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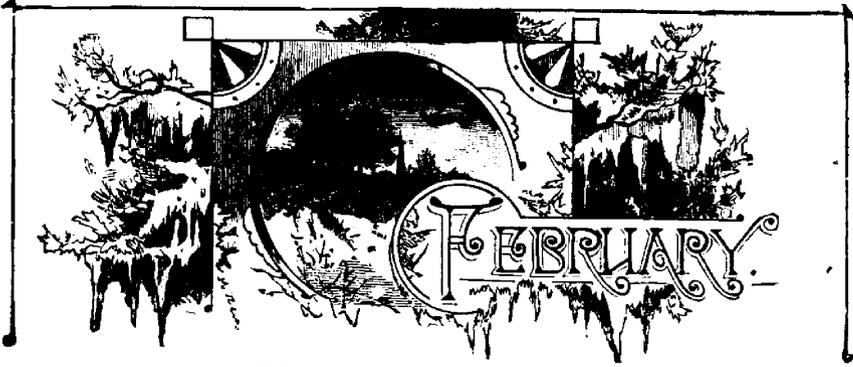
FELLEMBURG.

THE
Canadian Horticulturist

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No. 2.



THE ITALIAN PRUNE.



HE plum is a favorite in many of the commercial orchards of Ontario, especially in some districts bordering on Lake Ontario and on the Georgian Bay. Much more hardy than the peach, it will yield good crops almost annually and, the fruit being firmer, it can be shipped a longer distance and marketed to better advantage.

For a long time the curculio and plum knot were the bugbears which prevented fruit growers from growing plums to any great extent, but the curculio is less formidable of late since we have found that spraying with Paris green, just before the blossoms open and again just after they fall will, to some extent, destroy the parent beetles, while by careful attention to jarring the crop may be protected almost completely. The plum knot too can easily be kept in subjection by united effort among plum growers in cutting out and burning the knots as they appear. With the difficulties thus lessened, plum growing in Canada is of late receiving a fresh impetus and promises to be one of our most important industries.

That class of plums, known in commerce as prunes, is especially well adapted for cultivation in such localities as are situated at a distance from the great markets, for by reason of their firmness and keeping qualities, they will bear shipping well.

The drying of these prunes is an important industry and the prunes of Provence are well known in commercial circles. The Prune d'Agen is a favorite variety for this purpose and the German Prune is very highly valued in Ontario for profit, especially in the vicinity of Collingwood.

The Italian Prune (Felleberg) is another of this class. Our colored plates shows the very finest samples that

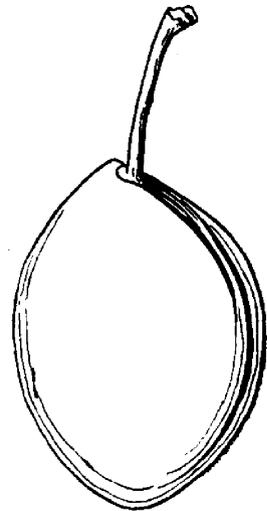


FIG. 899.
ITALIAN PRUNE.

could be chosen, while our engraving shows this plum as it may be expected to grow under ordinary conditions. The following description of the Italian plum is according to Chas. Downing : Tree, vigorous, spreading ; branches, smooth ; fruit, medium, oval ; suture, moderate ; skin, dark plum color, with a bloom ; an inch long, rather stout, inserted in a small cavity ; flesh, dark yellow, juicy, sweet, good ; separates from stone ; quality, good ; October.

Barreling Apples.—Many of the most profitable operations in commercial life depend in the first instance upon very simple facts. Most persons would pass by without observing the barreling of apples as a case in point. If apples were placed loosely in barrels they would soon rot, though passing over but a very short distance of travel ; and yet when properly barreled they can be sent thousands of miles, even over the roughest ocean voyage, in perfect security. This is owing to the fact discovered years ago, without any one knowing particularly of the reason, that an apple rotted from a bruise only when the skin was broken. An apple can be pressed so as to have indentations over its whole surface, without any danger of rotting, provided the skin is not broken. In barreling apples, therefore, gentle pressure is exercised, so that the fruit is fairly pressed into each other, and it is impossible for any one fruit to change its place in the barrel on its journey. Apples are sometimes taken out of barrels with large indentations over their whole surface, and yet no sign of decay. In these modern times we understand the reason. The atmosphere is full of microscopic germs which produce fermentation, and unless they can get an entrance into the fruit, rot cannot take place. A mere indentation without a rupture of the outer skin does not permit the action of these microbes. This is a simple reason why the early observation enabled the barreling of apples to be so successful.—Meehan's Monthly.

Importance of Bees in the Orchard.—In a series of experiments at the Oregon United States Experiment Station, in the pollination of the peach, the trees were forced under glass to bloom in November. A colony of bees was placed in the house when the trees commenced to bloom. A heavy fog prevailed for fifteen days, and although the flowers were constantly opening, not a bee showed itself. During the night of the 15th, the fog lifted, and the next morning was bright and clear causing the pollen to burst. Then the bees came from the hive and kept up their work for eight or nine days. The result was that not a single peach was observed to drop at the stoning season. So great was the amount of fruit on the trees that it was necessary to thin it. One tree in the house was securely protected, so that the bees could not gain access to it, and all of the fruit dropped at the stoning period. Mr. George Coote, horticulturist of the station, says that these facts show the value of bees to the horticulturist, and that no fruit grower should be without them.

THE ONTARIO APPLE.



FIG. 900.--ONTARIO APPLES.



OUR readers may be interested in seeing a photogravure of some samples of this apple, because it is a variety which has of late been kept quite prominently before the public. The variety was raised by Mr. Chas. Arnold, of Paris, Ont., from seed of Northern Spy crossed with Wagener, and the fruit has some of the characteristics of both parents. It is not claimed for this apple that it is hardy in northern portions of Ontario, where hardiness is a necessary characteristic, but where the Spy and the Wagener flourish, this variety is a most desirable one. Indeed it is thought to be more abundant than the Spy.

The tree is a fine grower, and an early, abundant bearer. The fruit is large, whitish-yellow, nearly covered with a rich red color; and the flesh is fine, tender, juicy and of good quality. It sells well in the English market, and being productive of even sized fruit, promises to be a profitable orchard variety. At Mr. W. H. Dempsey's, Trenton, in 1894, we saw a fine orchard of Ontario apples laden down with the fruit, of large and even size. From all appearances this apple is destined to take the place of the Spy in our commercial orchards.

A LECTURER FOR OUR SOCIETIES.—Should the number of affiliated Horticultural Societies continue to increase, it is proposed to engage some competent lecturer to visit each society once a year, and give a lecture on some topic connected with either fruit or flower culture.

BLACK RASPBERRIES.

Pruning.



LACK raspberries are usually headed back when from $1\frac{1}{2}$ to 2 feet high. It is important that this heading-in be done about as soon as the canes reach the desired height rather than to leave them until considerably higher and then to cut them off to the required point, for the laterals then start low and the bush becomes stout and self-supporting. It is a very general mistake to head back raspberries too late or too high, causing the laterals to start nearer the top of the cane and thereby making it top-heavy. Fig. 000 is a good cane, and Fig. 000 shows several undesirable canes. The laterals are cut back the following spring to a length of 12 to 18 inches, the same as blackberries are. This treatment also applies to the purple-cane varieties, like Shaffer, but not to the reds, for these are rarely headed-in at all.

The red raspberries are very seldom evaporated, and only the Cuthbert is used for that purpose, so far as I know. The red berries generally pay better when given to the open market. Of the purple berries, only the Shaffer is dried in Western New York, and it is doubtful if it is profitable when thus handled, for it loses too much in drying, and the market for dried red and purple berries is very small.

There are really only two important varieties in the evaporating industry in Western New York, the Ohio and the Gregg.



FIG. 901.—A GOOD CANE WITH LOW LATERALS.

Yield of Raspberries.

How much will an acre of raspberries produce, taking the average of three crops? Opinions differ widely. We could begin with zero on the one hand, and rise to 6,000 quarts. In an inquiry made here in 1893, the average of 58

replies of berry growers was 2,493 quarts. One gave his yield (which must have been on a small patch and amply multiplied) as 9,600 quarts, whilst another confessed to but 576 quarts. A good yield for the second crop is 3,000 quarts, or 90 to 100 bushels per acre. Willis P. Rogers tells me that his largest field crop of Ohio, the third year after planting, was 16,000 quarts on four acres, and a half acre of this land was not up to the standard. From extensive inquiries of evaporator men, however, I find it to be a general opinion that the average crops of the country, one year with another, will not exceed 1,200 quarts per acre, or 300 pounds of dried product.

Harvesting.

The harvesting of the crop costs too much. The price paid by evaporating men this year for Ohios and Greggs was $4\frac{1}{2}$ and 5 cents a quart, yet the grower generally had to pay 2 cents a quart for picking. Here is an advantage of the Gregg, for pickers can generally do as well in picking it for $1\frac{1}{2}$ cents as in picking the Ohio for 2 cents. To lessen the cost of harvesting and to overcome the difficulty of securing pickers in remote



FIG. 902.—POOR CANES, WITH HIGH LATERALS.



FIG. 903.—BERRY HARVESTER.

places, the berry harvester has come into use. This is a canvas tray, made by stretching the cloth over a light wooden frame about three feet wide and four or five feet long. At the bottom, the frame projects upwards at right angles to the body of the frame to a distance of five or six inches, to catch the berries as they fall upon the canvas. A wooden shoe or runner is placed on the bottom of the apparatus to allow the

operator to slide it along from bush to bush, as shown in Fig. 903. A long wire hook is used to pull the bushes over the tray or to lift up the fallen canes, whilst with the other hand the operator deftly cuffs off the berries with a paddle of wood or of wire covered with canvas and about the size of a butter ladle.

The harvester is used only for the gathering of berries which are to be evaporated. The berries are allowed to become fully ripe, so that they fall easily, and the patch is gone over about three times. Much litter falls with the berries, but this is easily removed by running the dried fruit through a fanning mill. Few growers use the harvester exclusively. It is often brought into requisition at the last picking and it also has a most stimulating effect upon a lot of disaffected berry pickers.—PROFESSOR BAILEY, in Cornell Bulletin, No. 100.

RASPBERRY CULTURE IN SOUTHERN ONTARIO.



N article on "Raspberry Culture at Tiverton in Northern Ontario" appears in the January Number of 1896. I do not know how extensive the raspberry fields are at Tiverton, but the practice there differs from ours. Plants 6 x 6 feet might give plenty of fruit, but their cultivation would be dearer, not cheaper. Canes at smaller distances will often shade the whole ground, and this keeps down weeds. We shorten the laterals if they interfere too much with cultivation. We plant deeper than one inch. We use a furrow and plant two, three or four inches deep at the outset; cultivation increases the depth. Mr. Cameron, the writer, ceases to cultivate when the fruit begins to set. As this occurs pretty early in June, and in a late wet spring the cultivator would not start till late in May, the expense for cultivation must be very light. The crop of fruit would be light too. The crop of weeds would make up the deficiency. With us, if the land was any good, a firm sod would soon be established.

Mr. Cameron will find that the cultivation which is good for the canes the first year is good for the canes each succeeding year. In my own case I cultivate until the fruit ripens. During the few weeks of the picking season cultivation is not practicable. So soon as picking is done cultivation is resumed. We always stop cultivating in November or December when the ground freezes hard. A shallow, late autumn plowing is admissable. The cultivator, in passing across the rows, as well as the outward pull of the hoe, will soon restore the level which is desirable. I plant 4 x 6 feet; with frequent cultivation lengthwise and crosswise of the rows, not much hoeing is needed. After August or early September I do not shorten in the canes while the season of growth lasts. They may be shortened in during November when the growth has ceased, if they interfere with plowing.

Niagara Falls South.

E. MORDEN.

HOW TO BUILD A SERVICEABLE ICEHOUSE AT MODERATE COST.



AN icehouse need not be a costly structure, but if it is to be an attractive addition to the farm or in keeping with other attractive buildings it cannot be built at a small cost. I shall charge the cost against the efficiency as a preserver of ice. The requirements of an icehouse are that it will hold sawdust around the ice to keep the rain off and drain water. The materials used in its construction may be of the cheapest and rudest character and yet keep the ice as well as if it cost \$150 or \$200. A neighbor has an icehouse erected at a very small cost, and yet his ice is preserved perfectly. The sides are of poles laid up into a pen twelve feet wide, eighteen feet long and ten feet high, the poles being notched slightly where they cross, to prevent rubbing and to lessen the cracks between them. The gables are left open to give ventilation. A floor is made and proper drainage acquired by laying rails together a foot thick. The roof projecting three feet at each end, is of clapboards nailed to cross pieces resting upon pole rafters. All the material except the nails and the material for the door were worked out of the farm timber.

In filling this house the blocks are laid within eighteen inches of the holes and the spaces between them filled with sawdust as the ice is built up. Where timber is not so plentiful a serviceable structure can be built at a cost but little greater than the cost of this one. Refuse boards or slabs can be used for the sides, nailing them up or down and putting on a board roof. The house should be built on high ground that surface water may not enter. It is well to cut a shallow ditch around the building. In filling cut the blocks as large as possible and pack closely. All crevices should be filled. In

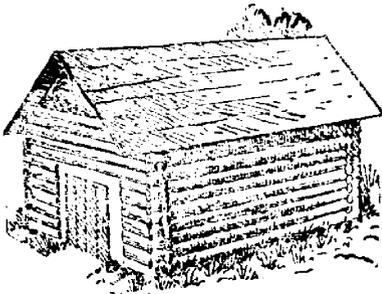


FIG. 904.—CHEAP ICEHOUSE.

the spring watch for holes and close them as soon as found. Even in March the air will often be warm enough to make holes and if the air is allowed to circulate through holes it melts ice rapidly. When a stream is fed by a spring or brook, clear pure ice can be procured. A pond, unless it is quite large and stock have been kept from it for some time, will not yield ice fit to be used. No amount of freezing will make purely wholesome ice out of foul water. It is quite as essential that water for the ice supply should be as pure as for the ordinary family water supply.—R. H. MCCREADY, in *Farm and Home*.

A Kansas Populist is at work on a new scheme to increase the sum of human happiness. He is trying to cross the milkweed and the strawberry, so that people may raise strawberries and cream together.—*New York Tribune*.

INFERTILE BLOSSOMS THE CAUSE OF BARRENNESS.



THE cause of barren orchards was under discussion at our meeting at Woodstock, and Horticulturist Craig, of Ottawa, gave his opinion that in many cases this state of our orchards is due to infertility of blossom. With a view of further investigating the subject, Mr. Craig read a very interesting paper on 'The Blossoming Period of Fruit Trees, which showed (1), the time of blossoming of the different varieties in the same locality, and (2), the different times of blossoming of the same variety in different parts of our country. Evidently if it is necessary to have the blossom of our varieties fertilized by the pollen of another variety for fruitfulness, the varieties must be such as bloom at the same period. In this connection the following extract from Bulletin 102 of Cornell University will interest our thoughtful readers:—

In late years it has been observed that some varieties are commonly infertile with themselves; that is, the pollen of one variety is more or less impotent upon flowers of the same variety. The subject is very little understood, and it is not yet safe to generalize upon it; but it is a good practice to plant varieties in alternate rows or only two rows together, to insure free fertilization. Some of the varieties of apples and pears which have been studied in this respect (by Waite and Fairchild) are as follows:—

Apples.

Varieties more or less self-sterile.—Bellfleur, Chenango, Gravenstein, King, Spy, Norton, Melon, Primate, Rambo, Red Astrachan, Roxbury Russet, Spitzenburg, Talman Sweet,

Varieties generally self-fertile.—Baldwin, Codlin, Greening.

Pears.

Varieties more or less self-sterile.—Anjou, Bartlett, Boussock, Clairgeau, Clapp, Columbia, Easter, Gray Doyenne, Howell, Jones, Lawrence, Louise Bonne, Mount Vernon, Sheldon, Souvenir du Congrès, Superfin, Colonel Wilder, Winter Nelis.

Varieties mostly self-fertile.—Angouleme, Bosc, Buffum, Diel, Flemish Beauty, Kieffer, Le Conte, Manning's Elizabeth, Seckel, Tyson, White Doyenne.

It is probable that many trees fail to bear because propagated from unproductive trees.—We know that no two trees in any orchard are alike, either in the amount of fruit which they bear, or in their vigor and habit of growth. Some are uniformly productive, and some are uniformly unproductive. We know, too, that cions or buds tend to reproduce the characters of the tree from which they are taken. A gardener would never think of taking cuttings from a rose bush or chrysanthemum or a carnation which does not bear flowers. Why should a fruit grower take cions from a tree which he knows to be unprofitable?

The indiscriminate cutting of cions is too clumsy and inexact a practice for these days, when we are trying to introduce scientific methods into our farming. I am convinced that some trees cannot be made to bear by any amount of treatment. They are not the bearing kind.

THE CIGAR CASE BEARER.



WILE at Mr. Harold Jones' fruit farm, at Maitland, on the St. Lawrence, last summer, we were shown this insect in large numbers, infesting his apple foliage. Under the direction of Mr. Fletcher, our friend Mr. Jones has been conducting numerous experiments for its destruction; and last May a Bulletin was published by Mr. Slingerland, of Cornell, upon this insect. The most effectual remedy seems to be a spray of kerosene emulsion early in June, when the little cases begin moving about, and the buds are opening; and a second application about a week later. Where the Bordeaux mixture is being used for apple scab

as buds open, Paris green may be added, and this spray will check the cigar case bearer, and the apple bud moth, which also needs treating at that time.

The emulsion should be made by dissolving half a pound of hard soap in one gallon of boiling water, to which, while hot, add two gallons of kerosene.

In order that our readers may be prepared for this new insect enemy we may briefly summarise its history by stating that the eggs, which are laid in June, hatch out in July, and mine the leaves until September, when they make a winter case in which they hibernate, attached to a twig (Fig. 905). Here the insect remains until about the middle of April, when it attacks the opening buds, the young leaves, the flower and fruit stems and the young fruit.

The accompanying engraving (Fig. 906) from the bulletin above mentioned gives a very correct idea of the appearance of the cigar case bearer at work, just as we saw him in Mr. Jones' orchard, and it can easily be imagined that the leaves would soon be well skeletonized and the trees sadly debilitated by his work. Towards the end of May the winter case is discarded for a large one, which the insect manufactures from bits of the leaves, as shown in Fig. 907, after which it begins the most damaging period of its existence. Protruding from its case, it eats through the skin of the leaf and mines out the tissue as far as it can reach and still hold to its case. Towards the end of June they pupate, and soon the moth emerges and begins its work by oviposition.



FIG. 905.—Small curved cases in which insect hibernates— one old case on right side. Twigs magnified to twice natural size, after Slingerland.



FIG. 906.—CIGAR-CASE BEARERS AT WORK ; NATURAL SIZE.



FIG. 907.—Leaves whose basal portions were used by caterpillars in making cigar-shaped cases ; natural size.

FRUITS FOR EUROPE.



PROBABLY England offers the best possible market for American fruits if they can be shipped there in proper condition, and at an expense not so great as to absorb all profits. Comparatively few fruits of any kind are raised there, except in the gardens of the wealthy, and the markets are supplied with a limited number of apples, pears, peaches and apricots by a few professional fruit growers. The English public like fruits as well as the American, but the supply has never been large enough to satisfy the demand. Some of the smaller fruits, such as strawberries, gooseberries, currants and raspberries are raised by all of the poor farmers, and they supply the market pretty well. But outside of these small berries, the English markets seldom display for sale the great varieties of fruits so commonly raised in America.

Australia has lately entered the market to supply England with fruits, and fast steamers are engaged in carrying apples from that island to the home country. With the steady growth of Australian horticulture, it will be only a short time before large quantities of other fruits will be sent to England, Horticulture has developed faster in the former country than the population, and the growers have to seek foreign markets to dispose of their goods. Americans have been slow to avail themselves of markets outside of their own towns and cities. This has been partly due to the large home consumption of fruits. Our towns and cities have absorbed most of the crops in the past, and growers had no reason to go elsewhere to effect profitable sales. But we are rapidly reaching a time when the markets will have to be enlarged, or fruit culture restricted. In nearly every fruit growing region the surplus of goods is increasing rapidly, and even the canning and evaporating factories cannot use up all that are raised.

The question naturally arises, What can we do to increase the demand? The answer to this question was satisfactorily made years ago when apples were first exported successfully. Since then our shipments of apples to Europe has been enormous, and the trade has been placed on a secure foundation. There is no experiment about the matter. American and Canadian apples shipped to Europe command prices sufficiently satisfactory to the growers and shippers to induce them to continue the practice. During the last few winters several attempts were made to ship Florida oranges to Europe in the same way. The results were not entirely satisfactory, but when the methods of packing and shipping are better understood, there is no doubt but our orange shipments will be nearly as large as our present export trade in apples.

Our pears and peaches have been exported only in a very limited way, and yet the market is as good for these abroad as it is for apples. American pears, peaches, plums and grapes are the finest in the world, and the English consumers would be ready buyers if they could be shipped there in the proper

condition. Nearly all of these fruits are raised in superabundance in this country, and the hardy varieties will stand shipment well enough to enable merchants to place them upon sale abroad in excellent condition. Our fast steamers enable shippers to place the fruits on the English stands within seven and eight days from the time of picking.

Australia is rapidly coming to the front as a rival agricultural country to this, and it is time that fruit growers of the United States made some concerted action to place the great variety of our fruits in the English market. Only the soundest, freshest and properly picked and packed fruits will do for this trade, but these under the direct control of a good fruit association could be made profitable. Fruit growers need to combine together for such a work far more than they do for political purposes. On the whole the American farmer and horticulturist is far behind the manufacturer in introducing his goods in foreign markets. He has been so absorbed in the work of raising fine fruits that he has forgotten to exercise his Yankee genius in disposing of them to the best advantage.—Germantown Telegraph.

Weeds always have been and still are the closest friends and helpmates of the farmer. It was they which first taught the lesson of tillage of the soil, and it is they which never allow the lesson, now that it has been partly learned, to be forgotten. The one only and sovereign remedy for them is the very tillage which they have introduced. When their mission is finally matured, therefore, they will disappear because there will be no place in which they can grow. It would be a great calamity if they were now to disappear from the earth, for the greater number of farmers still need the discipline which they enforce. Probably not one farmer in ten would till his lands well if it were not for these painstaking school-masters, and many of them would not till at all. Until farmers till for tillage sake, and not to kill the weeds, it is necessary that the weeds shall exist; but when farmers do till for tillage sake, then weeds will disappear with no effort of ours. Catalogues of all the many iniquities of weeds with the details given in mathematical exactness, and all the botanical names added, are of no avail. If one is to talk about weeds he should confine himself to methods of improving the farming. The weeds can take care of themselves.—L. H. BAILEY.

All Fruits have a medicinal value, and the cranberry ranks as an anti-scorbutic. It is a blood cleanser; bruised and heated, not cooked, it has a healing effect on humors. One cut in half and bound on a corn will cure it in one or more applications. It will be equally efficacious in the case of pimples. As an article of food the cranberry is too little known. Many families know it only in the form of sauce, but it may be served in many other ways. A cool, refreshing drink may be made by boiling the berries in water double the measure of berries. Boil until the juice has been thoroughly extracted, sweeten with one half-pound of sugar to the pint of juice, and bottle hot.—Greengrocer.

PRUNING AND TRELLISING GRAPES.

SIR,—Reading in your January No. regarding trellising grape vines, I would recommend poles only and no wires, and planting the vines five feet apart. I think Figs. 897 and 898 are very poor examples of the pruning system. I would recommend stub pruning only, and only three buds on each stub.

JEAN GRUENBECK, *Cayuga.*

Our correspondent is correct in saying that the manner of pruning represented in figures referred to are not the best methods of pruning the grape. We did not intend to recommend the Kniffen system as the best method, but only as the method most easily followed out by grape growers in Canada. Our correspondent, who we take it is a German, evidently has in mind the methods of growing grapes that are employed along the banks of the Rhine, where the vines are trained upon poles and no wires are used. For that country where labor is cheap, no doubt his method is the best, but for us in Ontario, where labor is expensive, and the seasons are rather short, the saving of labor is a very important consideration. If we plan on a method of pruning that requires constant tying and attention in the summer season, we will be very sure to neglect it, and it is on that account that we follow a different system from those employed on the continent. Besides this, the varieties which we cultivate for market purposes are mostly very strong growers, and it is difficult to keep them within bounds which is possible with the slower growing varieties. With the Kniffen system it is possible for the vineyardist to prune and tie his vines in the spring and allow them to grow for themselves during the rest of the season. For those who are able to give more attention to the pruning and tying of the vines as they grow during the summer season, we would recommend the Fuller system as far more adapted to our country than trellising upon single poles as recommended by Mr. Gruenbeck. We have often explained this method of pruning in this journal, but, as the question seems to be one that comes up almost annually, and as there are so many new members who have recently united with our Association, it may not be out of place for us to again present to our readers the illustrations which show the Fuller method, together with a repetition of what we said in explanation of it in a previous volume.

The first year after planting allow only one stem to grow (Fig. 908), and at the end of the first year, cut this back to within about one foot from the ground. The second year allow two buds to grow, producing two branches as in Fig. 909.

At the end of the second year, bend these two branches to form two arms, and these should be trained each way four or five feet along the lower wire, forming what are known as the "two arms." From these uprights are grown about every foot apart, as in Fig. 910, and every year these are cut back to within one or two buds of the old wood of these two arms.

It is a great temptation to do longer pruning, or to leave many of the uprights uncut, but the result seems always to be disastrous, for the growth will go to these higher parts to the almost entire abortion of the buds below. Then when it becomes very desirable to cut back, there are no buds left on the main arms to renew the growth for the following season.

With this system the only pruning needed in the summer, is simply to rub off superfluous sprouts when they are just beginning to push, and to stop the young growth about a leaf or two beyond the last bunch of grapes.

The tying up is very important and often neglected. Three wires are sufficient, and to these the uprights should be kept tied, as they grow, or the vineyard will present a very untidy appearance.

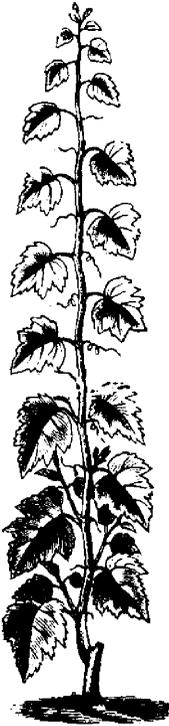


FIG. 908.

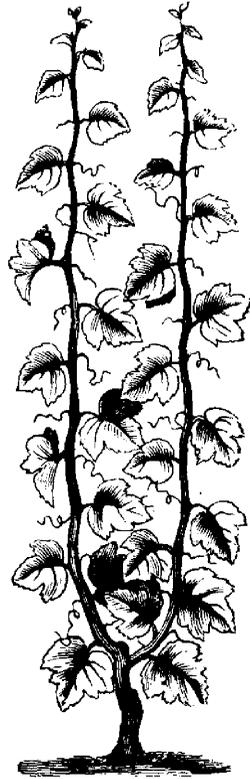


FIG. 909.

The experiment of shipping grapes from Chautauqua County, N. Y., to England has for the second time turned out to be a failure. The grapes spoiled before reaching their destination.



FIG. 910.

THE VALUE OF OUR NATIVE GRAPES.



IN deciding on the value of a grape for home use, or for commercial purposes, the principal point to be determined is, whether our location and climate are adapted to the growth of the vine as well as the perfecting of the variety we intend to plant, as under certain conditions some varieties grow to perfection and some do not. Yet

no matter what varieties we plant, we may make a mistake, since it is a well established fact that vineyards of the same variety in close proximity do not succeed equally well, though we shall be more sure to succeed if we choose varieties from species natural to our climate. Mr. W. Barns, Orange Co., N. Y., has a vineyard of Moore's Early which is wonderfully prolific, while on his brother's farm, not a quarter of a mile distant, the same variety has proved a practical failure. On my own farm in Yates Co., N. Y., I can show equally marked conditions. A vineyard of Catawbas planted seventeen years ago, under the advice of several of the then best vinyardists, had to be torn out, or grafted, while almost within a stone's throw this variety grows and ripens to perfection; hence we may say, be careful in selections both of variety and location, but do not condemn entirely because you fail once or twice.

After repeated trials of European vines, under the supervision and efforts of European vineyardists, and after European methods, this class of vines, the *Vitis vinifera*, had to be abandoned; up to this time, at any rate, they refuse to adapt themselves to our environments. Whether they ever will do so, remains to be proven. Through the earnest efforts of some of our vineyardists, such as Ricketts, Rogers, Caywood, Jacob Moore and others, the effort has been made to get some of the benefits, if such they be, of the *Vinifera* by hybridizing, using some of our native species with the Hamburg and other *Vinifera* varieties. For a time it seemed as if success was assured, but apparently only to a certain extent; and the assertion will not be contradicted that many varieties so obtained and promising well for a time, are being gradually relegated to the experimental vineyards. Commercial vineyardists feel safer with the pure native varieties. Some experts say, But what about quality? Well, let me ask, Are we quite sure about this apparently uncertain factor? Pomologists have tried to make a standard and have failed. Now, the people have made it without their help—at least it is fair to assume that they buy what they like best—and the natives are the grapes for the millions. Take the four varieties mostly grown east of the Mississippi—Concord, Delaware, Catawba and Niagara—each a pure *Labrusca*, or so nearly pure that no one can positively say they are not. Ninety-five per cent. of the total acreage, or more properly

ninety-five per cent. of the total production, are of these varieties. The principal reasons for this are: First, because we can grow them; and, secondly, because they come nearest to the standard of quality established by mutual consent.

Not many years since, the Concord was spoken of as poor in quality, among grape growers, but they must have been mistaken. It was quite the correct thing to say: "The Niagara is fine to look at, but it is off in quality"; but nevertheless, after having stood the test for some years, we seem to be wrong again, for the Niagara as well as the Concord is a good seller. The Concord, without a doubt, establishes the price of grapes east of the Rockies. The Delaware is more particular in its habitat, while the Catawba is still more particular, though both are successful vineyard varieties, and very much better in quality than Concord and Niagara. Yet the money test is bringing them more and more to a level, without regard to the opinions of the fruit men.

One reason why the natives succeed best is that they are self-fertile, or partly so, while most of the hybrids of *Labrusca* and *Vinifera* are imperfect, or the ovaries start to develop but soon fall away or persist as abortive fruits. This demonstrates one grave source of the failure of the foreign hybrids. Of the new varieties which have been introduced during recent years may be named: Worden, Moore's Diamond, Green Mountain, Eaton, Elvira, Early Ohio, Jefferson, Moore's Early, Moyer, Ironclad, Pocklington, Poughkeepsie Red, Vergennes, Superb, all pure natives or nearly so, and each one has proved of value. These facts necessarily lead to the presumption, at least, that we must look to the native stock for our hardy grapes.—American Agriculturist.

The Triumph Peach was highly spoken of at the recent meeting of the Ohio Horticultural Society. In the report it is spoken of as follows: The Triumph is a yellow free-stone peach from Georgia, which ripened with the Early Alexander and was about the same size. This is the first and only early free-stone yellow peach in existence. Notwithstanding fears that it would not succeed in Ohio, from having originated in Georgia, it has proved to be all that could be desired in an early peach and is bound to become very popular.

Germany, for purposes of her own, has almost cleared the whole of France of apples, besides having taken all the common fruit obtainable in Belgium and Holland. What she requires them for is a mystery, and one can only conjecture. It may be for cider, or syrup, or it may be that she requires them for the new kind of champagne which it is rumored she has discovered the secret to; at any rate, whatever the purpose for which they are intended, the German merchants have taken between 60,000 and 100,000 tons of apples from France alone.—Fruit Trade Journal.

SETTING AND CULTIVATING THE ORCHARD.



WHEN the trees are taken from the nursery, the roots should be all dug out as long as convenient, and with as little mutilation as possible. Better have a crooked top or no top at all than to have bad roots. The roots should not be allowed to dry, either before setting out or after. The orchard land, however, should be dry, either naturally or by drainage. If the soil be sandy and dry it will need the more mulching. Leached ashes on sandy soil is a

good thing.

The trees, if apple, should be planted not less than 25 feet apart, the rows in the square form. If the ground is very rich, the subsoil should be mixed with the surface soil. The trees should be set in moist, compact soil, neither too muddy nor too dry, as the roots need both water and air.

If the roots are likely to suffer from drought, dig the earth away till it is mostly removed from the upper roots, then apply enough water to wet the roots to the bottom. One pail of water thus applied is better than five thrown on the surface. After the water has all soaked into the ground, the earth should be replaced about the tree. A good mulching of straw, hay, or strawy manure to keep the sun from drying the ground around the tree, should be applied when the trees are set. The sun both summer and winter often damages the south side of young trees.

While the orchard is young it should be planted with some crop that requires cultivation, such as corn or roots. After a few years it may be seeded down and pastured. There is a great variety of opinion as to the best time for pruning. Probably as good a time as any is at the close of winter, just before the sap begins to run.

Tiverton, Ont.

A. H. CAMERON.

NOTE BY EDITOR.—Twenty-five feet is too close to set apple trees; thirty feet is the minimum distance, and that only for the weaker, such as Early Harvest, or upright growers like the Northern Spy. And yet on rich land even these would require more room. For strong growers, on rich land, forty feet apart each way is quite near enough. Some Greening apple trees at Maplehurst, set forty feet apart, are interlacing their branches, and would bear a still greater distance to advantage.

Regarding the seeding down and pasturing of the apple orchard, a good deal might be said, and we will discuss the subject fully at another time. But briefly we must say that in general it is a bad practice to leave an orchard in grass more than a year or two at a time. Pasturing with sheep, which eat the fallen apples, and which will not gnaw the trees if fed a daily ration of grain, is about the only condition under which an apple orchard will thrive without cultivation. One of the reasons why apple orchards in Ontario have been so unfruitful in past years is want of cultivation; the apple tree needs and will pay for as good treatment as corn or potatoes, and indeed it will yield far better returns for the labor put upon it. Only this season, Mr. D. J. McKinnon, a fruit grower at Grimsby who who is an excellent cultivator, reports an average yield of five barrels per tree of marketable apples from his bearing trees, which, at the lowest calculation, are worth \$5 per tree. True, next year may not be a bearing year, but would not even \$50 per acre be a sufficient return to warrant the best care and cultivation?

SELLING FRUIT ON THE BASIS OF QUALITY.

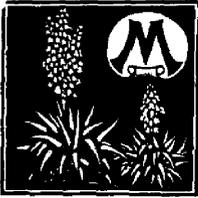
SIR,—The meeting at Woodstock seems to have been the most useful one that we have yet held. Several points would bear discussion in *THE HORTICULTURIST*. For example: Does the consumer pay for quality as determined by the variety of any fruit, or, to express it more clearly, does it pay to grow varieties of the best qualities? It is my opinion that prolific varieties of fair quality give money in almost every case. The extra quality that can be secured by the best culture pays, as the quantity is rather increased than otherwise by such treatment; not so with the quality that comes by variety.

A. McNEILL, *Windsor, Ont.*

The subject touched upon by our correspondent is a very important one, but at the same time outside the province of growers to control. If we could hold our fruit at our own figures, and place prices upon it according to its real value, something might be worked out that would be satisfactory under this head, but, as it is, we are at the mercy of the buyers, and, in the case of apples which are slaughtered mercilessly, especially at Liverpool, there seems to be little chance for us very speedily to attract that attention to any special varieties which we may desire on account of their quality. The King apple, for instance, has been selling at the top prices in the English market, often bringing \$5 to \$6 a barrel in Liverpool, but it is noticeable that during this season Baldwins, which had attained a high color, and a large size, so that they presented an equally good appearance on the exterior with the King, brought almost the same money in the Liverpool market. Now there is no comparison between the quality of the Baldwin and the King. The latter stands at the top of the list for quality, while the Baldwin ranks only about medium. The King is an apple which cannot be grown without great expense, because of its being comparatively unproductive; and, unless it gradually reaches so high a price as to make up for this lack of unproductiveness, it will not be profitable for Canadians to grow. It is to be hoped that sooner or later we may be able to sell our fruit on the basis above suggested. If, for instance, a barrel of Greenings is worth \$1.50 at the orchard, then surely a barrel of Kings ought to be worth at least \$3.

Barnyard Manure, Suffers much Loss in leaching and drying. Prof. Roberts shows that horse manure when thrown out in a pile unsheltered from the weather, loses nearly half its value in six months; mixed barnyard manure when piled in a close pile so that fermentation is very slow but without protection from rainfall, loses about one-tenth of its value; while the loss if thrown under the eaves to be leached by rains and thaws of the winter, is much greater. At the N. Y. Experiment Station, fresh manure piled in conical heaps in January shrank 65 per cent. in weight by April, and the loss of its fertilizing ingredients was equal to \$3 per cord of manure.—*American Agriculturist*.

LATE CULTIVATION.



ANY writers on fruit culture have advocated the cessation of cultivation early in the season. Some stop in September, some in August, some in July, and some in June. Some zealous champions have made the assurance doubly sure by refusing to cultivate at all. This early closing doctrine may have done good in northern regions. It certainly has done much harm further south.

The short period cultivators have been the short crop gatherers. The longer the period, the longer the growth, and the greater the product, as a rule. The man who cultivates for a short period and then tries to recover his place on the following season, gets more work than the man who cultivates the season through.

For over twenty years I have cultivated all ordinary fruits and nursery stock the season through, and have traced no losses from the extra growth produced thereby.

I have watched other plantations where every degree of cultivation prevailed. The early closing man has some advantages at times. He grows a crop of weeds which cover the ground and make a mulch which prevent the frost from penetrating the ground to the damage of the grape vines or peach trees. A large growth of weeds sometimes prevents the early frosts from taking all the strawberry blossoms.

Personally, however, I am willing that others shall enjoy all the blessings that weeds can confer on them; I prefer to use some other mulch or take my chances. If there really is an objection to early autumn cultivation because of late growth, thereby promoted, there cannot, from the same reason, be any objection to cultivation after the leaves have fallen. I believe that a late autumn stirring of the soil is very useful in most cases; it kills the many perennial weeds and grasses that sprout in autumn, and get firmly established in the spring, before the cultivation starts. It loosens up the soil, and thus prevents the frost from penetrating deeply.

To the novice I say, cultivate early, often, and *late*. If you chance to plow under a few advocates of non cultivation you will get the utmost good out of them.

E. MORDEN.

There are four fundamental operations upon which all permanent success in most kinds of orchard culture depend, and I think that their importance lies in the order in which I name them, tillage, fertilizing, pruning, spraying. Spraying is the last to be understood, but this fact should not obscure the importance of the other three.—L. H. BAILEY.

* Novelties *

THE P. BARRY PEAR.

Among the new fruits before the public, which should be well tested at all our Ontario Experiment Stations, the Barry pear stands prominent. The Anjou is a fine and profitable winter pear, coming to its best in January. Then we have Winter Nelis, Easter Beurre, Josephine de Malines, and others, but there is room for something superior to ripen towards spring, and that is what the introducers claim for the Barry.

By courtesy of Messrs. Ellwanger and Barry, we present an engraving of this pear, with the following remarks concerning it: "Another of the 'late-keeping Fox seedlings. Large, pyriform; skin orange-yellow, covered with russet spots and blotches; flesh very juicy, buttery, fine grained; flavor sprightly, rich, excellent. The best late winter pear. Resembles Anjou in texture of flesh, and Winter Nelis in color of skin and juiciness of flesh. Tree a good grower, and must be top grafted. Ripe in April. We exhibited fine specimens of this pear at the World's Fair latter part of May."

This pear was exhibited at the meeting of the Western N.Y. Hort. Society at Rochester on the 23rd ult. in fine condition, a sample of which the writer was allowed to bring home for description. The same variety was shown by Messrs. Ellwanger & Barry, at the World's Fair, Chicago, in May, 1893.



FIG. 911.—THE P. BARRY PEAR.

✧ The Garden and Lawn. ✧

HOW TO SUCCEED WITH CHRYSANTHEMUMS.



THE wonderfully increased demand for this now justly popular flower has been attended by a corresponding enquiry for information regarding its cultivation and treatment. And, as may be easily understood, we are often unable from lack of time to reply to enquiries upon this subject as fully as we would wish to.

Propagation.

Chrysanthemums are perhaps the easiest of all flowering plants to propagate; while there are several methods of increasing them, propagation by rooted cuttings is the method generally practised. In order to have healthy plants that will produce fine bloom, the cuttings must be taken from healthy plants, and be stocky and short jointed, the joints of the shoots make the best cuttings. A number of cuttings may be placed around the side of a well drained pot, filled with clean sand and kept constantly moist, where they will root in about two weeks. As soon as they are rooted, remove and place separately in two and one-half inch pots filled with fairly rich soil. Never allow them to suffer for want of water.

Large Specimen Plants

May be produced in several different ways; the method most favored by growers for exhibition requires a greenhouse to insure the best results. The cutting should be rooted not later than February, and should be a vigorous cutting to begin with. As soon as rooted, place in about a three inch pot, and a few days later pinch out the point to induce a side growth, which in turn must be pinched again, by this means the plant is made to produce many branches. Give a larger pot as soon as the first is nicely filled with roots, thus using four or even five sizes, until the blooming pot is reached, which will be 10 or even 12 inches in diameter. A number of stakes will be required to spread the branches, and give the plant the desired form. Another plan is to group three or more plants in a large pot; this plan is, however, usually discountenanced at exhibitions. Last year's plants, if well wintered, are some-

times grown into specimen plants the second year, but the bloom is rather inclined to be small.

General Purpose Plants.

One way that plants may be satisfactorily grown without a great deal of trouble is to plant out the small plants, without the pots, in good garden soil, as soon as the weather permits. Pinch off the end of the shoot or shoots soon after planting, and again in June and July. If pinched after Aug. 1st they will probably be somewhat late in flowering. If kept fairly moist they will be fine large plants by September, in the early part of which month they should be carefully lifted and potted, then stood in a shady place for several days, and the foliage kept moist by sprinkling or syringing until they have recovered the check received in lifting. Many growers, however, now keep their plants in pots the whole summer through.

To Obtain Very Large Flowers.

The method usually practised to obtain very large flowers is to root the cuttings late in May or in June, then place in a small pot, and in two or three

weeks put in a five or six inch pot, the side growth being carefully kept nipped off in order to throw all the vigor into the main stem, which must be supported by a stake, and tied. As soon as buds appear, select the largest and most perfectly formed one, and the plant should never be allowed to produce another bud to even the size of a pea. Thus with all the strength of the plant concentrated in one flower, and with all conditions favorable, flowers are produced that will measure six, eight and even ten inches across.



FIG. 912.

Disbudding.

One of the first facts for the chrysanthemum grower to realise is that more buds are invariably produced than can be perfected. Fully one-half of the buds should be removed from all plants. The crown or terminal buds are always the best and should be left, while the buds produced on the short side growths never attain any size and are better removed. Disbudding cannot be performed at one operation, but must be done from time to time as the buds appear.

Watering.

Chrysanthemums should never be allowed to become dry. From the time that the cutting is rooted until the perfect bloom is ready to cut, no check should be permitted, or the bloom will suffer in quality. Plants growing in the open ground do not require as much water as those in pots. The pots should be plunged to their full depth, care being taken not to allow the plants to root out over the pot. During the hot season plants in pots require water more than once a day.

Insects.

The black aphid is the only insect that seriously troubles the chrysanthemum, and these will sometimes infest even the healthiest plants in great numbers. Syringing with a decoction of tobacco will keep the plants perfectly clean. The refuse stems from tobacco factories are excellent for this purpose. Plants in the greenhouse are perhaps easiest kept clean by means of fumigating with tobacco smoke. Plants in the window may be kept clear of aphid by placing a cone made of strong paper over the plant and filling it with tobacco smoke. Tobacco should always be moist when used, to prevent it blazing. Where tobacco cannot be conveniently had, some extract of tobacco, of which there is several brands, should be used, sulpho-tobacco soap is probably the best, but any of them are clean, easy to prepare and quite effectual.



FIG. 913.—SPECIMEN FLOWERS OF MRS. CRAIG-LIPPINCOTT.

Manure Water

May be prepared from hen, cow, or sheep manure; after mixing it should be allowed to settle and only the clear liquid applied. Great care should be observed in applying all forms of liquid manure, to avoid an over dose. A good plan is to begin with quite a weak solution and gradually increase it as the plant becomes accustomed to it. Its use may be commenced as soon as the final or blooming pot is well filled with roots and continued until the buds begin to show color, after which nothing but clear water should be used. The use of manure water is objected to by some, being sometimes unpleasant to apply. However chrysanthemums demand strong food, and the best results cannot be obtained without a stimulating diet.

Albert's Horticultural Manure.

We have found this to be an excellent fertilizer, not only for chrysanthemums but for all blooming plants. After having carefully tested its merits with those of several other well-known fertilizers we have found none to afford us as good results.

Hamilton, Ont.

WEBSTER BROS.

WHITE CANNAS—HUMBUG.

HERE is no class of people on earth who are more the victims of misrepresentation and humbug than the confiding, unsuspecting, and great hearted tiller of the soil; from the agriculturist with his broad acres, to the amateur in his garden plot and greenhouse. Every year brings the wish and hope for some meritorious advance in favorite lines, so where such advance is not possible, the "novelty" must be provided just the same, the fakir gets in his annual work, reaps his harvest, and injures the grand cause of progressive horticulture.

Some years ago I tested the *Hedychium coronarium* as a possible white companion to the canna. It was obtained from Florida at a trifling cost; but after two years of failure to induce bloom, I threw it into the "dump," and have since learned that it failed in Washington, under the care of one of the leading experts of America.

The coming season of 1896 already sees offered to the trade and amateur, the old *hedychium*—but under the new name of *Myriosma cannæfolia*, and urged as a companion to the canna, which is absurd, for with successful treatment it will only bloom under glass, and that in the autumn at the time when bedded cannas are affected by the frost.

So-styled "true" white cannas,—in truth sun-bleached yellows, are common among hybrid seedlings of the new dwarf strain, this "novelty" in color showing the second day, shortly before the bloom falls.

There is a pure white canna, *Canna liliflora*, a species growing wild in Veragua, Central America, long known to botanists; it is, however, of weak, slow growth, under the most favorable greenhouse treatment; and of no practical value except to the hybridist, crosses having already been obtained with the dwarf hybrids, the utility of which is not yet claimed.

H. H. GROFF.

THE CANNA.



SINCE we have decided upon sending out a certain number of Cannas to those of our readers wishing an ornamental plant, it will not be out of place to give a few lines regarding it, written by our friend, Mr. H. N. Groff, of Simcoe, who, in his spare hours from banking, is making a special study of the Canna and Gladiolus. He says:

These peerless plants are without question the finest we have for summer bedding, their rich tropical foliage and brilliant flowers are indispensable for lawn decoration. They flower the whole season in the open ground, and when potted make grand house and conservatory plants, giving masses of flowers all the year with slight winter heat.

Their musa-like foliage, in various shades of green and bronzy-purple, affords a striking contrast to the enormous spikes of flowers of every shade in scarlet, yellow, crimson and orange, including blotchings, spots and borders in great variety. The size of their flowers been wonderfully improved during the past few years; due chiefly to the labors of M. Crozy, the eminent French hybridizer, until among the new introductions many are fully six inches across. The Canna is bound to take the lead in tropical bedding, massed or in borders, as a back-ground for other plants, for which purpose they have no equal in our climate.

Plant after danger from frost, in well enriched soil, watering freely in the evening of hot dry days, and they will bloom from June until cut down by the late frosts; after which cut off stalks within four inches of the ground, store the clumps as lifted, in sand, in a warm dry place, water slightly at intervals during winter. Divide in early spring and start in pots or boxes.



FIG. 914.—CANNA.

THE GLADIOLUS.



THIS extensive genus comprising some ninety species, natives mostly of Central Europe and West Africa, is now the most popular of summer and autumn flowering bulbs, constituting one of the finest features of the flower garden, for diversity of color, and general effect, either in masses or in border decoration, backed by the new French Cannas, with their tropical foliage, and large flowers of unequalled and dazzling brilliancy.

They are of easy culture and will thrive in ordinary garden soil, prepared in the autumn and liberally enriched with well-rotted cow manure. Change their location as often as possible, or fertilize with hardwood ashes. Plant in open ground two inches or more between the bulbs, in drills six inches apart, or in masses, four to six inches deep (small seedlings two inches), avoiding contact with the manure. Water freely when dry and you may expect plants four to six feet high with flowers over four inches across. For the best results cut the spike when the first flower opens, and bloom in the house, this will also strengthen the bulb. Planting may begin with the earliest garden work, and where your collection embraces all sections, as in my mixtures and seedlings you will get without repeated plantings, a succession of bloom from July until frost. Dig the bulbs before the ground freezes, cut off the stalk close to the bulb, and after drying for a short time in the open air, store in baskets or shallow boxes, in a cool dry place. The old corn may be removed a month later, and if desired the bulblets collected and stored until planting time, when if peeled and planted in drills they will make blooming bulbs with one or two seasons' culture. Varieties are increased in this way. New varieties are originated from seed, and can be grown as easily as onions, care being taken to water during hot weather.

The original *Gladiolus Gandavensis*, the variety in general cultivation, is a hybrid between the Cape species *G. psittacinus* and *G. oppositiflorus* and was offered first to the trade fifty years ago, since then the varieties have been increased by thousands, this cross overcoming the difficulty experienced in getting the many species to hybridize, and every cross between selected varieties of merit in most cases tends to improve the beauty and size of the flower and vigor of the plant.

Hybrids of purpureo-auratus, Lemoinei or Large spotted gladioli.—The first hybrid of this section was the result of crossing *G. gandavensis* on *G. purpureo-auratus*. An immense variety of colors and blotches are the characteristic of this race which is increasing in favor with the amateurs of every country. The newer varieties are almost free from crooked stems, and the beauty of thei

individual flowers will always compensate for the lack of that full⁹ and regular spike seen only in the *Gandavensis* section. It is the earliest to bloom, thus lengthening the season, and should be found in every collection.

Nanceianus Hybrids.—The result of crossing *G. Lemoinei* on the species *G. Saundersii* by M. Lemoine of France, imparting to this new strain a great variety of colors and enormous broad and open flowers, with a profusion of dots and blotches of every color. Being of comparatively weak growth is its most objectionable feature, but this is fully compensated for by the rich and gorgeous colors of its enormous orchid-like flowers, and further hybridizing will tend to increase the vigor of the plant.

Childsi and Turicensis.—Hybrids of *G. Gandavensis* and *G. Saundersii*. Childsi the best-known of this class, originated in Germany, was improved in France, and developed in America before coming into possession by purchase of Mr. J. L. Childs, the introducer. While lacking the rich coloring of the *Nanceianus* section they possess the merit of rank, growth and vigor. Though few flowers open at one time they are of great substance and the largest size. Further hybridizing will overcome the objection felt by all experienced growers, in the unequal proportion of red shades and my work in crossing with *G. Gandavensis* has been with this object in view.

H. H. GROFF.

Peach Trees from Pits.—The Barnard, one of well-known peaches, is quite likely to produce seedlings that bear some resemblance to itself, but the chances are that most of them will be more or less inferior, so that it is far better to rely upon budded stock. The same can be said of seedlings from the Crawfords, although there is even less likelihood that the seedlings will equal the parent varieties. In selecting varieties for planting, it is best to choose kinds of known hardiness, and if for market as well as for home use, they should be such as will afford a succession throughout the season. Of the kinds that have shown themselves of most value in Michigan, and it is probable that they will also be desirable kinds in the neighboring States, are a number that have originated here. A good list would include Hale, Lewis, Early Michigan, St. John, Barnard, Richmond, Jacques Rareripe, Hill's Chili, Kalamazoo, Gold Drop, Smock, and perhaps Salway if in favorable locations in the southern part of the State. For very early, a few trees of Alexander or Waterloo might be planted.—L. R. TAFT, Horticulturist, Mich. Experiment. Station.





The Canadian Horticulturist

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✦ Notes and Comments. ✦

ORCHIDS.—An Ottawa paper reports that sixteen varieties of orchids are in bloom at the Central Farm greenhouse.

THE SAN JOSE SCALE was at one time reported in British Columbia, but upon diligent inquiry the Board of Horticulture has found that this pest does not exist in the Province.

ERRATA.—On page 1 for Woodflower read "Windflower." Note also, that two varieties of anemone, are confused in the description. *Anemone fulgens* proper has vermilion flowers.

HOW DOES PARIS GREEN KILL CODLING MOTH?—According to Prof. Bailey, the insect begins eating the moment he emerges from the egg, which is usually deposited just outside the calyx. Sometimes he eats quite a noticeable amount of the skin just around the calyx, but at any rate [he must eat some in order to gain entrance, and ever so little will kill him.

OUR APPLE SHIPMENT TO AUSTRALIA was a valuable experiment according to news just received. Though the heat of the tropics ruined a large part of them, those which came out in good order, notably the Cranberry Pippins, sold as high as \$3 75 per bushel case. It looks as if the experiment would be worth repeating. The expense of freight is only \$1 per case, and if we could get perfect cold storage there would be a fortune in it for Canadian apple growers. We will give a full report later on.

THE BALDWIN holds a remarkably high place in the British market, notwithstanding that its quality is only ordinary. No doubt its fine color, and its excellent shipping quality, showing so little the effects of rough usage, combine to give it the precedence which it commands. In the month of December it was only excelled in price by the King, an apple of far superior quality, but not its equal in keeping qualities. On the 21st of December last Kings were sold in Liverpool at 18/ to 23/, and Baldwins at 16/6 to 22/6 per barrel.

BOXES VS. BARRELS FOR APPLES.—The Secretary of the Ontario Fruit Growers' Association has been experimenting with an apple box for fancy apples, shipping 100 of them to Liverpool, 100 to Glasgow, and 200 to Edinburgh. The Liverpool dealers oppose it as a novelty, and declare in favor of the barrel. They say no package is equal to the barrel for apples, and that the multiplying of the number of the packages in this way would mean a disadvantage to the shipper. Glasgow and Edinburgh, however, seem to think that for a special fancy grade of apple, the apple box is a good package, and would pay for the additional cost incurred.

WATERLOO HORTICULTURAL SOCIETY.—Mr. James Lockie, the President of the Waterloo Horticultural Society, is evidently determined to make their Society a grand success. He writes: "We are getting out a circular regarding the premiums which we are offering for the next year. When we get our list completed, we will ask several florists and nurserymen for tenders guaranteeing healthy good stock. We will get them in bulk and to distribute them will be a good deal of trouble for some of us, but we are bound to have our Horticultural Society the best of its kind. 'No prizes' is the key-note of our success. I will send you a report of our annual meeting which is to be held on the 8th of January."

CARE OF FRUIT TREES is the subject of two bulletins from Cornell, Nos. 102 and 103. The first by Professor Bailey, particularizes, from general observation, that lack of tillage and fertilizers must be the chief reasons why our apple orchards are barren; he also suggests that propagating with cions cut from unproductive trees, may increase the trouble.

Prof. Roberts writes the latter bulletin, and generalizes the same conclusions from careful and particular analysis. By careful weighing and analyzing of wood, fruit and leaves, he finds "that the value of the nitrogen, phosphoric acid and potash which would be removed from one acre of bearing orchard in twenty years, would be about \$400, while the value of these fertilizers removed by grain crops in the same length of time, would not amount to over one-third that sum. It is evidently, therefore, more important to annually fertilize a bearing apple orchard than a grain crop, and no one would think of neglecting the latter.

NOVA SCOTIA SCHOOL OF HORTICULTURE.—Prof. E. E. Faville sends out a circular regarding the winter course in horticulture which opened there on January 8th. The course is adapted to the needs of the young farmers of the Province, to those intending to go into farming and fruit growing. It extends over a period of four months of practical and theoretical work, consisting of lectures on all phases of fruit growing, marketing, fertilizers, soils, the relation of dairying to fruit growing, etc. The well equipped fruit house, together with a root cellar, grafting and budding room, makes it possible to do all kinds of practical work. The laboratory shows a full set of microscopes used in identifying insects and fungus growth, the study of plant construction, and experiments in methods of crossing fruits can be made. The manual work embraces carpentry, blacksmithing, and fitting the students for ordinary farm practices.

LIBERAL DISTRIBUTION OF PLANTS.—The Waterloo Horticultural Society promises its members for 1895, not only membership with us, THE CANADIAN HORTICULTURIST, the report of our Association, and our plant package, but also a choice of the four following packages, purchased with their own funds :—

Package No. 1 contains Wilder pear, McLaughlin plum, and Montmorency cherry.

Package No. 2 contains Spiræa Van Houtti, Jacqueminot rose, and Clematis.

Package No. 3 contains 6 Cannas, 20 Gladioli, and 2 Dahlias.

Package No. 4 contains 12 House plants, assorted.

In addition to this they will import hyacinths from Holland in the fall, free of charge to the members.

LINDSAY HORTICULTURAL SOCIETY.—The Lindsay Horticultural Society seems to be a leading one in the province for the liberal distribution of plants and bulbs to the members. In response to an inquiry how the money is raised to buy so many bulbs, and if any show is held, Mr. Beall writes : “We get our money to conduct the affairs of our Society in the same way that all Horticultural Societies get theirs, by individual subscriptions of \$1, and our Government grant, which is less per member than in some other cases. We hold one, and sometimes several shows in a year, but money is not lost thereby, because no prizes are given. The exhibits are simply object lessons for the benefit of those who attend our meetings, and for the advancement of horticultural knowledge in the community. The public is always invited to all such meetings. The principle underlying these organizations is that every member shall receive equal profit or advantage. When prizes are given a few only share the money which should be expended for the advancement of horticulture. The holding of exhibitions at which money prizes are offered has ruined scores of societies in this province, and will surely destroy every Horticultural Society indulging in that species of gambling.”

THE ENGLISH SPARROW.—We have a letter from Mr. George Goodhue, of Danville, Me., regarding the English sparrow. He encloses an extract written by him some years ago for the "Forest and Stream," proposing a plan for the extermination of the sparrow, namely, inducing the governments of our provinces and the northern and western States to pay a small bonus on sparrows destroyed between November 1st and March 15th. During these dates our native birds are absent, and it would be safe to carry out his proposed plan for the destruction of the sparrow. Food being scarce at this time of the year, the sparrows could easily be decoyed and cheaply killed by the use of poisoned seeds. He is of opinion that there are poisons which would be effectual when first exposed, but which would be dissipated by the rains of early spring, and thus rendered innocuous to our native birds, should any stray seeds escape the sparrows. He thinks the Department of Agriculture might prepare such seeds and have them distributed at the proper time of the year. He asks, "Could not our scientific men at the Experimental Stations here in Canada experiment with the different kinds of poisoned seeds with sparrows during the remaining portion of this winter, and report the result at the next convention of fruit growers, with a view of uniting upon the best plan for a vigorous crusade next fall and winter upon our undesirable and pugnacious little emigrant, who, although he seems to have neither protection or friends, has abundantly proved his ability to thrive to an alarming extent without either?"

THE MIDDLEMEN.—With the beginning of January, 1896, a new journal begins its publications in London, England, called "The Greengrocer, Fruiterer and Market Gardener." This Journal is particularly in the interests of retail fruit merchants of Great Britain and, therefore, reaches a class of shop keepers with whom it has long been the desire of Canadian fruit growers to open up some connection. As it is now, the profits of our fruit are largely consumed by middlemen. The retail price of apples, for example, is very high, but the grower in Canada usually receives a very small part indeed. Now, if it were possible for us to bring about some closer connection with these small dealers in Great Britain, we would be able to save a large amount of the profits which now go into the hands of the middlemen. By middlemen we refer to the apple buyers and shippers in Canada and the large wholesale apple houses in the great markets of Britain who dispose of our fruit on arrival by auction sales at, sometimes very low prices. Also in this manner, the fruit grower of Canada is to a large extent at the mercy of these middlemen and the whole risk of loss rests with him. Now it is possible that through this journal, "The Greengrocer and Fruiterer," which is published at 1, 2 and 3 Salisbury Court, Fleet St., London, Eng., we may be able to get into some kind of communication with retail dealers in Great Britain to our mutual advantage. Mr. Geo. Tucker, editor of this journal, replying to a letter from the Secretary of the Ontario Fruit Growers' Association, writes: "I beg to assure you that I shall at all times be very

pleased to do anything I can in the interests of Canadian fruit growers. With regard to the question of middlemen, this is a most difficult matter with which to deal. Many attempts in the direction you suggest have been made, but have been in almost every case abandoned. My own personal opinion is that a most important thing for the consignors is that they should know what their consignments bring in the wholesale markets. This information we are endeavoring to give and you may depend upon it that this is the direction in which the most satisfactory results will for the present accrue. I hope we shall be able to work to further our mutual satisfaction and interests, and I shall be pleased to receive information from you at any time which shall have my careful consideration."

❖ Question Drawer. ❖

Value of Canada's Export Trade.

775. SIR,—Would you please give me some idea of the value of and the quantity of fruit annually exported by the Dominion?

A SUBSCRIBER.

In reply to our special request, the Dominion Department of Agriculture has furnished us with the following:

Statement of the Quantity and Value of Fruits (the Produce of Canada) Exported from Canada during the years ended 30th June, 1891-'95.

| FRUITS. | 1891. | | 1892. | | 1893. | | 1894. | | 1895. | |
|-----------------------------|--------|-----------|--------|-----------|---------|-----------|---------|-----------|---------|-----------|
| | Quan. | Value. | Quan. | Value. | Quan. | Value. | Quan. | Value. | Quan. | Value. |
| Apples, dried, lbs. | 800650 | \$ 49029 | 256729 | \$ 14392 | 3476837 | \$ 199699 | 1429846 | \$ 98924 | 4176950 | \$ 250320 |
| " green or ripe, bbl. . . | 450836 | 1389714 | 690951 | 1444883 | 1187665 | 2731223 | 278238 | 808473 | 853268 | 1821463 |
| Berries, all kinds. | | 64849 | | 93398 | | 96219 | | 103240 | | 107817 |
| Fruits, canned or preserved | | 30772 | | 62140 | | 47057 | | 22369 | | 109122 |
| all other N.E.S. | | 32773 | | 19369 | | 25760 | | 24884 | | 40602 |
| " dried, other N.E.S. | | | | | | | | | | |
| lbs. | 832 | 79 | 2400 | 174 | 518 | 234 | 1049 | 102 | 26629 | 1940 |
| | | \$1567216 | | \$1634356 | | \$3100192 | | \$1057992 | | \$2381264 |

The Legal Apple Barrel.

776. SIR,—What is the correct size for apple barrels: 1st, length of stave; 2nd, size or diameter of head?

HAROLD JONES, *Maitland, Ont.*

In order to give a certain reply to our correspondent, the editor wrote to the Department of Agriculture at Ottawa, asking for the dimensions of the

Canadian apple barrel, and in return received the following, being Section 18 of the "Weights and Measures Act."

18. All apples packed in Canada for sale by the barrel shall be packed in good and strong barrels of seasoned wood made as nearly cylindrical as may be; the staves of such barrels shall be twenty seven inches in length from croe to croe, with heads from sixteen and one-half to seventeen inches in diameter; and such barrels shall be sufficiently hooped, with a lining hoop within the chimes, the whole well secured by nails:

2. Every person who offers or exposes apples for sale by the barrel, otherwise than in accordance with the foregoing provisions of this section, shall be liable to a penalty of twenty-five cents for each barrel of apples so offered or exposed for sale.

Cross-Fertilization.

777. SIR.—Is there any method of cross-fertilization of fruit trees besides planting them close together and leaving the blossoms to take their chance of a cross?

S. T. PETTIT, *Belmont.*

Yes. By artificial crossing, much more certain results are obtained. One should have a definite purpose in plant-breeding, and should select the parents with a certain special object in view. The blossom to be treated is first robbed of its stamens just before maturity, and pollen from the flower of another variety applied to the pistil, with a camel's-hair brush. The blossom is then wrapped in a muslin bag to prevent any other pollen from reaching it. An excellent work on the subject of Plant Breeding, by Prof. L. H. Bailey, has recently been published by MacMillan & Co., New York City.

Raspberry Root Gall-Fly.

778. SIR.—Would you kindly inform me through the HORTICULTURIST, what is the cause of warts growing on the roots of raspberries? My Cuthberts grew well and had two good crops, but after that they stopped bearing, although the bushes still seemed to do well, and after trying them two years dug them up and found all the roots badly covered with warts some as large as a moderate sized bean.

A. J. C., *Listowel.*

Probably this is the work of the raspberry root gall-fly, *Rhodites radicum*. Mr. Saunders in his excellent work on "Insects Injurious to Fruits," says:

"The swelling is composed of a yellow, pithy substance, scattered throughout which are a number of cells, each enclosing a small white larva, the progeny of the gall-fly. These soon change to papæ and they in turn produce after a time the perfect insect, which eat their way out through the substance of the gall, leaving small holes to mark the place of exit. This gall chiefly affects the black raspberry; it also occurs on the blackberry and sometimes on the roots of the rose."

Wherever these excrescences are found they should be collected and burned.

Those Missing World's Fair Medals.

779. SIR,—Could you give us any information regarding those missing World's Fair Medals, for which we have been so long patiently waiting?

J. W. BIGELOW, *Wolfville, N.S.*

We referred this inquiry to the Department of Agriculture, Ottawa, and in response have received the following letter from A. L. Jarvis, for Deputy Minister:

SIR,—In reply to your letter of the 8th instant, making inquiry respecting medals and diplomas awarded at the "World's Columbian Exposition," I have to inform you that the latest intimation received from the Washington authorities is to the effect that the medals of award are finished and waiting the completion of the diplomas, after which they will be delivered to the "World's Columbian Commission," who will distribute the same. I may add that the letter containing the above information was of recent date, the 14th ultimo.

Peaches.

780. SIR,—When do the following varieties of peaches ripen in the Niagara district, viz.:—Alexander, Early Rivers, Hill's Chili, Elberta, Triumph, Foster, and Yellow St. John?

S. T. PETTIT, *Belmont.*

We have not fruited Elberta or Triumph.

The others ripen about as follows:—Alexander last of July; Early Rivers, early part of August; Hill's Chili and Yellow St. John, latter part of August; Foster, first part of September.

Magnolia, Cedar of Lebanon.

781. SIR,—What winter protection is necessary to grow the *Magnolia grandiflora*, Cedar of Lebanon and the Deodar cedar, in the open ground in this Province of Ontario?

JOHN M. McALINSH, *Belton, Ont.*

Reply by Horticulturist Craig, of Ottawa.

I do not think that *Magnolia grandiflora*, Cedar of Lebanon or the Deodar Cedar could be grown successfully in the open ground in any portion of Ontario, even with the best kind of winter protection that could be advised. It is possible that they could be grown for a time as small plants in favored portions, such as Essex and the Niagara Peninsula by wrapping them carefully in the autumn with a heavy swathing of evergreen boughs and protecting the roots by heavy mulching. But this could only be carried on while the tree was small. Those who wish to grow these, especially the cedars, I would advise to plant them in tubs, which could be moved into a cold cellar during winter. These plants could be renewed when the trees reached a size too large to allow of convenient handling.

Peaches and Plums for East Middlesex.

782. SIR,—Please give me a list of six peaches and six plums best adapted to the climate of East Middlesex, the thermometer dropping to 25 below zero.

G. H. NIXON, *Hyde Park.*

We could not recommend any variety of peach for such a temperature. The plums are hardier, and you should succeed with such varieties as Lombard, Bradshaw, Green Gage, German Prune, Italian Prune, Yellow Egg, etc.

The Lawver Apple.

783. SIR,—Please give me a description of the Lawver apple. I have some trees bearing, which I purchased for that variety, but which I fear are not true to name.

G. H. N.

The following is the description:—*Tree* vigorous, spreading, an early and annual bearer. *Fruit* large, roundish, oblate. Color, dark bright red, covered with small dots. Stalk medium, cavity deep, regular. Calyx small, closed. Basin medium, furrowed. Flesh white, firm, crisp, sprightly aromatic, mild, sub-acid. January to May.

Alkaline Wash for Pear Trees.

784. SIR,—If the bark is first scraped off pear trees, would strong lye wash injure them?

G. H. N.

If too strong it would. One pound concentrated lye to three gallons water is strong enough.

Weeping Ornamental Trees.

785. SIR,—How are weeping ornamental trees propagated?

D. B. H.

The weeping varieties of a tree are usually top grafted upon standard upright growing varieties either of the same or some allied kind of tree.

Tree Pæonia.

786. SIR,—How are tree pæonies propagated, by slips, or root sprouts.

D. B. HOOVER, *Almira.*

The shrubby, or Tree pæonia, is sometimes propagated by layers, but usually by grafting slips or scions upon the stout fleshy roots of the herbaceous pæonia. This kind does not succeed as well in Canada as in Europe. Our summers are not so favorable, and our early spring frosts injurious to their best success.

The English Sparrow.

787. SIR,—I notice the sparrows at my fruit buds. Will they do any permanent injury?
G. H. N:

The sparrows are injurious birds, and no doubt will destroy fruit buds along with the leaf buds. Still, unless very numerous, the injury will scarcely be traceable in fruit season.

Salt and Sulphur for Curculio.

788. SIR,—Have you ever heard of salt and sulphur for the plum curculio in the proportion, 3 lbs. sulphur and 2 lbs. of salt sprinkled over the grounds under the trees in the spring of the year. Please answer in the HORTICULTURIST.

A. W. WALKER, *Clarksberg.*

We have not heard of this remedy, and would be pleased to have any experience any of our readers may offer.

Sowing Seeds of Pear and Quince.

789. SIR,—When should pear and quince seed be sown?

A. E. MORDEN, *Vernon, B.C.*

These are usually sown in the fall, soon after maturity; but if kept mixed with earth in cellar till spring, they can be sown then.

Strawberry and Gooseberry Plants.

790. SIR,—Where can I get Clyde and Vandeman strawberry plants? What are good and bad points of the Chautauqua gooseberry?
A. E. M.

Cider.

791. SIR,—Is cider made in Canada for export; if so, in what localities is it produced, and who are those who manufacture and ship it?

J. R., *Ottawa.*

Will cider makers send in their addresses.

Horticultural Books.

792. SIR,—Like many other fruit growers, I am occasionally asked for the names of books, which would enable a novice to get a good general knowledge of fruit and fruit culture, as far as books can do it. On this, as on other subjects, doctors agree to differ, but I believe it would be a timely and a useful thing if, in your next issue, you would give a short list of such works, with, where possible, prices and publishers' names.

M. BURRELL.

We will from time to time give a list of the best books on horticulture. Many of the older works are a little out of date, and are gradually being replaced by new productions.

* Open Letters. *

The Pearl Gooseberry.

SIR,—The Pearl gooseberry which you sent me has made a fine growth. I am growing an orchard of about four hundred young trees, chiefly Duchess, Yellow Transparent, Tetovsky, and Red Astrachan, and all are doing well so far. Do you know of any hardier varieties than these? Most plums succeed here, and so does the Early Richmond cherry, and all kinds of small fruits. I grow the Wilson strawberry, but intend trying several other varieties next spring. I have ripened the Niagara grape here about the 20th of September, for two seasons. Last spring I planted Worden and Northern Light.

M. W. BESSEY, *Maguelawan, Ont.*

The Meeting at Kingston.

In response to a letter acquainting Mr. C. R. Wright, the Mayor of Kingston, of our decision to hold the next annual meeting of our Association in that city in Dec., 1896, we have received the following kind reply:

“SIR,—It is with a very great deal of satisfaction that I learned from your letter of the 10th inst., that it is now the intention of the Fruit Growers' Association of Ontario, to hold their annual meeting in our city during the month of December, for this year. It is needless to say that I most heartily endorse the invitation of a year ago from this city. I can assure you the acceptance of our invitation will meet with very great favor by our citizens generally. I have communicated the substance of your letter to the President of the Horticultural Society of Kingston, and your offer to affiliate with them in renewing the interest. I am sure this will be appreciated and you will hear from them on the subject.”

Fruit Growing in East Middlesex.

SIR,—I am anxious to make a collection of the best varieties of raspberries adapted for cultivation in this part of the country. I would like to test the following varieties of raspberries:—Champlain, Clarke, Herstine, Delaware, Columbian, Loudon, Miller, Thompson's Early, Prolific, Hornet, Falstoff, Gault, Franconia, Belmont, Ohio Everbearing, Belle de Fontenay, Hudson River Antwerp, Pride of the Hudson, Knevitt's Giant, Marvel of Four Seasons, Snperlative. This section of the country is beyond the peach growing region, but by working peaches and apricots on plum stock, and keeping the trees low, not more than six to eight feet high, so that they can be given some kind of winter protection, I think I can grow some of the hardiest varieties. Some of the finest raspberries are too tender for this section, but, by laying them down and giving them winter protection, they do very well. I have for a number of years grown a bed of hybrid perpetual roses. On the approach of winter I lay some brush on them, and on the top of the brush I lay a covering of strawy manure. They invariably come out fresh in the spring, but any branches that are left unprotected are always killed.

J. McAINSH, *Belton.*

❖ Our Markets. ❖

APPLES still rule high in Liverpool. Messrs. Woodall & Co., write under date 11th January: "Market active with strong demand at last quotations, which were Baldwins, 17/6 to 21/6; Spys, 17/ to 19/; Greenings 14/ to 16/6; Russetts, 15/ to 17/.

And under date Jan. 22nd, Baldwins 19/ to 23/; Kings 16/ to 18/6; Graenings 10/ to 14/6; Ben Davis 16/ to 18/.

❖ Our Book Table. ❖

PLANT BREEDING being five lectures upon the "Amelioration of Domestic Plants," by L. H. Bailey, Cornell University.

This is the second volume of the Garden Graft Series, published by MacMillan & Co., of New York, and one which fills a gap among our books on Practical Horticulture. Every horticulturist, who wishes to keep pace with the times, and to do his work intelligently should read this excellent series. There is no more interesting line of experiment than this one of originating new varieties by hybridization; and this book not only shows the method of pollination by artificial means, but also the philosophy of variation and plant breeding. The price is \$1.

CATALOGUES.

General Catalogue of Fruit and Ornamental Trees, Roses, etc., 1896. Well illustrated. Ellwanger & Barry, Mount Hope Nurseries, Rochester N.Y. . . . New Hybrid Cannas, Choice Gladioli, New Hybrid Clivias, 1896. H. H. Groff, Simcoe, Ont. . . . Lorenz's Illustrated Catalogue for Owners of Gardens, Amateur and Professional, 1896. Chas. Lorenz, Erfurt, Germany. . . . Rennie's Illustrated Guide for Amateur Gardeners, 1896. Wm. Rennie, Toronto. . . . Annual Catalogue of the Edward F. Dibble Seed Co., Honeoye Falls, N.Y. . . . General Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, etc., grown and for sale by Brown Bros. Company, Centennial Nurseries, Rochester; Canadian Nursery at Ridgeville, Ont. . . . Burpee's Farm Annual of Flower and Vegetable Seeds for 1896. Well illustrated. W. Atlee Burpee & Co., Philadelphia, Pa. . . . Illustrated Catalogue of Roses for 1896. The Good & Reeve Co., Springfield, Ohio, U.S. . . . Catalogue of Novelties and Specialties, Plants, Bulbs, Fruits, offered by A. Blanc & Co., Philadelphia, Pa. U.S. . . . Bruce's Illustrated Catalogue of Seeds, 1896. John A. Bruce & Co., Hamilton, Ont. . . . Illustrated Catalogue of Home Grown Seeds. J. J. H. Gregory & Sons, Marblehead, Mass., U.S. Chrysanthemums, Cannas, Begonias. 1896. T. H. Spaulding, 40 E. 25th St., New York. . . . Dickensen's Annual Seed Catalogue, Salem, Oregon.

BOOKS.

MASSEY'S MAGAZINE for January, '96. Published by the Massey Press, Toronto, Ont., at \$1 a year.