to spray, for upon such susceptible varieties as Mountain Rose, Old Mixon, Globe, Elberta, etc., two sprayings with Bordeaux mixture will prove profitable; the first of full strength, made just before the blossoms open, and the second of half strength, to be made just after the calyx drops.

HARDY FLOWER GARDENS.

THESE are the matron's safe-guard. If the house master is called away for the summer, or is ill, she has a never-failing source of pleasure in the thought that flowers will bloom in the home grounds if she is unable to tend them. The old gardens of our fore-beares were always bright, and the lesson of the past is also a good one for the present. So many added treasures too, lie at our hand. The Gypsophila alone with the hardy Asparagus Broussoneti is an acquisition. And what is finer about the walks than a bed containing Rosemary, Southern-wood, Lavender, Digitalis, Daisy, Campanula, Linim Centaurea, Gaillordia, Humilus, Stevia, Dictamnus, Pensteman, Verbena, Hollyhocks, Bartonia, Aurea, Vaterian Acquilegia, etc. With a large variety of these and a good rose bed, we need never lack bloomers, no matter what befals us. God has made these flowers to be of service in our lot and place, and we may carry the balm of consolation through them to many wounded suffering hearts if we will.

Let us prefer them to fine feathers if we are unable to enjoy both, and so make the grand garden of life to blossom as the rose.

One of the new Rambler roses in the house is a treasure, and if nipped in the bud by the frost, it will soon grow glad and bright again.

M. AGATHA HOSKINS.

Newport, Vt.

THE GOOD WORK IN PRINCE EDWARD ISLAND.

FIG 1594.—REV. A E. BURKE, P. P., Alberta, P. E. I. Director F. G. A.

WE feel sure that the members of the Fruit Growers' Association of Ontario, the mother and mistress of all such associations in Canada, will learn with interest something of the work which the daughter society so recently organized in the little Garden Province of Prince Edward Island is doing for the advancement of horticulture within its borders.

The strangest thing about this Prince Edward Island movement seems to us to be its tardiness. To think that not till the year of grace 1898 was any properly organized effort made to tempt a foreign market with our fruit, although we had stood before the world for almost a century as the abundant producers of the best roots in Canada, a superior quality of grains and horses, cattle, sheep, pigs and poultry equal to the best! But the answer to this wonderment is easily accepted when we state that *no provincial organization* vowed to the fostering of the fruit industry and its development was established here until 1896, when our far seeing, energetic and patriotic governor, Hon. G. W. Howlan, convinced himself by what he saw of the fruit put on exhibition at the county shows which he had officially patronized and opened, that we could grow excellent apples and grow enough for ourselves and enough also to fill a big hole in the British trade. Previously even the fruit consumed in the Province was imported from the United States, from Ontario and from Nova Scotia. It is safe to say that the day of importation is now over and that the fruit growers of the Island will put themselves into sharp competition with the two above named provinces in the great British market.

Although scarce a decade has flown by since a premier of the Province from his place in our local parliament boldly asserted that good apples could not be grown in Prince Edward Island, we have

been able to demonstrate on the authority of the expert buyers of London, Liverpool and Glasgow that no superior fruit of the kind forwarded has been put on these markets. And their testimony is no empty sound. We have the money jingling down in our pockets from satisfactory sales made there this autumn. We have been largely working in the dark up to the present, planting the trees for years aback palmed off on us from all sources—some, indeed the great majority of them, untrue to name and inferior stock from all points of view,—unloaded here at big profit because a more discerning class of buyers in Ontario or Nova Scotia cast it out entirely. Thus with all these drawbacks we have gone ahead remarkably in the science of pomology and demonstrated to the most hardheaded community to convince at all times, our own Island, to its evident surprise and amazement, that we can grow superior fruit. It takes time to effect changes in public sentiment; we have certainly experienced this tardy process in horticulture here. But as the French proverb says: "*Le monde s'agite et Dieu le mene.*"

Brought together by the public-spirited Governor, our fruit raisers and their friends formed the "Prince Edward Island Fruit Growers' Association." The first meeting was not promising but the Governor persevered. Interest in the matter having seized others of the professional community and the good work of the Ontario Society having been brought to the notice of all concerned, a more enlightened essay was made last year and, as a consequence, the Association was established on the same plan as that of Ontario, to which it was affiliated and incorporated in due course by Provincial statute. A moderate grant was also secured from the Government for the Society and the HORTICULTURIST became its organ.

FIG. 1595.—REV. FATHER BURKE'S PRESBYTERY, ALBERTON, P. E. I.

The first annual meeting since reorganization took place at Charlottetown on the 21st of March last. The sessions were attended by the Lieutenant-Governor, the Premier, the Mayor, judges, clergymen, professional men and merchants, besides the most enlightened and cultured element of the agricultural community. The President, Edward Bayfield, Esq., presided, while all the officers were in their places and about all the members except Senator Ferguson, engaged in the session at Ottawa, were present.

In the interval between meetings the Association had expended much energy and employed its grant in making a trial shipment of Island apples to Britain, as a practical test of the Island's capabilities in fruit-growing, and to ascertain if shipments of this fruit would be sufficiently remunerative to make orcharding an avocation for the money that it affords.

The Government wishing to keep abreast of the Association and help trade in other directions, sent the Treasurer of the Association, Joseph Wise, Esq., M.P., as a commissioner to England to study the markets and report thereon. One hundred and eight barrels of apples shipped under the per-

FIG. 1596.—HON. G. W. HOWLAN. Governor of P. E. I., Patron F. G. A.

sonal supervision of Hon. Senator Ferguson, who went to Nova Scotia to become acquainted with apple packing, and Messrs. Robertson and Sharp, two of our largest orchardists, were first selected. A steamship more or less suitable to the carriage of perishable fruit, called the Lake Winnipeg, was subsidized by the local Government and came direct to Charlottetown for the fruit consignment and the large cheese, butter and cattle cargo awaiting her. The apple shipment was made up of King, Spy, Golden Russet, Ribston, Baldwin, Alexander, Wealthy, Wolf River, Bethel, St. Lawrence, Fameuse, and Nonpareil. It will be seen at a glance that we were tyros in apple shipping business, as no regard was had for season, the whole range of fall and winter varieties being sent on at once. Well, notwithstanding this and many other disadvantages, which necessarily menace a trial shipment, our fruit did wonders,—was praised most lavishly by the British dealers, and orders for unlimited quantities forwarded to us. Especially were we surprised at the prices our Alexanders fetched, netting us $3.05 after paying the exorbitant charge of 76 cents per bbl. here and the expenses on the other side. We can grow this apple in Prince Edward Island as easily as we can grow turnips, and if it will maintain anything like that price on the Home market, can make big money raising it. The other varieties also brought, one with the other, encouraging prices. This shipment on the part of the F. G. A. opened up the trade to Island apple raisers and impaired by only a very few dollars the Society's grant. It was followed by further consignments on private account on the succeeding steamers with a result that the whole Province is enthusiastic over the new industry which has sprung up as if by magic on its fertile shores.

Mr. Commissioner Avise made report of his investigations in London and Liverpool at the Annual meeting. He found a solid demand for P. E. I. fruit, which to be maintained and improved required better packing and shipping facilities and the continuance of honest methods; he said some of the trash branded "Canadian Apples" he was heartily ashamed of.

To secure the success of the Canadian apple trade the P. E. I. F. G. A. is cooperating with the Ontario F. G. A. in asking the federal government to appoint inspectors and exact proper shipping facilities for fruit at the ports of departure. The writer had the great pleasure of moving a resolution at

Charlottetown which we all hope may materially strengthen your hand in obtaining this boon.

The discussion which followed the reading of valuable papers at the different sessions of our Association meeting turned very often on suitable varieties to plant. A great diversity of opinion obtained. Like the owner of a good horse who is ever ready to aver him the best in the place; so each possessor of a good variety would have to head the list, as the best apple to grow. A considerable number of things was taken down by the secretary; and Jno. Robertson, Inkerman Farm, D. P. Iwing, Cherry Valley, and the undersigned, appointed a committee to take into consideration all the circumstances—growth, productiveness, vigor, quality of fruit and price fetching in England, etc., —and classify a sufficiently extensive list that could be recommended to the people as worth planting. After much deliberation we agreed to recommend for the Inland trade, Duchess and Gravenstein, for fall use; and Wealthy, Baldwin and Ben Davis for winter and late keepers. For export we made a list in the order named, Alexander, Ben Davis, Wealthy, King, Golden Russet, Ribston Pippin, Nonpareil, Mann; our list was unanimously accepted by the association. It will be seen at a glance that the money-making feature is kept well to the front in this export table. Of those different varieties in particular as suited to our Island, we may have something to say in a later issue.

This article has out-grown proper limits and therefore we shall simply give you the names of our new officers, state that we are expending our grant in top-grafting good varieties on unprofitable orchards and going to work in earnest to emulate the example of your splendid Ontario Association, in so far as restricted circumstances will permit. And after our esteemed governor there is nothing to which we owe more for our present prosperity than to your grand association and its live and learned secretary.

Officiality for 1899-1900:—Patron, Governor Howlan; President, Senator Ferguson; Vice President, H. A. Stewart, Hamilton; Secretary, P. McCourt, Charlottetown; Treasurer, J. Wise, Milton.

Directors. Prince County—Rev. A. E. Burke, Alberton; C. R. Dickie, Muddy Creek; R. Carruthers, Cape Traverse.

Queen's County—J. H. Gill, Little York; John Johnston, Long River; J. G. McCallum, Brackley Point.

King's County—John Robertson, Inkerman; J. D. Stewart, Lower Montague; G. E. Goff, Woodville.

With fraternal greetings to the fruit growers of Ontario.

A. E. BURKE.

PATCHING UP THE LAWN.

This, too, is the time for sowing grass seed, so these filled spaces should each have a handful of seed sprinkled over them, raked in lightly, and then firmed with the foot or spade. All through spring, when we can work between showers, we are patching up the uneven or the bare places on our lawn in this way. If the old turf is dead, it must be removed or have some fresh soil scattered over it. We sprinkle these patches every few days if the clouds are not obliging.—*Vicks Magazine.*

CULTIVATING vs. CROPPING ORCHARDS.

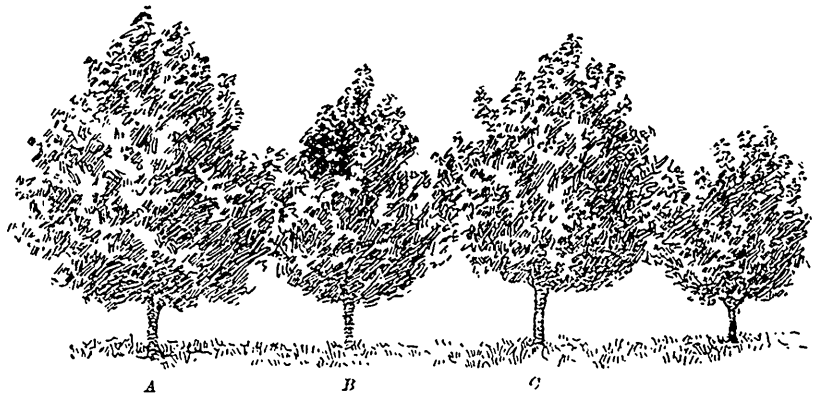


FIG. 1596—Trees in sod and in cultivated ground.

EXPERIMENTS have been concluded in various parts of the Continent by experiment stations to settle the question whether an orchard should or should not be kept cultivated. The result is in favor of clean cultivation unless in exceptional instances. At Cornell it was shown that while the roots of apple trees in sod were at the surface, in cultivated land they were at least 8 inches below the surface. At Nebraska the effect on growth was shown very clearly. The report says:

"Trees in cultivated ground suffered noticeably less from the drought and hot winds of summer than those in sod ground. The foliage was darker and more vigorous in appearance, and there was no yellowing and dropping of the leaves nor wilting during hot windy days, both of which occurred with uncultivated trees. Apples from cultivated land averaged nearly 14 per cent larger in weight than those from pasture land and over 17 per cent larger than those from mowed land."

An Illinois station report also shows marked results from clean cultivation.

"In 1890 three rows each of Ben Davis and Grimes Golden apples were planted, the trees being set 15 feet apart each way. These were divided into 4 plats, the first being given clean cultivation and the second, third, and fourth being cropped with oats, clover, and blue grass, respectively. The same treatment was continued each year after planting. The trees grown on the grass plats were decidedly inferior to those grown on the cultivated plat as regards height, diameter of trunk, vigor, and abundance of foliage, etc. For instance, in the case of the Ben Davis trees the diameter of the trunks 1 foot above the surface of the soil was about twice as great in the case of the cultivated plats as in case of that in grass. Similarly the height of the trees in the two plats averaged 18¾ and 11 feet, and the diameter of the tops 15½ and 8¼ feet, respectively. In the growth and vigor of trees, the clover plat ranked next after the cultivated plats, and the oats plat ranked between the clover and blue grass plat. An examination of the root systems of trees on the different plats also showed the superiority of clean cultivation, especially over cropping with oats and grass. In the cultivated plat the root system was compact and reached a considerable depth, while in the oats and grass plats the roots grew shallow and ranged widely from the tree. There was also a difference in the moisture content of the soil in the different plats. In the latter part of October, 1897, the average percentages of moisture in the first 27 inches of soil of the various plats were for the cultivated and corn plats 12, for the clover plat 10, and for the oats and grass plants 8. The effect of the different treatments is seen in Fig. 1596 which shows a typical tree from each of the 4 plats.

The injury caused by growing grass in young orchards is shown very emphatically by an experiment conducted at the Utah Station. Parts of an orchard were seeded to alfalfa, timothy, clover, and a mixture of timothy and clover soon after the trees were set, and other parts were cultivated, all being irrigated alike. Over half of the trees in the grass plats died and were reset twice, while the cultivated trees lived and grew well. It is not to be expected that growing grass in young orchards is always as injurious as it proved to be at the Utah Station, yet the reported experiences of fruit growers and experimenters everywhere show the import-

ance of carefully cultivating young orchards. Even in a climate as moist as that of England grass proves very detrimental to young trees. At the Woodburn Experimental Fruit Farm a mixture of grass recommended for orchards was sown around young apple trees and other trees were cultivated, the two lots being treated alike in other respects. The second year after sowing the grass and trees in the grass plat made 35 to 41 per cent less leaf growth and 74 to 87 per cent less wood growth than trees in the cultivated plat. In the case of dwarf trees bearing fruit for the first time the grass reduced the yield 71 per cent in weight and 82 per cent in value.

These are clear indications of the road to success in orcharding to which we must not shut our eyes; for if we are to attain success in our chosen line it is only by producing the finest products. Too long already have Canadian orchards languished in sod, showing in consequence enfeebled growth, and becoming an easy prey to borers, moss, and bark lice; whereas vigorous trees resist these evils, and grow fruit of large size and fancy grade.

A NEW BERRY CRATE.

FIG. 1597.—A NEW BERRY CRATE.

SMALL fruits have lately brought such low prices in our markets that fruit growers find it necessary to economize in every particular, in order to make the balance come on the right side of the ledger. We therefore gladly give prominence to any invention which promises to be an advantage to our readers such as the new crate, now being introduced by Mr. E. H. Cleaver, of Burlington.

Samples were brought us a few weeks ago and we were pleased with the simple method for fastening the cover, and of removing the same for the showing the fruit, also with the low price at which they were offered.

The cut shows three sizes, 12 qt., 24 qt and 36 qt crates, and Mr. Cleaver calls attention to the following points.

1. The ventilation.

2. The strength of the interlacing corners.

3. The shelving with thick cleats, keeping shelving off the fruit, to admit top dressing.

4 The cleating in the lid, leaving air space, and space for dressing, and at the same time when the lid is down all the box edges in the top layer are gripped so as to hold all the boxes firmly.

5 The removable lid, secured and locked with a wire loop and button, which lid is also filled with Veneer.

RASPBERRIES BOOMING.

THIS Journal has often advised its readers not to be fickle minded, and discouraged with growing a fruit because of one or two years' failure in crop or prices. Many fruit growers were disheartened over apples, and dug out trees they had been nursing into bearing for years, to find in 1898 that Grade A1 apples were about the best crop they could have.

Now a similar thing is happening with raspberries. For several years the price has been depressed until 1898 there was little, if anything, left after paying expenses, and many large fields of bushes were rooted out. Now we find indications of a strong advance in the value of this fruit. Already canning factories, which last year paid 3 and 3½ cents for the crop are offering 4 cents; and no doubt will have to advance still more to secure their supplies.

One outlet for raspberries is to Great Britain in the form of pulp—which is put up without sugar or water, in tins weighing about ten pounds. At our St. Catharines meeting Mr. C. C. James spoke on the subject and gave a great deal of interesting information which he has since published in the form of a special bulletin, in which he shows that raspberry pulp is a regular article of commerce in Great Britain, which will pay the shipper fairly at £25 per ton; but will give excellent returns, when as sometimes happens it reaches £40 or £50 per ton. All this will be seen in our report for 1898, soon to be published. From a recent letter from Mr. Watson of the Imperial Institute to Mr. James, he says:

"I am keeping track of the raspberry pulp trade. I learn that the Australian crop has again been practically a failure. One broker states that they are asking £45 to £50 per ton, and others that the Australians will have none to export. It is still too early to attempt to foretell the course of events, as everything must depend upon the English and Dutch crops. Speaking guardedly, I should think that the prospect for fairly high prices is on the cards, and Canadian raspberry packers should watch the market I have not yet had any blueberries from you, but it may interest you to hear that a considerable lot of canned wild raspberries from New Brunswick shipped to a broker here turned out satisfactory and realized good prices.

LIKEWISE PEACHES AND PEARS.

"Peaches and pears are goods which Canadian packers should turn particular attention to. I hear constantly of an ever-growing demand, and even if Canada cannot offer the extra choice varieties which Californian firms, like the San Jose, have obtained such a market for, there is a good market for sound, well flavored fruit of good appearance, provided that the syrup is what s wanted and the standard is maintained.

"The new pack California fruit is now here, but if the damage now reported has really occurred in the Atlantic States, and the cold has destroyed the trees and next season's crop, dealers look to high prices next autumn and winter. Most of the eastern United States pack is consumed locally. It is much larger than the Pacific, and if here is a shortage, California will not have much for this market. If your information confirms the damage, it would be a favorable time for Canadian canned pears and peaches to obtain a footing in this market.

❋ Flower Garden and Lawn ❋

THE AMARYLLIS.

Part of a paper read before the Hamilton Horticultural Society.

FIG. 1598.—AMARYLLIS JOHNSONI.

I enclose photograph of pot of Amaryllis Johnsoni, grown by Mr. James Anderson, 323 Queen St. S., Hamilton. The specimen which has fifteen spikes of bloom with sixty flowers and buds, presents a gorgeous appearance and, as far as I can learn, far surpasses anything of the kind ever seen by any of our members. The flowers are carried over three feet above the soil. The original bulb is nine years old, and has been repotted twice, the last time being about two years ago, when the increasing growth burst the pot. A little manure water is given at the time of flowering, perfect rest and no water when the bulbs are dormant. Thirty-nine flowers were produced in 1898. The photograph, owing to position and light, does not do it justice.

J. M. DICKSON, *Hamilton, Ont.*

THE Amaryllis belongs to the bulbous class of plants, and under that name is generally included, for commercial purposes at any rate, the numerous family of Hippeastrums, as well as the Vallota, and other species closely allied to the amaryllis proper, all of them belonging to the natural order of amaryllis.

The first record we have of the intro-

duction of amaryllis to European gardens gives the date as being early in the eighteenth century, about 1712, it being indigenous to the Cape of Good Hope, South Africa, where so many varieties of these beautiful plants have been introduced. These were herbaceous in their character, the foliage commencing to die down soon after the flowering season, followed by a period of rest, about which more will be said in the few remarks, I shall make on the culture of this easily grown, showy and attractive class of plants.

To secure the best results get some good sized bulbs, which we suppose are dormant, plant the bulbs in good rich loamy potting soil and not of too sandy nature; in well-drained pots, size of pot to be regulated by size of bulb. For a good average flowering bulb, a seven inch pot will be required. Plant so that a small portion of the bulb shows above the soil; water thoroughly once, and if the soil settles from watering fill up with soil again; water only when appearing dry at this stage, and water very seldom until root action has well started, when the plant will need more water; when in full growth it requires and will bear a great deal of water, especially if the drainage is perfect. The first intimation of top growth in most of the herbaceous varieties will be the appearance of the flower spike; about the same time the foliage will be seen starting into growth; the growth of both flower spike and foliage being very rapid, water, and possibly liquid manure, of a mild nature, may be given pretty freely now until the leaves show symptoms of decay, then water must be gradually withheld until the foliage has decayed almost entirely, when the pot, with the bulb in it, can be placed in a comparatively dry and warm position, say in a temperature of 40° or 45°. The bulbs can remain there until the following season, when they can be brought out and repotted if necessary; but if, as often happens, the bulb has commenced root action, do not repot it, but stir out some of the old soil from the top of the pot, and top dress, which in gardeners phraseology means filling up with a good rich compost of potting soil. This is preferable to repotting if growth has commenced, when the same treatment can be given as before recommended. One objectionable feature of the herbaceous class, from my point of view, is the appearance of the flower before the foliage has fully developed, which seems to me to detract from its beauty and value.

The evergreen varieties, which are generally classed under the name of Hippeastrums, have by constant hybridization with other Amaryllids become so blended and mixed that it is almost impossible to distinguish them except as evergreen varieties. The first known variety of this class was introduced from this Continent of North America in the 17th century, about the year 1658, some years before its near relative the Amaryllis was known to European floriculture. Many others were brought at more recent dates, chiefly from South America, the West Indies, and Africa, and are, as far as form and color of the flowers are concerned, very similar to the deciduous or herbaceous varieties. At the present time, there is an almost endless variety of both these classes of beautiful plants, secured largely by hybridization, although some having quite distinctive features are still introduced by plant collectors and travelers in newly opened up countries.

The evergreen varieties, like the herbaceous kinds, require their period of rest, but not of such a decided character, as only partial rest is required by the

evergreen varieties. The time to rest them can best be ascertained by watching when the plants have completed their growth, which will be some time after they are out of flower; then withhold water gradually, but never allow the plants to get sufficiently dry at any time to allow the foliage to droop. The appearance of the flower in these as well as in the herbaceous varieties, is, in most cases, the first sign of new and active growth, and water can be given more liberally; in fact, it is hardly possible to give too much water at this stage, providing the drainage is perfect and the plant healthy. Liquid manure of a mild nature, made from cow or sheep manure, will improve the quality and color of the flowers and foliage, if judiciously applied. The same remarks apply, even more closely, to the evergreen varieties than to the herbaceous. As regards repotting, it is certainly better not to repot if the plants are healthy and doing well, and this can be easily known by the condition of the foliage, which should look bright and glossy if they are thriving. It is better to assist them with weak manure water occasionally, than to repot. The evergreen varieties can be kept in the window or greenhouse continually, and very few varieties need a high temperature at any time; or they can be stood out of doors during the hot summer months to advantage where not exposed to the burning midday sun. It would be best to stand them in a saucer if possible, or on coal ashes. A good position for them is on the north or east side of a fence or building.

I cannot close my remarks on the Amaryllis without noticing the Vallota purpurea, a beautiful and easily grown ally of the Amaryllis; in fact it is often catalogued as Amaryllis purpurea, being probably better known as the Scarborough Lily It takes that name, it is supposed, from the fact that so many fine specimens are seen in and around that fashionable seaside resort, on the N. E. coast of England. It is also a native of the Cape of Good Hope, having been brought from there about 1774. The Vallota requires similar treatment as the evergreen Amaryllis, but even more water, the plant in its native haunts being found near marshy places and is even more averse to repotting than the Amaryllis; it often grows and thrives in the same pot for several years. These plants can all be propagated from seed; an almost countless variety of hybrids, some of them very beautiful, have been introduced in that way. They can also be increased by offsets, the small bulbs which appear at the side of the old bulbs; these must not be detached from the old bulb until appearing to drop away, and can best be removed when repotting; care must be taken in separating, to try and do so with the small roots attached, but this is a slow method of increasing the plants. In commercial establishments these bulbs are often increased by dividing the old bulbs, and there is nothing in this method that cannot be successfully practised by an amateur. This must of course be done, when the bulbs are dormant, by dividing them lengthwise with a sharp knife so that if possible a small portion of the tip of the bulb, as well as the flat part of the base is left on each division, as the latter is the essential part of the bulb to produce roots. Each section so divided and can be potted into small pots, in soil composed of equal parts loam and sand, when they can be grown on into larger pots as required. By this method one large bulb can be made to produce ten or more plants, and is possibly the best means of increasing good varieties, as

one is certain of securing the same plant in every particular, which is not always the case with plants raised from seed. These plants as a rule do not vary as much in that respect as some other classes, or natural orders do. There are one or two hardy varieties of the Amaryllis, and as they have been grown successfully as such, in and around New York, I see no reason why they could not be grown even more successfully in this section, than where mentioned. I find I have extended my remarks on these beautiful plants, but cannot close without saying, that I am satisfied that anyone starting to grow the Amaryllis, will never regret doing so, as it is one of the most remunerative and easy plants to grow, and will by its handsome and gorgeously striped and marked flowers, amply repay any labour bestowed on its culture. I might name on or two of the best varieties, *Amaryllis johnsoni*, red with white stripe; *A. vittata*, white, striped red or purple; *A. formosissima* (Jacobean Lily), scarlet; *A. hybrida* (Empress of India), striped; *A. hybrida* (Thomas Speed), striped, both beautiful varieties; *A. pardinum*, cream, dotted crimson; *A. robustii*, *A. graveana*, rich colored; *A equestre*, an old, but favorite variety; *Amaryllis* or *Vallota purpurea*, and other varieties.

Hamilton. W. HUNT.

HORTUS DEORUM.

SOME time ago I visited a friend whose husband had been a (moderate) invalid for years. He had spent his summers in beautifying his enclosed lawn of about an acre, and it was indeed a garden of the gods. His three summer-houses were inexpensive, but glorious with vines of various kinds. At the eastern end of one he stretched a woven wire, like fencing, and over this was trained the finest specimens of Canary Flower vine. This beautiful light green climber was literally covered with its flowers of a bright lemon color.

This member of the Nasturtium family is an annual of great beauty, but seldom seen in America, as hardy vines are preferable. At the south and west sides of this house were Roses and Clematis

The most charming of all was the broad and high house in the midst of the garden. A fine grape vine let its fruit down from the top, amid Bignonia and Ivy and Moon Flower. Almost the entire garden fence was adorned by some vine or rose.

The Alleghany Vine (or Wood Fringe) and Adlumia make an elegant screen, but are not hardy here. The Wood Fringe is not perennial, but biennial; not climbing the first year. He had mastered them, however, raising them in tubs the first season.

Pilogine was used entirely on one balcony. The roots, somewhat tuberous, can be kept dormant through the winter—buried in sand in some place free from frost. Started in pots in March or April, and fed with a liberal supply of manure water, they grow very luxuriantly, and the countless flowers fill the air with musky fragrance.

One vine pleased the children greatly, and this was the Dish-Cloth Gourd; suspended by a cross stick on a pole, it was striking.

The American Ivy (*Ampelopsis quinquefolia*) was found in various places; on pillars, walls and fences. But the Bittersweet, climbing a Poplar tree,

coaxing along the Trumpet Flower as it clambered, was altogether unique.

I was informed that the American Ivy was unfit for a tree garniture, its embrace being too tenacious—like our evils. Therefore an English bishop once wrote :

" The Ivy, fairest plant to seize,
And promptest on the neighb'ring trees,
O'er bole and branch, with leaves that shine
All glossy, bright, tenacious twine ;
And the else naked woodland scene
Clothe with a raiment fresh and green.
Fair is that Ivy twine to see !
But as ye love the goodly tree,
O rend away the clasping wreath,
'Twill pay the kind support with death ;
Ah, that beneath such semblance fair.
Should lurk, conceal'd, such deadly snare!"

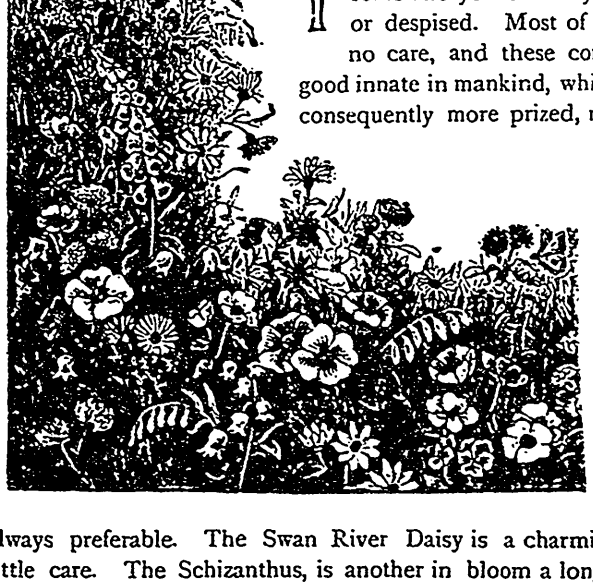
The shrubbery of this garden was old-fashioned, but arranged with finest taste. In front of the large bay window, Hollyhocks and Dahlias flourished in a bed six feet wide. I had never seen Fuchsias at their best, and their nook under three Birches grown near together was a charming sight.

Roses in borders and in beds, and annuals of every kind, I thought, greeted us along the walks. I greatly wondered how he could achieve so much beauty ; but his small greenhouse—where his Hoyas clambered—which held about three hundred plants, solved the problem, and I thought how infinitely greater the satisfaction of this garden than the delusive vanities of the outside world.

M. AGATHA HOSKINS.

Newport, Vt.

ANNUALS.



THE inexpensive annual, like children, so troublesome and yet so lovely, are not to be neglected or despised. Most of them grow with little or no care, and these correspond to the natural good innate in mankind, while others, far lovelier and consequently more prized, require minute attention. These, like the higher qualities of the soul, are often considered too much trouble, and are left to the painstaking few. The garden teaches us "it is more blessed to give than to receive." We grow to love the plants we care for, as we learn to love children. The delicate flowers, to my mind, are always preferable. The Swan River Daisy is a charming flower, and requires little care. The Schizanthus, is another in bloom a long time, and is especially delicate and beautiful for cut flowers. The Corn-flower, so beloved by Germans, is little or no trouble, and worthy a place ; given a rich soil it will attain

18 inches in height. I never transplant them, or thin, to more than three inches. Whitlavia is another favorite; it should be given a rather shady location; this is a treasure, but not so great as the Schizanthus which, waving in the breeze, always reminds me of flitting butterflies. Salpiglossis, Myosotis, Alyssum, etc., are half hardy and self-sowing. I like a wild garden of all these flowers, with a few added, such as Gaillardia picta, or mixed Eschscholtzia, Lobelia, Gypsophila, Gilia, Nigella, Salvias and a few Shirley Poppies and Heliotrope A mixture of our own is more expensive but the results are one hundred per cent. better. The coarse flowers are out of place here; I like them by themselves.

The Antirrhinum is perfectly hardy in Ohio and the southern states, but not here. Its richness and profuse bloom make it attractive. The Larkspur also is an annual treasure, snperior to the perennial varieties. Close to a tight board fence they thrive with me, and, if a trifle too dry, I use a mulch or flat stones about them, and give them a pail of water at even-tide.

A yard wire netting, of five or six yards, should be in the garden, for Morning Glories, Sweet Peas, Perennial Peas, New Climbing Nasturtiums, Japan Hops, and roses like Climbing Pearl, and Meteor, Cyprus Vine, etc.

Seeds purchased of a reliable seedsman will all grow if properly sown, and one dollar's worth will quite do for two years, and give more pleasure than many spent on more expensive flowers.

I have found more fraud in "posey-seed" than in the garden, and as much depends on the reliability of a seedsman as on any other investment bearing the proper credentials. In this business a good name is better than precious ointment. M. A. HOSKINS.

THE NIGHT SCENTED STOCK.

Mathiola Bicornis, the Night Scented Stock, is a flower not so well known and not so often grown as it deserves. The generic name of the stocks, *Mathiola*, is after Mathioli, an Italian physician of the sixteenth century, and the specific name, *bicornis*, means two-horned, the allusion being to the two flower buds placed like horns at the ends of the stems. The flowers succeed each other, adding to the length of the pod, which is often seven or eight inches and looks like an ordinary stem, but being opened, will be found to contain two rows of seed. The Night Scented Stock is a half hardy annual, growing about a foot high, bushy and with narrow leaves and single rosy-lilac flowers. The flowers are pretty enough but open only at night or on a cloudy day. In the light they are closed and the plant has a ragged, unattractive appearance, and should occupy a retired position. But though not beautiful, it is one of the flowers—

"That keep
Their odour to themselves all day;
But when the sunlight dies away,
Let the delicious secret out
To every breeze that roams about."

It takes a good deal of heat to develop the odour and in a cool summer it may be very little noticed. But on a warm summer night it is perceptible at a considerable distance, and from the passers-by are heard frequent exclamations of wonder and delight. It is one of the most agreeable of flower perfumes, not strong, but sweet and satisfying, and when one has once enjoyed it the experience will often be re-called with pleasure. The amateur who grows the Night Stock, starting the seeds with bottom heat, if possible, and giving the plants good culture, will find that while there are many more beautiful flowering plants, there is none that gives a more exquisite odor when the conditions are favorable to its full development.

CHAS. V. MOORE.

Brampton, Ont.

The Canadian Horticulturist

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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.

STOCK SOLUTIONS FOR MAKING BORDEAUX MIXTURE.—A convenient method is to dissolve 40 pounds copper sulphate in 40 gallons of water in one barrel, and 40 pounds of lime in 40 gallons of water in another. Then each gallon means a pound of the substance wanted. When wanted for use each solution should be diluted separately before pouring them together.

ORCHARD FUMIGATION is the subject of Bull. 122, Univ. of Cal., Berkeley, Cal.; and it would appear that more effective destruction of scale insects can be accomplished by fumigation than by spraying; even orchard trees can be treated by using bell, hoop and box tents, made of light duck, oiled, sized, and painted to make it gas tight. Cyanide of potassium gas is used for fumigation.

PEACH CURL. Cornell Bull. 164, advises the following treatment to prevent this evil.

1. Spray thoroughly with strong Bordeaux mixture just previous to the swelling of the buds, late in March, or early in April.

2. Spray again with weaker Bordeaux as soon as the petals of the flowers have fallen.

3. Spray again with weak Bordeaux when the leaves are just full grown, or at just about the time that the spores of the fungus are developing.

THE PEACH CROP is said to be so completely cut off in Georgia, that there will be no peaches to ship from that state this season. The prospect is fair in the Niagara District, a small proportion only having been destroyed. This should result in better times this season in the Niagara peninsula.

CLARKES' PATENT VENTILATED CAR. We have a line from Mr. John Clarke, of Orangeville, inventor of the ventilated car, referred to in page 101, who says it is a mistake to say that there are fifty of his cars already in use. In fact there is only one on the G. T. R., and one on the C. P. R., and of the two, the former is the best fitted.

THE CLYDE STRAWBERRY. Ohio Bulletin 98, speaks well of this strawberry, as follows: "The favorable report given in 1897 concerning this variety does not seem to need modification. The plants are healthy and uncommonly prolific. The berries are large enough and are sufficiently firm for near market. Although rather soft it was noted that fewer berries of this variety spoiled on the plants than of many others, which appeared to be firmer. The color is not quite as dark as desirable, but there can be no doubt that it will sell at a fair price in almost any market, while the berries are of fair size but not large enough to be ranked as fancy. It appears to be in nearly every respect a variety which is just suited to the wants of the ordinary commercial grower. It is probably the most prolific perfect-flowering variety in existence. While it is a vigorous grower and the plants have a tendency to mat too thickly in the row the berries do not seem to be small in consequence. It holds out well towards the end of the season; much better, in fact, than many other varieties which are less prolific. While not of the highest quality it can be recommended for home use, and growers for market need not hesitate to plant largely of it.

SEEDLING OF GRAVENSTEIN. Mr. Burbank of California has recently brought out a new apple in a seedling of the Gravenstein, but six weeks later, and therefore a winter apple. It is said to possess a very excellent flavor.

HON. SENATOR FERGUSON who was appointed President of the P.E.I.F.G.A. for the current year has, owing to enforced absence from his province on account of senatorial duties, been reluctantly obliged to resign and H. A. Stewart, Esq., the vice president, a most enthusiastic advanced orchardist has succeeded to his place.

PEACH PROSPECTS IN ESSEX. Mr. W. W. Hilborn, of Leamington writes:

We have had the most disastrous winter ever known in this locality. Long continued cold with no snow on the ground had destroyed the roots of I think considerably more than half of the peach trees in this country. Nearly all of the large trees are killed especially where they have been well cared for and the ground kept clean around them. Some of the finest orchards five to eight years old will all have to come out. I have been examining the experimental trees and find they are not so badly killed, had crimson clover among them and hope most of them will survive, cannot tell at present to what extent the trees are killed. The tops are all right on most sorts with plenty of injured blossom buds for a good crop of peaches. The tops of the trees looked so nice that no one thought of looking at the roots until Saturday last, it was discovered that the roots were killed. Many of the fruit men are about discouraged and do not intend to plant as largely again. One man living just opposite me has 2100 trees planted six or seven years and bore their first crop last season, all are killed. Old trees have suffered most, seedlings more than budded stock.

FUMIGATION OF NURSERY STOCK. In order to carry out the provisions of the act for preventing the spread of San Jose scale, the department of agriculture has just issued the following regulations for the fumigation of nursery stock:

1. Fumigation must be carried on in a box, room, compartment, or house suitable for the purpose, which must be air tight and capable of rapid ventilation. The owner or proprietor will notify the Minister as soon as preparation for fumigation is complete. The Minister will thereupon order an inspection of the fumigation appliances. No fumigation under the Act is to be carried on until such inspection has been made and a satisfactory report sent to the Minister.

2. The Inspector, after examining and measuring the box or house, or other compartment in which fumigation is to be carried on, will prescribe the amounts of material to be used for every fumigation, and the instructions as to the same must be carefully followed out. The Iuspector may, if thought advisable, supply the material for each fumigation in weighed packages.

3. The fumigation house (which shall include all apparatus or appliances used in the fumigation, such as generators, etc.) is to be subject to the orders of the Minister on the recommendation of the Inspector. Subject to the approval of the Inspector the fumigation house may be on other lots than those on which the nursery stock are growing.

4. The fumigation is to be by hydrocyanic acid gas produced according to the instructions of the Inspector, and from such formulas as he prescribes for the purpose.

5. The fumigation is to be continued for a period of not less than forty-five minutes. After the expiration of this time or longer, and when fumigation is complete, the house is to be thoroughly ventilated for fifteen minutes at least.

TUBEROUS BEGONIAS. — Mr. Hunt writes: "I regret there is an omission of a small sentence or two in the second paragraph of my paper on 'Tuberous Begonias,' second column, page 154, commencing 'The glass can be kept close, etc., etc.':— the full paragraph should read as follows :—' The glass can be kept close at first, but when the seeds start into growth, *air must be given, as at no period of growth*, especially at this stage, will the tuberous begonia thrive in a close humid atmosphere."

CHARLES BALTET, of Troyes, France, is a celebrated author of horticultural books, widely known and respected in Europe, founder of the Pomological Society, of France, and chief exhibitor at most of the great expositions. hence it is not surprising that he is to be chief of the Horticultural Department of the Paris Exposition of 1900. We have just received a pamphlet, giving a biographical sketch of M. Baltet, written by Jean Guicherd, Professor of Agriculture at Aube.

THE COLD WEATHER of last February was too severe for tender trees, especially where the ground was not protected by either snow or some cover crop. It is reported that ninety per cent of the peach trees are winter killed in Essex, and whole orchards in Michigan are wiped out of existence.

FUMIGATION is the order of the day for nurserymen, who find it an expensive and troublesome undertaking. It seems quite unnecessary too in cases where never a single scale has been discovered.

We believe the law will prove in many instances a dead letter, for the inspector comes along only to inspect the fumigator and does not remain to see that the work is done.

BLACKBERRY CULTURE.—The article on this subject, p. 127, was written by Mr. Chas. McColl, and read at a meeting of the Simcoe Horticultural Society.

AN ENJOYABLE LECTURE on Our Canadian Homes was given before the Brantford Horticultural Society, by Mr. F. H Race, of Mitchell, Ont., one of our directors. The Brantford Courier says: "Mr. Race is a very pleasing speaker, unaffected, but most effective in his manner from start to finish."

DR. FLETCHER and Prof. Macoun both report having had a most enjoyable lecture trip among our Societies.

ORCHARD cultivation is gradually reaching a new era. Better pruning, spraying, cultivating, thinning, etc., seem absolutely essential to success; but this takes heaps of good honest labor. Consequently, the successful fruit grower must make a business of his fruit, and not attempt to accomplish too many things at once.

Question Drawer.

The following questions 1073 to 1077 are answered by Prof. H. L. Hutt, Horticulturist, O. A. C, Guelph.

Sweet Peas.

1073. SIR,—What depth should sweet peas be planted?

Make a furrow in which seed is planted from three to four inches deep, and about six inches wide at the bottom. Scatter seed evenly, and cover with about two inches of fine soil. The rest of the soil should be worked in gradually, as the plants grow, the furrow being filled by the time the plants are six inches above the surface.

Primrose in House.

1074. SIR,—How should a house primrose be treated?

To have good winter blooming primroses, new plants should be started every spring in a little seed box. When they are large enough to transplant they should be potted singly into small pots from two to three inches in diameter. When the roots have filled the small pots they should be repotted into four-inch pots, and from these again into five or six-inch pots, in which they are allowed to bloom. Care should be taken to have the crown of the plant a little higher than the soil of the pot, to prevent water lodging in and rotting it. Use well prepared potting soil, keep in a moderate temperature, and avoid excessive watering.

Washing House Plants.

1075. SIR,—Should the leaves of a plant be washed with a cloth?

This is desirable with plants having large smooth leaves like the India Rubber and many of the palms; other plants may be washed by showering them.

Treatment of Lantanas.

1076. SIR,—How should a three or four-year-old lantana be treated?

The lantana is a shrubby little plant, which after a long period of blooming should be rested by witholding water any more than may be necessary to keep them alive. When beginning to make new growth after resting, they should be repotted firmly into good rich soil, and the top should be severely pruned back. More water will be required as the plants begin to grow freely. Syringe the foliage frequently to keep the plants free from the red spider.

Campanulas.

1077. SIR,—How long will a campanula last?

Some of the campanulas are annuals lasting but one year; some are biennials, lasting two years, and generally blooming the second season; and others are perennials, lasting for several years.

Bad Ocean Transportation.

1078. SIR,—In October last I sent four barrels of Northern Spy, from here to Hamburg, Germany, and arrived in Hamburg December 28th. The apples were well packed but arrived in a very bad condition; in the best barrel only half were fit to use, and the worst barrel had only forty good apples. I had to pay $2 50 charges for each barrel in advance. Now I would like to know how this could be remedied and who is responsible for this loss, as no doubt the time was exceptionably long, being two months and a half. The fruit was sent only as a present to a party. Is there any other company beside the Hamburg American Packet Company, or was it the fault of the G. T. R. The railway agent here told me the apples would go in cold storage.

JUSTUS ROEDLER, *Milton.*

Your apples could not have been forwarded from Montreal by a direct line to Hamburg, or they would not have been so long en route. No doubt they went via London, and were delayed waiting transhipment. You should get a definite bill of lading specifying just how the fruit is to be forwarded, or by what line. Unless you have some agent in Montreal to see that your goods are loaded in cold storage, or else have it in your railway shipping receipt, we do not see how you can expect them to be carried in that way.

Cereus and Phyllocactus.

1079. SIR,—The article on The Nright Blooming Cacti, in the March number of the HORTICULTURIST is rather confusing. Cuts of two plants are given—Cereus grandiflorus and Phylocactus latifrous. I have both plants and they were in bloom last summer.

Florists apply grandiflorus to that individual of a species having the best flower. Hence the use of the term indicates that there are other members of the species. The one I have, that bloomed, is quite different from the cut given. It is square, each side being ¾ of an inch, and quite rounded, being without spines. The cut represents a much smaller plant with concave sides, and having prominent spines. I obtained mine from a person skilled in cacti, and he assured me that it was the real Cereus grandiflorus. I also have the smaller plant, the one represented in the cut as the Cereus grandiflorus. I should like to know which is the real and which is the spurious Cereus grandiflora or grandiflorus.

The flowers of the Cereus are perfect, having both calyx and corolla. Those of Cacti are imperfect, having no corolla, but a colored calyx. Cacti remain in bloom during a number of days. The flowers of the Cereus open in the evening and close before morning. I have not much knowledge of Cacti, but the above is the result of my observations. According to these, combined with some knowledge of botany and an acquaintance with the practices of florists, I cannot understand why, when two plants having perfect flowers and both blooming in the night only, one should be called a Cereus and the other a Cactus.

WM. GORSLINE, *Durham.*

The Cacti are a very numerous family, a large part of them natives of Mexico. They are also found in California, Texas, Nevada, and South America; as many as 1000 varieties having been discovered. They are subdivided into numerous genera, as (1) *Cereus*, of which there are about 200 species, among them Cereus giganteus, which in Mexico has reached the height of 50 feet, and Cereus grandiflorus, of which our illustration on page 111 shows a two year plant, grown in a six inch pot from a six inch cutting, and this is the true Night blooming Cereus. (2) *Echinocactus*, the hedge hog cactus, containing about 200 species; (3) *Echinocereus;* (4) *Echinopsis;* (5) *Epiphyllum;* (6) *Mamillaria*, a numerous and popular family; (7) *Pilocereus*, to which belongs that curiosity Pilocereus senilis, the "Old Man Cactus"; (8) *Phyllocactus*, of which P. latifrons, figured on page 111, is called the giant of its family, growing 8 or 10 feet high, with stout flattened stems 4 or 5 inches broad. The flowers appear at night, giving rise to the misnomer, "Night blooming Cereus," which is mentioned above. This genus is of the easiest culture; (9) *Opuntiae*, of which there are 150 species in cultivation.

We have given a list of the principal families of Cacti, a class of plants quite in favor of late with some amateur florists, and which go far to make up for their ugly spines by their beautiful bloom.

Transplanting Asparagus.

1080. SIR,—Last year I planted a quantity of asparagus seed, sufficient for a bed of about one-eighth acre, intending to transplant this spring. The seed came up very well and looked strong and healthy last fall. During last season I prepared the bed into which I intend to transplant by ploughing up the sod and planting in roots, keeping well hoed and free from weeds, and when crop was taken out I manured very heavily and ploughed again last fall.

I have since heard that the asparagus plants will do better to remain for another year before transplanting. Will you kindly advise me as to this. The soil is a rich clay loam, well drained naturally.

Yours very truly,

SUBSCRIBER.

Strong one year old plants are best but they may be transplanted at two years old, if more convenient.

The roots should be set about six inches below the surface of the soil; some advise setting deeper, but of course that would mean later starting in the spring.

One Hundred Apple Trees.

1081. SIR,—In planting out an orchard of 100 apple trees, what kinds would you recommend, and how many of each, so as to give the family sufficient for use during summer and fall and the balance winter fruit, principally for shipment.

E. J. P., *Kintore.*

The following would make a very good list for family use, with a larger number of those kinds suitable for export; Early Harvest 1, Porter 1, Sweet Bough 1, Red Astracan 2, Duchess 10, Alexander 5, Fall Pippin, Gravenstein 10, Blenheim Orange 10, Wealthy 20, King 5, Fameuse 2, Greening 2, Ontario 20, Spy 10.

Spys on Tolman Sweet.

1082. SIR,—In the case of Spys or other late bearing trees of good quality would they bear any earlier by being top-grafted on Talman Sweet stems.

E. J. P.

We know of no instance of testing the Spy on Talman sweet. Some have claimed to have made the King apple more productive by top-grafting it on Talman Sweet.

Mixed Planting.

1083. SIR,—Would it be advisable to plant plum, pear, cherry, peaches, or early bearing apples among the regular rows of the apple orchard, to be cut out when their room would be needed by the apple trees?

E. J. PEARSON, *Kintore, Ont.*

We would not advise this except in the case of peaches and possibly dwarf pears; plums, cherries and dwarf apples are longer lived, and would just reach their best days when they would have to be sacrificed.

We think, unless land is very limited, it is best to plant each fruit separate.

Questions (1084 to 1090) answered by Mr. W. Hunt gardener, Hamilton.

Ferns.

1084. SIR,—What is the best time and way of increasing Adiantum ferns, and the best compost to pot them in.

Adiantum ferns can be increased by dividing old plants in the spring, just as the young fronds are commencing to unfold from near the roots of the plant. Pot each division into small pots at first, repot into larger as required. A good compost for them can be made by mixing two parts of well rotted fibry loam, with one part each of leaf mould, (or peat) and sand, use plenty of drainage, and keep the plants in a shaded position, during the summer, water well at the roots, but do not sprinkle or syringe very often. Adiantum can be raised from seed sown in a box or pan filled with fine peat and leaf soil, with a little sand mixed with them, do not cover the seed at all, water very carefully; or a few well ripened frouds may be laid on a moss covered stone, kept in a well shaded position, and watered carefully; the latter is oftentimes the most successful method. Seedling Adiantums make better plants than those from divisions, but require great care at first.

Palms.

1085. SIR,—What is the best time to shift palms, and the best soil to pot them in.

Referred to paper on Palm Culture in February issue of the C. HORTICULTURIST.

Clematis.

1086. SIR,—What is the best time to plant clematis, spring or fall? Should clematis be pruned, and if so, at what time?

Plant as early as possible in spring. The Clematis, as a rule, requires very little pruning; cutting out the dead portions, or shortening back the growth to strong vigorous buds, is all that is generally necessary. If the growth is too dense, thin out the weaker growth altogether as required. The best time to do this is in spring, just as the buds are showing growth.

Budding Roses.

1087. SIR,—What would you advise, budded roses, or roses on their own roots, for the amateur.

Roses on their own roots are decidedly the best, whether Hybrid Perpetuals or the more tender classes of Tea and Noisette roses.

Hardy roses when budded or grafted, require to be heavily mulched with manure, or sufficient soil thrown around them to cover the junction of the graft or bud with the stock so as to protect them in severe weather; they are also very liable to canker at the point where grafted. Another objection to budded or grafted stock is the worthless growth from below the graft, which has to be kept constantly cut off, or it would soon smother and eventually kill the rest of the plant. Tea and Noisette roses are also best on their own roots, with possibly a few exceptions, one of which is the well known and ever blooming white tea rose, Niphetos, which in a greenhouse gives the best results when budded or grafted on a strong growing, climbing rose, such as Lamarque or Cloth of Gold.

Hyacinths and Narcissi.

1088. SIR,—Will hyacinths and Roman Narcissi flower as early potted in the soil as in water?

There would be very little difference in time of flowering these bulbs, whether grown in soil or water; condition of bulbs and temperature affect both methods at different seasons very materially.

Cyclamen.

1089. SIR,—What is the best soil in which to grow Cyclamen, and how should they be treated in the summer?

The best soil for Cyclamens is light, fibrous loam, enriched with dry cow manure; use plenty of drainage in the pots. For summer treatment keep the plants growing for a short time after flowering, then withhold water gradually, giving sufficient at intervals to keep the plants fairly moist, without drying off altogether. The plants should be kept as cool as possible. A cold frame and sash in a shaded position out of doors, is a good place for them. Seedling Cyclamens should be kept growing steadily the first summer.

Azaleas.

1090. SIR,—How should these be treated after flowering?

Azaleas should be repotted, if necessary, immediately after flowering, and kept in a temperature of about 65 degrees to complete their growth; remove

to a cool, partially shaded position out of doors during the hot summer months. The north side of a building or fence is a good position. The pots may be either plunged in, or stood on a bed of coal ashes. Water and syringe frequently, never allowing the roots to be quite dry. A few tobacco stems thrown around outside each pot will materially assist in keeping down red spider and thrip, the two insect pests to be dreaded by the Azalea grower most of all.

Roses for Amateurs.

1091. SIR,—Are budded or own root roses best for amateurs?

Answered by Webster Bros, Hamilton.

If by an amateur is meant one who can scarcely tell a rose from a cabbage, well decidedly, roses that can produce nothing but flowers of the variety he has purchased, or own root roses, are the best. However, we find the majority of the amateur rose growers are well versed in varieties, etc., and to this question it would not do to say plant own root root roses, because you cannot tell the difference between the general Jacqueminot foliage and that of the Manetti, or that of the briar on which it is budded. Budded roses will give a quantity and quality of flowers. the first of the season after planting, that cannot be had from own root plants. Budded roses will not stand late planting as well as the own root stock. Plant them as soon as the ground can be nicely worked and set the union of the rose and the stock rose three to five inches below the surface, to give the good rose a chance of ultimately establishing itself on its own roots. The Manetti rose has seven leaflets, while most of the H. P. roses have five. The briar has very light colored wood and small leaflets, which are very distinct. Neither of these stock roses should be mistaken for a worthy variety, by any one who is sufficiently interested in his roses to notice a difference of wood and foliage.

Public Meeting of Societies.

1092. SIR,—We find it a little hard to get the members to attend the public meetings of our Society. Could you suggest any way in which we could make them more interesting? M. TULLY,
Sec. Midland Hort. Soc'y.

We think it a mistake to depend too much upon one big meeting for the life of a horticultural Society. Frequent smaller meetings, of a somewhat social character, will accomplish more, and need cost little trouble or expense.

Some of our Societies have monthly meetings—say, the 1st Monday evening in each month during the winter and early summer. These may be held in a small hall, or, on invitation, in houses; and in the proper seasons, a fair display of cut flowers or pot plants may be made on the dining-room table. These will form a centre for conversation until the time comes for reading a paper by a member of the Society, or a lecture by some gardener, which should be followed by questions or open discussion.

A little music will enliven the occasion.

The plant distribution in the spring should always take place in a public hall, at the close of a programme of music and addresses. Some call out the names of the members, who come forward and receive their basket of plants, and such a public gift night greatly helps the membership.

Ants.

1093. SIR,—I am at a loss to know what to do to destroy the ants that infest my plum orchard. They are building mounds all over, and a favorite place is around the

trees. Last year they destroyed some of the fruit.

J. E. ANDERSON, *Port Dover.*

Ants are not usually counted injurious to fruit trees. They often climb the plum trees after the wax secretions, and cherry trees after the honey dew deposited by the aphidæ; indeed they sometimes extract it from the aphis itself, which are therefore often named the ants' cows. However, our correspondent can easily rid his orchard of the ants, by dusting air-slaked lime, freely about and over the hills and other places infested. This should be done in warm dry weather.

Carbolic acid, diluted 10 or 12 times in water and sprinkled about, is an excellent destroyer.

FRUIT PULP. — Mr. W. Boulter, of Picton, member of the Fruit Pulp Committee, writes: — "I received a letter from Messrs. Anderson & Coltman, acknowledging receipt of our small consignment of raspberry pulp last fall, saying, '*Quality satisfactory; color good*, and *flavor good*,' only criticism was it was *too sweet.* As fruit is about 6d. a pound and sugar 1½d., the greater the quantity of sugar it will absorb the better for the jam maker. The pulp sent over was simply pure fruit, and it sold at about 36 shillings per dozen of 7 pound cans; but with a large crop it might drop to 15/ or 20/.

YE NARCISSUS OR DAFFODYL, HYS HISTORIE AND CULTURE.—Peter Barr & Son, Covent Garden, England. Through courtesy of Mr. Peter Barr, now visiting this continent, we are in receipt of a set of the magnificent catalogues, issued by this firm, and also of a pamphlet entitled as above, which forms a most interesting monograph on this flower. Speaking of the culture of the daffodil, he says:

"Even a clump or two of the common old double yellow kind in a cottage garden brightens up all around it; and planting bold beds or masses of these bulbs along the margins of woods, or even in the grass of lawns or in the home meadows, is a means of adding beauty to natural vegetation of such localities, for, as some one has well said, a group of garden daffodils on the young grass is a "sunshine in a shady place." When planted in quantity, one of the results gained is a plentiful supply of flowers for cutting, and of all spring blossoms these are the best for indoor decorations of vase or pitcher."

L'ART DE GREFFER, par Charles Ballet Horticulteur a Troyes, France.

This is the most complete work on the art of grafting we have ever seen, and well deserves to be translated for public benefit. In the first place he treats of the operation itself showing the various methods; then he treats of each individual tree, shrub or plant, and points out the method best adapted to it.

Traite de la Culture Fruitiere, Commerciale et Bourgeoise, par Charles Ballet Horticulteur at Troyes, France.

This is a very complete work on fruit culture in France, and treats in a very complete manner, with the varieties and methods of culture, adopted in that country. Much however is not adapted to our country, as for example, the training on walls of peaches and pears, and the transport of fruit in panniers.

Open Letters.

Apple Shipping.

SIR,—I notice in your valuable journal for March, that at a meeting of the Niagara District Fruit men, the subject of ventilated cars for shipping tender fruit in summer, was taken up and handled very ably, but to my mind there was a matter omitted of far more importance viz., winter shipping of apples to Europe. Now it is a fact that there has been very heavy losses this winter caused by apples being frozen on the way to the shipping ports and lying around waiting for vessels to arrive, and other causes. I have a circular from Wcodall & Co., Liverpool, stating that apples in some cases turned out frozen, out of the bottom of the vessels, even after the long voyage and in the warm vessel.

Apples, when frosted and put into the vessel in that state, will turn wet when they thaw out and will commence to rot at once. I just have returns for a car of Spys from Liverpool, $1 13 a barrel that cost me in the orchard last fall $1.50 for the fruit. I think this was the best car I ever shipped and would have made money had it arrived in good order. We want heated cars the same as those used on the C. P. R. I understood they have a coal oil lamp that is sufficient to keep the frost out of a good refrigerator car, also there should be a large shed at Portland and other points of shipping, into which cars could be run in till they are ready to be unloaded. I think that if this matter was taken up and remedied, we would not have so many barrels of slacks and wets and worthless rotten apples exported.

E. LEONARD & SONS, *Cobourg.*

stronger Solutions Paris Green Advised.

SIR,—According to my experience the present formula for paris green for the distruction of eating insect pests is not strong enough to kill anything.

For Gooseberry worm last year I went by the formula 4 oz. of paris green to a coal oil barrel of Bordeaux mixture. This had no effect and I doubled the dose 8 oz , and this only just succeeded. I then sprayed potatoes 4 oz. with milk of lime in the mixture and found it of no use. To ascertain what we had been using by the old teaspoon measure, I filled a barrel and to every pail of the mixture —(milk of lime and water)—I put a teaspoonfull of paris green this was 14 oz. to a barrel 40 gals.

A gentleman living near had his orchard overrun last spring with the tent caterpillar, upon my advice he got a spray pump and put on the orthodox 4 oz. and this did not delay their operations of stripping his orchard in the least.

I notice in reports spraying for codling moths is not always successful, nor in my opinion will it ever be with 4 oz. of paris green to 50 or 40 gals. of water. Still I would counsel every one using Paris green to use milk of lime, as this not only protects the foliage from the effects of the poison and fixes it to the leaf but actually nourishes the leaf. This latter seems questionable but my experience so far seems to justify this conclusion, and this contention supported by other investigators, that the leaf should feed on the lime by absorbtion does not seem improbable when we remember that many plants take nitrogen from the air. Let this be as it may I am satisfied that the leaves of bushes that are kept coated all summer with lime are of more than normal thickness and size and retain their greenness till destroyed by frost.

Another point; I am satisfied from my own experience and from the experience of others, and the lecture given here last winter before the Farmer's Institute by Alex. McNeil Esq., still further fortifies the opinion, that gooseberry mildew is not affected by Bordeaux after the spores once get hold on either leaf or fruit. Our vantage time is before the leaf comes out, I gave mine a good drenching last fall, not after the leaves had fallen but after they were no longer needful to the bush; this I did with pure blue stone water 2 lbs to 40 gals., but for the future I shall add lime even before the leaves come out, as it fixes the blue stone to the stems for weeks.

STANLEY SPILLET, *Nantyre.*

Manuring.

SIR,—Your correspondent writing about Potash seems to have entirely misunderstood its application to plant life As an alkali and base it is undoubtedly important in flesh building both in plants and animals, and although some eminent agriculturists have intimated that magnesia and soda can to some extent take its place, yet they have never for a moment suggested that we can get large crops of anything without potash in plentiful supply. There is, however, a great deal of potash in Canadian as in most other soils, in fact it is usually in much better supply than lime alkaline base. It is very often locked up in unyielding forms in the earth, but is readily liberated by the free caustic lime of the tetra-basic phosphates. The use of mono-calcic (superphosphates) phosphates, or even the di-calcic or tri-calcic (bone) phosphates will not effect the unlocking of the potash because they have no further base of free lime as the tetra-basic phosphates carry. This is one of the many reasons why the tetra-basic phosphates are being recommended by the highest authorities as preferable to superphosphates and bone.

In the light of the most recent researches we are again emphasizing the teaching of Liebig that the acids need more careful attention

than the bases and more particularly phosphoric acid. It is undoubtedly in comparatively poor supply in most soils and as it is carried off in the ripening of grains, roots, fruits and animals, and in the bone it does not get returned to such an extent as potash. Also what the soil does contain is usually locked up harder than the potash and is not so easily liberated. I do not for a moment wish to be understood as desiring to discourage the application of potash as kainit because I think it is wise to supply sufficient available material to meet the possible requirements of the largest conceivable crops, but I am within the line of latest and most extensive research and in accord with the best authorities in saying that, *in particular*, phosphoric acid is the most important of the inorganic elements which we have to provide return of in a commercial form. In the matter of the fertility of the seed phosphoric-acid is by far the most important substance, in fact in most seeds potash is but little in evidence in comparison. It is the bulky parts of the plant and not the reproducing parts which abounds in potash. Fruit growers have not been very careless in the matter of supplying more potash to their soils, but they have, not been supplying phosphoric-acid as they should. I understand that the reason for this has been that they have given too much heed to the teaching, that as potash enters so much with the composition of flesh in fruit that supplying lots of it would work the oracle. Also they are in the position of having had their *fingers burned* by the use of vitriolized superphosphates. As they want strength, firmness, ripening and reproducing powers of the best in their orchards they must supply *in particular* an abundance of phosphoric-acid but they must stipulate that the phosphate is free from sulphuric acid (vitriol) and available to their plants under proper circumstances of application. It is all the better if it is in a tetrabasic form and that the bases be lime, magnesia and iron.

T. C. WALLACE.

Adaptation of Varieties.

SIR,—I would like much to see an article on the adaption of varieties of apples to localities, the Newton Pippin is grown to perfection only in an area of a few miles up the Hudson, around the mountains of Virginia, and one or two other Southern States, under the name of Albermarle Pippin, this worthless, as grown in Nova Scotia, I have tried cuttings sent from Mr. Downing, but never saw even a blossom, the tree too for my locality, nor does it succeed in any part of Canada. The Gravenstein, as grown in Nova Scotia, to for as my experience goes, is not excelled anywhere, with you I think it is drier, ripens earlier, and is a short keeper. Now that is our *one* kind in which *alone* we excel, we judge few of our fruit growers have ever seen a Ribston Pippin such as I got 10 barrels of once from Grimsby, as juicy and as rich and as fragrant as a pine apple, and *going* in October. For the Famause you must go to Montreal. The best Wagener I ever saw, *beating Ontario*, came from C. W. Gillespie's orchard, Grand Rapids, Michigan. Where does the Swaar excel? We can never get it from Ontario, nor Grimes, nor Swazie Pomme Grise, or along other choice kinds. Shippers are too apt to send too many of R. I. Greening, Mann, Ben Davis, and a lot of rubbish that no one wants, if he can get others.

At a meeting of our N. S. fruit growers, a few weeks since, I found as much uncertainity as ever, as to what kinds of apples to grow for profit, and the largest buyer and dealer at Wolfville, that has become wealthy through his apple shipment, advised a friend of mine to plant this coming spring, in a lot of 500 trees, not less than 200 Ben Davies.

I do not believe the English people will remain fools forever, but that they will gradually learn what are useful varieties, for the table and for cooking.

C. E. BROWN, *Yarmouth, N. S.*

Our Book Table.

ELLWANGER & BARRY, Mt. Hope Nurseries, Rochester, N. Y. Novelties in fruit and ornamental trees, etc., etc.

BALTET FRERES, Nurseries at Troyes, France. Catalogue and Prices Current of fruit trees, forest trees, ornamental trees, conifers, shrubs, roses, plants, etc., etc.

ANNUAL REPORT of the Superintendent of Spraying, 1898. W. M. Orr, Winona.

This valuable and convincing report may be had on application to the Dept. of Agriculture, Toronto.

REPORT of the Supt. of Farmers' Institute for 1898. F. W. Hodson, Dept. of Agriculture, Toronto. A most interesting report, and one well worthy of the widest circulation.

SIMMERS GENERAL ANNUAL SEED CATALOGUE for 1899, 147 King St. E., Toronto. A magnificent Catalogue, with a fine set of illustrations. Free on application.

SEED ANNUAL, 1899, D. M. Ferry & Co., Windsor, Ont. A very fine catalogue, highly illustrated.

RINGING GRAPES.

This process is the removal of a small section of the bark surrounding the cane for the purpose of obstructing the downward flow of sap, which is thereby caused to accumulate in excessive quantities in the portions of the cane above the ring, and to supply these portions richly with food materials. Experiments were tried last summer to test the results of ringing on several varieties. The rings of bark were removed in the period between June 27 and July 5, when the grapes were from one-third to one-half grown. The width of the ring removed in most cases was one-half inch, but on some canes only one-fourth inch. The following notes taken at the time of ripening indicate the results on each variety :—

Concord showed the first on the ringed canes to be slightly larger and a day or two in advance of the fruit of the rest of the vine.

Cambridge showed the fruit on the ringed canes to be larger, of better quality, and two or three days, earlier than that on other canes.

Brighton showed no difference in size, but three days difference in earliness.

Columbian Imperial showed very great difference in size, the berries averaged one-fifth larger on the ringed than on the unringed canes, while the ringed canes ripened fruit two weeks earlier than other canes of the same vines.

Agawain showed only a slight difference in size and earliness.

Herbert showed no difference except that the fruit on the ringed canes was poorer in quality than the rest.

Moore's Early showed no perceptible difference in size, quality or earliness.

Niagara showed the fruit on the ringed canes to be two days earlier and slightly superior in quality to that on the canes.

The Delaware showed better and earlier fruit on the ringed than on the unringed canes, but showed the best fruit where only a small section of the bark had been removed.

The best results were obtained on canes where the bark overgrew the sections from which it had been removed. Where the bark overgrows section about the time the first begin to ripen the surplus food material in the cane is drawn away into the lower parts of the vine and the fruit ripens with only a normal quantity of food material present. If the section is not overgrown, the excess of food remains, the fruit is forced to ripen with this excess on hand, and hence ripens improperly.

The width of the section of bark to be removed should vary according to the vigor of the cane and the variety. On strong canes of vigorous varieties three-fourths of an inch is not too much while on feeble varieties one-fourth of an inch may be sufficient.

W. L. HALL.

Kansas State, Agricultural College.