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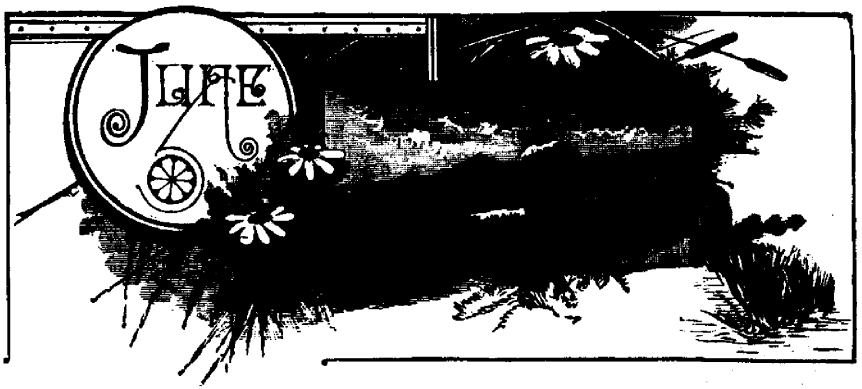


DOWNING GOOSEBERRY.

CANADIAN fruit growers have not, thus far, entered very largely into the cultivation of the gooseberry for market. It will, therefore, surprise them to learn that in that excellent work, the "Dictionary of Gardening," edited by Mr Geo. Nicholson, of Kew Gardens, over eighty distinct varieties of gooseberries are named and described, very few of which are in the least degree familiar, even by name. The explanation is that the cool, moist climate of England is exactly fitted to bring about the best results in gooseberry culture, while in our dry, hot summers, the mildew utterly ruins these foreign kinds.

A few natives, however, have been found to succeed admirably in Ontario, and to these we must look for the success in this industry, which we are sure will be extended in the near future, as improved varieties are introduced which are adapted to our own country.

The gooseberry is largely used in England in the green state for pies, tarts and puddings, and were the fruit present in larger quantities and in greater variety in our markets, there is no doubt the demand for it would be increased to an almost unlimited extent.

Of the few native varieties which have so far been introduced into cultivation in Ontario, the Downing is by far the best and most popular. It originated some years ago, at Newburgh, on the Hudson, and is now widely disseminated. The fruit is of a medium size, roundish-oval, and of a pale green color; the rib veins

are quite distinct; skin, smooth; quality, very good; bush vigorous, stocky and upright; a strong grower and productive. It is considered very hardy, and is very little subject to the mildew. Our colored plate for this month gives our readers a very excellent illustration of this variety.

Among other native varieties we have the Houghton's seedling, which has been discarded on account of its small size; Smith's Improved, a seedling of Houghton, which is nearly as good as the Downing, and often competes with it for a place in our markets; Pearl, a seedling of Houghton crossed with White Smith, which appears to excel all others we know of for productiveness; a variety which was fully described on page 317, vol. 12, of this journal. There are other Canadian and American seedlings which are being highly commended by their introducers, some of which we have in testing at Maplehurst, as, Crosby's seedling, which originated in the Township of Markham, and which bears evidences of English origin; Sutherland's seedling, a fine appearing gooseberry, from Mr. Geo. Sutherland, Owen Sound, and some seedlings originated by the late James Dougall, of Windsor, which are being tested at the Rural Experimental Grounds, near New York City, etc.

Although none of these varieties compare in size or beauty with those grown in England, yet improvements are constantly being made, and there is no doubt that in time such varieties will be brought to the front as will give special impetus to the cultivation of the gooseberry in Ontario.

CROPS IN ORCHARDS.—The best crop an orchard can produce is a crop of fruit. But many think that the soil in that particular locality can do double duty just as well as not. Yet there is a difference. Some crops are worse in an orchard than others; as, for instance, the small grains—wheat, oats and rye. The opinion of the late R. L. Pell, who raised and sent to England such immense quantities of the Newtown Pippin apple a number of years ago, was that three successive crops of rye would ruin any orchard. On the other hand, corn, potatoes and such products as require cultivation during the growing season, will do less injury, because the trees receive part of the benefit of the operation. Indeed, if manure is supplied to compensate for what is removed in the corn or potatoes, the cropping would altogether be beneficial to the trees, except that without special care the roots will be more or less mutilated. In the case of a young orchard, this danger does not exist—and cropping is to be recommended. But liberal manuring should not be omitted; and the crops chosen should be those requiring frequent stirring of the soil.—*Ex.*

AN exchange tells us that the quickest way known to make an independent fortune is to get a pencil and a piece of paper and commence growing fruit. No land and no experience is required in this sort of a horticultural venture and an immense amount of success can be worked out in a season, and you know "figures never lie."

PLAIN HINTS ON FRUIT GROWING.—IV.

LITTLE ECONOMIES AND EXPERIENCES.

ONE of the greatest elements to forward the fruit-growing interest is *success!* It is a late-coined adage that "nothing succeeds like success," and to this we may add "nothing *encourages* as much as success." *How to succeed* should be the theme of every one who engages in fruit-growing, and this implies the question of economy and good management. The article in August HORTICULTURIST of last year, headed "Small Orchards," is very pat on the economic theme, and deserves a hearty, practical endorsement by all who expect to succeed in the work of fruit-growing. I once inspected a fruit garden of ten acres, back of the mountain near Montreal, from which the owner told me he realized a net profit of $1,000 per year on an average. I call that a *success*, and it has encouraged me very much in my little efforts in the fruit industry. Of course this garden was managed carefully on the scale of economy. There was no expenditure that was not profitably utilized, and no waste allowed; everything being done with an eye to profit and safe return. Three years ago, I read a little work called "Ten Acres Enough," which practically illustrated what might be profitably realized on a ten-acre farm with right management But as I believe in theory and practice going hand in hand, I will not advance anything but what I have proven practically.

As "economies and experiences" afford much range of detail, one feels hardly "up to the occasion" in doing the theme ample justice, but as every one in any particular line of effort, can add *something* to the common stock of experience to encourage his fellows in the same line, however meagre that experience may be, it behooves each one to add his mite for the common interest. Every one whose heart is in his work, will devise and improvise something that he has never seen, done nor heard of, and if he makes a note of it for the benefit of others, he aids in helping up the interest which cheers and encourages many besides himself.

Last year, that I might not lose the use of the land I wished to set out in strawberries, first planted it with corn in hills three feet each way, setting three strawberry plants between each two hills of corn.

The plants did well in the shade of the corn, and the hillage of the corn suited that of the berry plants; and in the fall the corn was cut for fodder and carried off and "stooked" on the margin of the plat. Later on, after the frost is in the ground, a clip with a narrow hoe will cut off the stub that remains of the corn stalk, and the plat is ready to cover for winter protection. I covered this year with brush, both evergreen and deciduous, which I find keeps on the snow late, also keeps it from caking down into ice on the plants while it is melting, if a freezing time comes before it is all away.

I am removing the brush now (April 2nd), and adding a light coating of straw, for the double purpose of protection against any cold "snaps," and to keep the berries from the ground. In a cabbage patch I set out four rows of Cuthbert raspberries, seven feet apart, plants 2½ feet apart in the row; I have strawberries on one side of the raspberries, and intend setting out strawberries on the other, intending the long rows of Cuthberts for a wind-break, allowing them to grow to fill space in the row, but keeping the space open between rows for planting in potatoes, cabbage, etc. I intend to planting early corn for marketing green, through what strawberries I set in this spring. I took up a patch of early potatoes last summer in time to set in strawberries on the ridges where the potatoes came out, a dressing up in shape with a hoe being the preparation needed for the berry-plants as the land was rich and friable.

I set cabbage plants between the newly set currants and find they do well, as the tillage they require is profitable for the currants. I intend getting out Cuthbert raspberries along my fences and letting them grow "as they please," to form a close break-wind to contain the snow. Any device to retain the snow late is an advantage with us in the "cold north." Wherever a drift crossed my strawberries, they are green and fresh now, but with all my pains in covering, in places where the snow was away early, the "sere and yellow leaf," predominates.

I have tried several kinds of material for covering, and, next to evergreen boughs, I place tomato tops. They are a good protection and do not allow the snow to melt down and smother the plants. As we had about a foot of frost in the ground when the snow fell first last fall, I was not anxious about wrapping trees with straw, as the sap would be late kept back. I merely trample the snow hard around the trees as a guard against mice. After the snow went, I added long manure to keep in the frost as late as possible, and now (April 13th), they show little signs of budding.

A word on forwarding rhubarb growth. To-day I put fresh horse-manure around the newly-started buds, about a patent pailful to each root, raising a ring of several inches high around, taking care not to cover the buds, and putting the most on the north and west side to break the chilling winds. This does two things: adds warmth and nourishment.

And as a closing thought on economy, let me add, do not be so full of conceit as to reject little hints and notes from the experience of others. Make the most of the experiments of the "Farms" the Dominion Government have established. If not near to visit them, send and get their bulletins and yearly reports, for they are profitable to any unbiased mind. Amid all the political croaking, the Government has done, and is doing, a good work for the farming and gardening community in the establishment of the Experimental Farm and its branches; and what remains for the farmers and gardeners to do is to lay aside their party prejudices, and come forward and profit by what has been done by the Government for their benefit, and then the value of what has been done

will be more apparent. I am no partizan in politics, but speak from a standpoint of practical utility, the only impartial point one *can* speak from. But lest I become tedious, I will close by urging the amateur fruit-grower to *persevere* and success is certain.

Nepean, April 13th, 1891, L. FOOTE.

KEEPING GRAPES.—A correspondent asks for further information concerning keeping grapes. Of course a fruit house is the proper thing for those who go extensively into the preservation of grapes to supply a winter market. My own success has been best in clean drawers, where the grapes, after being spread without one bunch lying on or crowding another, are kept as cool as possible without freezing. If I intended to make a business of it, I would construct tiers of shallow drawers as cheaply as possible. The very best grape for storage with me is Diana. It is a rich grape when slightly dried, and keeps well into January or February. Herbert is a grand grape, but loses quality by the end of December. Iona, though tender, thin-skinned and brittle, is a capital keeper for early winter use. Goethe keeps fairly, but loses flavor.

That the American people are getting to be less a nation of meat eaters and more a nation of fruit eaters, I am pleased to make sure of. The consumption of grapes is enormous, but so far the supply is not increasing beyond the increase in demand. However, the main thing to aim at in horticulture is well-supplied houses. Every house should have a Worden, a Diamond, a Niagara and a Brighton grape vine; and if climate is too severe, cover them winters. They will endure almost any degree of frost while leafless. Pack snow about them to induce slow starting in spring. At all events have them, even if you must grow them under cover. They furnish the very best fruit product known. Eat less meat and no pastry; and eat all the fruit you desire, and see how great is the advantage to health. My own children never eat meat or butter, but grapes and honey and cereals, and never know an ill of stomach or head.—*Popular Gardening.*

TREES FOR PLANTING IN TOWNS.—On October 15th the Ash trees were fresh and green, whilst the majority of other trees were either leafless or looked seedy. The Ash was late coming into leaf, but its smoke-enduring properties render it a most desirable tree to plant. The Canadian Popular is another most valuable tree for this kind of planting. The Sycamore retains its foliage to a late period in the season, and in shape is well suited for avenues. Thorns are also good town trees, but are not, perhaps, sufficiently arborescent for an avenue. The Horse Chestnut would be also found a suitable tree for town planting, and several kinds of Willows would succeed well in smoky districts. These are all deciduous trees; the only evergreens that could be recommended are the Privet and Box.

HOW TO DESTROY OUR INSECT ENEMIES.

THE insect enemies of the fruit grower are yearly increasing in number, making the business of cultivating fruit much less simple than formerly; but this only enables the enterprising man to reap the greater success, for, with the many implements and remedies now within reach, almost every kind of insect and fungus may be destroyed, and fruit of the finest size and perfection be produced. In this article we propose to deal chiefly with some of the more familiar, the chief object being to point out the latest and most approved remedies.

PLANT LICE are of late, among the most common of all insect foes, and frequently are very difficult to overcome. Green ones are found in the early spring upon the young apple leaves, sucking away their strength; and black ones in immense numbers cover the leaves and fruit of our cherry trees, a little later on, quite destroying one's appetite for this luscious fruit. Spraying with arsenites, and many other remedies which we have tested, have proved entirely unavailing to remove these pests, but kerosene emulsion carefully applied is effective. A good recipe for its preparation is as follows: One quart soft soap, one pint kerosene oil and two quarts of water. A strong suds is first made and the kerosene added while warm, when a permanent mixture will be formed, and this should be diluted with four gallons of water when required for use. The trees should then be thoroughly sprayed with this emulsion and the earlier the work is done after their first appearance the better.

BARK LICE have been so frequently described in these columns, together with the methods of treatment, that little need be said here regarding them. The oyster shaped scales, from which they derive the name of oyster shell louse, and which appear so harmless in the autumn and winter months, are each a protection for 60 or 70 tiny eggs. These hatch out about the first of June into young lice, so small that they can scarcely be discerned without the aid of a hand glass. About this time they creep out from in under the scales and roam about over the branches, seeking a suitable place to settle down for life. Frequently they are carried by the wind, or by the feet of birds, to other trees, and thus a badly infested tree may produce pestilence for the whole orchard. In two or three weeks they will all have settled down, each in his chosen place, there to insert his tiny beak and suck from the trees their vitality. Presently the scale forms over them, by the secretion from the surface of their bodies, and this becomes completely impervious by the month of August, so that no application at this season of the year would have any effect upon the life of the insect hidden away beneath it. Scraping the old bark from our apple trees in the winter and spring months is a very useful operation, as it also removes a large number of the scales, and gives a smoother surface for the application of washes later

on in the season. An effectual remedy for this louse, which is very wide-spread and is doing incalculable mischief to the apple orchards in Ontario, is the application of soft soap to the parts affected, during the first week in June. This may be done with a scrubbing brush, or even with an old broom, if only the trunks are affected ; but if the insect has spread itself over the branches of the trees, it will be necessary to spray with a strong mixture of soft soap and water. The mixture may be improved by the addition of a crude carbolic acid. Prof. Cook advises the following method of preparing it : One quart soft soap and two gallons of water heated to the boiling point, when one pint of crude carbolic acid is added, stirring the solution at the same time. Kerosene emulsion, and washing soda in water, are also excellent.

THE CHERRY AND PEAR TREE SLUG is only too familiar to our pear growers. It is a brown larvæ, covered with slime, and possessed of an excessive number of legs, between eighteen and twenty-two. These ugly slugs eat only of the cuticle of the leaf, thus causing it to turn brown in three or four weeks. They pass down the tree and form their cocoons in the ground, from which the tiny black flies, less than a quarter of an inch long, emerges either in the month of August, or of June, of the following year. One of the best and easiest applied remedies for the pear tree slug is liquid hellebore, made by dissolving one pound of the powder in twenty-five gallons of water. This should be sprayed over the affected trees as soon as the larvæ appear. This substance has the double advantage of killing the insect by contact as well as by being eaten.

THE SLUGS or worms which eat the foliage and fruit of the gooseberry bushes, belong to another species of the same family, and may be destroyed by the application of the same remedy. The cocoons of these are hid among the roots of the bushes, and, when buying from nurserymen, great care should be taken not to introduce the insect upon one's premises with the plants. This habit of making their transformations under the ground, near the roots of the plants, no doubt explains the success which some of our subscribers have had in ridding themselves of the currant worm, by a liberal application of ashes along their rows of currant bushes, for these no doubt are distasteful to it. When only a small quantity of the liquid is needed, it may be made by mixing it in the proportion of one ounce of hellebore to two gallons of water.

THE BORERS.—There are three kinds of borers, all of which are only too commonly met with in our apple orchards, especially in those that are not kept in a vigorous condition. These are the flat-headed borer (*chrysobothris femorata*), and two species of the long-horned beetles, viz., *saperda candida, and saperda cretata ;* the first of these only remains one year in the tree, but the others con-

tinue feeding for three years; all three deposit their eggs during the summer months, and for this reason they may easily be prevented from damaging the trees, by washing the trunks with something which is distasteful to them. Soft soap is excellent for this purpose, and the addition of carbolic acid, in the manner recommended for the destruction of bark lice, is a still more effective remedy.

THE ROSE BEETLE has lately invaded Ontario, and is rapidly becoming a very serious pest, for it devours buds, blossoms, young fruit and leaves. Nor does it confine itself to the rose, but attacks also many of our choicer fruits as well. These beetles appear in swarms during the second week in June, and continue their mischievous operations for about a month. They are exceedingly difficult to deal with, but their attacks may be prevented to a large extent by dusting the foliage with ashes, road dust or plaster Paris. It is also claimed that their depredations may be entirely checked by spraying with pyrethrum water. One tablespoonful of pure powder is used, to two gallons of water, and the liquid may be applied with a force pump. In the use of the insect powder, it is well to remember that it kills by contact, and therefore must be applied in such a manner as to reach every insect.

THE BUD MOTH is a comparatively new insect in this province, but during the last two or three years we have noticed it quite frequently eating out the inside of both the leaf and flower buds of our apple trees, and sometimes attacking the buds of the young grafts, causing them to fail, which is a serious damage. These insects appear in the early summer and deposit their eggs on the apple leaves, upon which the larvæ feed as soon as hatched. These are about half grown when winter sets in, and hibernate in that stage, so that they are ready in early spring to feed upon the young buds. The easiest way of destroying these caterpillars is by spraying with Paris green water in the proportion of one pound to two hundred gallons of water. This application will also destroy the young tent caterpillars, or any other leaf-eating insects which may be hatched out at this season.

In the vegetable garden, there are two very destructive insect enemies, concerning which we have frequent inquiries, viz., CABBAGE WORM and SQUASH BUG. The habits of each are too familiar to need any description.

The cabbage worm comes from the eggs of the White Rape Butterfly, and these butterflies appear in two stages, the first in July and the second in August. Pyrethrum powder in a liquid form, as described above, is the safest and best application to use, but it must be applied with great force so that the liquid will reach every part affected. Some writers recommend the use of Paris green water upon cabbages at an early date of growth. This no doubt would be quite effective in destroying the cabbage worm, but we should also fear for the life of human consumer.

The squash bug hibernates during the winter in a mature state, and is therefore ready for its mischievous operations by the time the melon and squash vines show themselves above the ground; and their rapid increase and terrible destructiveness are the vexation of every gardener. One of the best methods of preventing their attacks is a tablespoonful of kerosene incorporated with two quarts of gypsum (plaster of Paris) and sprinkled on the vines. One application may suffice for the season, but it should be repeated if the bugs are seen to return.

MALAGA GRAPES.

"The grapes that are sold in New York and other markets as Malaga grapes," said a fruit dealer, "are really not Malaga grapes at all, but are a grape that grows in the almost inaccessible mountain regions of Spain, in the district of Almeria. The true Malaga grape is so tender and delicate a fruit that it will not stand shipment well, and even when it arrives here in good condition, it is so perishable that unless quick sales are made the importer will have his labor for his pains. Nearly all of the Malaga grape crop is made into raisins. The white and pinkish-white grapes sold here as Malaga are a hardy fruit. The region in which they are grown is wild and primitive, and the grapes are all transported from the vineyards to Almeria on donkeys, a distance of fifty miles, there being no roads to the hills.

The country between Almeria and the vineyards is infested by wild beasts and outlaws, and tourists have not yet ventured to include that part of Spain in their wanderings. As the average grape crop of the district is 400,000 barrels of forty pounds each, the task of carrying it all that distance on donkeys may be imagined. The vineyards are all small holdings, and yield about five tons to the acre. The usual price for the grapes on the wharf at Almeria is nine cents. The packing in barrels is all done at the vineyard, the fine corkdust in which the fruit is packed being backed in on the donkeys the same as the grapes are brought out. The harvesting of this unique grape crop is done during August. The vessels in which the grapes are shipped from Almeria cannot come in to the wharves, but lie at anchor some distance out. The grapes are taken to the vessels in row-boats of antique pattern and small capacity. The grapes begin to reach New York about Oct. 1. This market handles from 150,000 to 200,000 barrels of the fruit. It is bought by the local dealers from the importers at auction sale. These grapes will keep well from the close of one season to the opening of another. It is rare that the importers close out their holdings in them before April.—*Sun.*

WESTERN NEW YORK FRUIT GROWERS.

THE report of the twenty-sixth annual meeting of this Society, which was held in January, has been printed with unusual promptitude. Its pages are full of interesting and useful information. The fruit growers of Western New York are at the very forefront in all the departments of fruit culture; and since their climate corresponds with that of Southern Ontario, their experiences are of especial benefit to us.

INSECTS AND FUNGI.—Some interesting particulars were brought forward under these heads, some of which have been already summarized in this journal. Dr. J. A. Lintner criticized a statement, made at the meeting of the Ontario Fruit Growers' Association, that a valuable plum orchard had been utterly ruined by the use of London purple. In his opinion, the injury, which resulted in the falling of the foliage, was not due to the spraying, but wholly to a fungus attack. Prof. Bailey, he said, has sprayed plum trees with one pound of London purple to two hundred gallons of water, without injuring the foliage in the slightest degree. By the addition of lime to the arsenities, the injury, which these poisons might otherwise do, could be entirely avoided, and they could then be used upon the most tender foliage, such as that of even the peach tree. The lime is prepared by slacking it in a barrel and stirring it afterwards until the water becomes quite milky, up to the degree that it would not clog the nozzle of the sprayer.

Several experiments had been made with limed arsenical mixtures on the cherry, apple, plum and peach, using one pound of the London purple to one hundred gallons of water, and the injury was but the trifling amount of one per cent.

Professor Gillette had been experimenting with London purple in the Bordeaux mixture and had been unable to produce the least harm upon peach or plum foliage, even when he used one pound to fifty gallons. Indeed one pound to twenty-five gallons did not harm the plum foliage, and one pound to ten gallons caused no damage to the apple.

GRAPES, OLD AND NEW.—An interesting paper was read by Mr. W. C. Barry upon this subject. He characterized the Worden as one of the most important of the recent acquisitions, and one which was destined, in some localities, to supercede the Concord; it ripens a week earlier, is of better quality, is as vigorous a grower and as productive.

The Barry he prefers to the Wilder, and considers it especially valuable as a market grape on account of its remarkable size and its handsome appearance, combined with good quality.

The Vergennes was worthy of a place in our vineyards, being of a large size, good quality and of sufficient firmness to make it an excellent shipper.

The ideal red grape, however, has not yet been produced. What we need is a red Concord, and a rich reward awaits the originator of such a variety.

In closing, Mr. Barry named the following six varieties as those which had given the best results in his vineyard for market purposes: Lady, Niagara, Barry, Concord, Worden and Gaertner.

Mr. T. S. Hubbard reported concerning grapes in Chautauqua Co., from which he stated there had been no less than forty-eight million pounds shipped during the past year, and these had sold at an average price of two cents per pound, bringing back to the county, for its grape crop alone, over $1,000,000. He stated that the crop was a very heavy one, many large vineyards of Concords averaging over five tons to the acre, and some Niagara vineyards yielding seven tons per acre; while one plot of less than two-thirds of an acre of Niagaras produced over six tons of fruit.

Our readers should beware, however, of running away with the idea that such enormous yields are at all the average crop. It is the exceptionally large yields that we hear so much about, while the reports of failures and small crops are usually kept in the background.

PEARS.—Mr. Cook, of Genesse Co., spoke in high terms of the Beurre Clairgeau pear, which is very prolific and adapted to a great variety of soils, the fruit was uniform in size, attractive in appearance, and, though not the best in flavor, regarded by many to be a very profitable market variety.

Duchess was highly spoken of by Hon. Eli Taylor. He stated that he had realized $1,000 from the product of two and a half acres. On the other hand, Mr. Babcock, of Niagara Co., stated that it was a general failure, even the best cultivated orchards being no exception to this rule.

The Keiffer pear was highly commended for its productiveness. Mr. Babcock, of Lockport, stated that from 220 Keiffer trees Messrs. Moodie & Sons has marketed 630 bushels in one season, and this was the fourth crop off trees seven years grafted. Mr. Bronson, of Ontario Co., also commended the Keiffer as one that never failed to produce a large crop and sell readily.

PLUMS.—Mr. Cook, of Genesse Co., had very favorable experience in growing the German Prune. He states that he has found an increasing demand for this variety, and believes its cultivation will become a most important industry.

The Grand Duke was mentioned as a very large new plum, and a variety which would soon become one of the staple orchard varieties. The greatest demand is for a kind that is either very early or very late, and the Grand Duke is a very late sort, ripening between the 10th and 20th of October. Ten-pound baskets of this plum have sold as high as $1.50 per basket.

The Field is a fine purple plum, ten days earlier than the Bradshaw, and very valuable. Trees, two years planted, were mentioned as being heavily laden with fruit, showing it to be both an early and an abundant bearer.

The Prince of Wales, ripening about the beginning of September, is a round, reddish plum of medium size; the tree is very hardy and a great bearer.

These three varieties are especially commended by the fruit committee of Ontario Co. as indispensable to plum growers.

SMALL FRUITS.—Professor Bailey commended currants as a profitable crop where one had good facilities for shipping, and was near a good market. He believed the Victoria to be one of the most profitable varieties, and it had this merit that it was comparatively exempt from the currant borer.

A Mr. Farmer, of Oswego Co., had great faith in strawberries. He had known $1,000 worth to be sold from one and one-third acres of ground in one season. The three best varieties, according to his experience, were the Warfield, Bubach and the Eureka. He has sold the Bubachs as high as 25 cents per quart, and the Eurekas were in quite as good demand. Both varieties are pistillate, and in reply to an enquiry as to what standard varieties were used with these, Mr. Farmer said, Wilson and Jessie with Warfield; Burt Seedling with Bubach; and Crawford with Eureka.

There were many interesting and valuable papers read at this meeting, and were it not for fear of making it too bulky, we are sure it would meet with the general approval of our membership to have some of the more important of them printed in the appendix of our own next annual report.

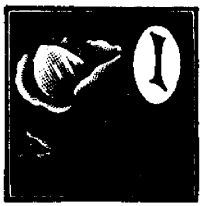
In reply to the question, "What are the six most profitable pears for market?" Mr. Zimmerman, of Buffalo, named the following: Bartlett, Howell, Beurre Bosc, Clairgeau, Duchess, and Anjou; Bartlett and Bosc as standards, and Howell, Duchess, Clairgeau and Anjou as dwarfs.

NEW ZEALAND APPLES.—The first arrival of New Zealand apples in this country since the experimental trial last year, should be a lesson to Canadian exporters. The utmost care was taken in their selection and packing, and the consequence is that they arrived in London in simply superb condition, the auction last Monday being well attended, and a spirited competition resulting in extraordinary prices being fetched, 25s. being reached as the top price per bushel case. Freight for 140,000 bushels has been engaged for this year for Tasmanian fruit, and with this competition New Zealands will have to climb down a little; but the consignment mentioned came upon the market when it was absolutely bare of anything of quality, and its fine appearance compelled good prices. Will Dominion shippers learn the lessons, and exercise more care in selection and barrelling next season?—*Trade Bulletin.*

JESSIE.—Foliage showing signs of rust, produces runners freely. Fruit pleasant and sweet, but not of high quality; large, somewhat inclined to irregularity; many specimens singularly furrowed or crinkled, in some cases to the extent of absolute ugliness. Quite firm, and single berries very large. The fruit comes large to end of season. Season medium. It would not rank among the first for market here.—*Popular Gardening.*

LETTERS FROM RUSSIA.—VII.

EXHIBITION OF FRUITS AT ST. PETERSBURG.



N the month of October, 1890, the Imperial Society of Horticulture held an exhibit at St. Petersburg. The department of fruit growing and decorative horticulture was excellently arranged through the efforts of the skilful gardeners who have charge of the well stocked hot-houses in that city, but, on the other hand, the section of fresh fruits was a comparative failure, there being only some forty-two exhibitors.

The finest fruits were those shown by Polish growers, and particularly those from the Warsaw State Pomological Garden, which received very high commendation. All the Polish fruits were correctly named, well formed and large, whereby one would judge that fruit growing in Poland is in a good and prosperous condition. The fruits, however, were mostly tender varieties grown under glass, few native sorts being among the exhibits. Among these latter were some pears, and a winter apple under the name of Glogierowka (of pigeon class). It is a very beautiful apple of excellent flavor and the fruit growers of Warsaw consider it to be one of the best of their hardy and productive dessert sorts.

From Lithuaniax and Western Russia there were very few exhibits, none worthy of special mention. Crimea showed very few fruits from her commercial gardens ; her exhibits were mostly French varieties of pears, peaches, grapes and nuts, which are exported into the northern districts. Of apples there were some very good local varieties of the Synap, and two very beautiful and delicious Crimean apples, Gulpembe and Chelebi, scions of which I sent you, also a large filbert, known here as Bomba.

From Caucasus there was only one exhibitor, who showed some forty-six varieties of apples and twenty-four of pears ; most of these were local kinds. Of pears, one variety attracted everybody's attention on account of its enormous size, the Tash-Armud, a local tartar name. It is an excellent, juicy, autumn pear, of about three pounds weight. Caucasus is little known in pomological circles, and it is interesting to know that many quite new sorts of excellent fruits grow there, some without any culture, and even in its forests. In course of time, this country, owing to its favorable climate, will become one of the principal centres for growing apples and grapes ; even now it exports a large quantity of wine into France.

The exhibitors of Russian fruits from the northern governments were very few, and from some there were no representatives. In all the exhibits were met such wide spread and popular varieties as the Antonovka, Borovinka (Duchess), Titovka, Aport (Alexander), Anis, etc. These typical kinds are known and distributed throughout the whole of Russia, and have reliable names, but other

and less known varieties have numerous local names. The most beautiful and perfect apples were from Tula and Luga.

A large collection of apples were exported from the garden of Doctors Regell and Kesselring. Fifty-three of these varieties were seedlings of Dr. Regell's own raising. The fruits were small and poorly colored, and would not tempt anyone to go into fruit growing in the climate of St. Petersburg. From such a prominent pomologist as Dr. Regell, we were really expecting something better.

The following are some of the Russian fruits, among those exhibited, which I consider worthy of mention :

1. From the government of Riasan there were three beautifully colored seedlings of the type of the Crimean Synap, and of the true Chernigow. In your country, and almost everywhere abroad, this apple is known as Borovinka (Duchess.) These apples differ in this respect that the Borovinka is much superior to the Chernigow.

2. From the same government a kind of Anis, the calix of which is closed entirely.

3. From the Kasan some new local varieties, among them a good-sized Siberian crab.

4. From Chernigow a winter apple, Woloshka, of good quality, resembling Titovka.

5. From St. Petersburg government Aport Riepchatz, a special kind of Aport (Alexander) ; Metla, a new sort ; two varieties of Stone Antonovka, one an oblong and the other flat. Besides these, there was exhibited a red autumn plum, growing freely without winter protection.

The whole exhibition was of no special use to Russian horticulture, excepting to the exhibitors themselves, who received a large number of rewards.

The earnest fruit growers expected that by means of such a large collection of Russian apples from the whole of Russia, it would be possible to establish, once for all, a correct nomenclature, and thereby put an end to the chaos of names given them at the whim of gardeners ; but the Imperial Society of Horticulture, upon which rests the responsibility of conducting its provincial divisions, did not stir up this important question. It is therefore set at one side, possibly for a long time, and in consequence nobody is in a better position than before to judge of the most suitable kinds for each government of this empire with respect to the hardiness and other qualities of the several varieties, a thing which is of the utmost importance to our country.

PLANT A VARIETY OF FRUITS.

SCARCELY a week passes but I am in receipt of letters from parties seeking information as to what they should plant. The apple crop of late has become quite uncertain, and some other fruits not much better, and this question as to what to plant for profit, is certainly deserving more than a passing notice. When we have a crop of apples the price is frequently too low to be remunerative. Have we not been planting too many Baldwins? is a suggestion that has frequently come to my mind in the past few years, and would it not be wise to graft over some of our thrifty young Baldwins to choice eating sorts that would find ready sale on our city fruit stands at prices that would amply compensate you for the change? Try the Stump, McIntosh Red, and Suttons's Beauty, all varieties of the choicest quality and beautiful in appearance, and see if they do not pay. There may be others with which you are acquainted that are even better. For myself, I should regard it unwise to confine my efforts to any one kind of fruit. In other words, in planting for profit, I would put out a variety, including more or less of the smaller fruits, the limit of which would depend in a measure upon the land at my command, its adaptability for the purpose wanted, and facilities for reaching markets economically and in good time. Where the soil were suitable, I would plant peach, plum, cherry and quinces, with a reasonable amount of such smaller fruits as might be worked in to advantage and sold at markets not too far distant from home. I know of one party not seventy-five miles distant, owning a fine young apple orchard of fifty acres, who said to me a few weeks since, "Had it not been for my blackberries in connection with a small crop of pears and plums, I should have been compelled to borrow money to meet current expenses for the year," referring in this to the past season. Yet another with seventy acres of orcharding, from his currants, gooseberries, cherries and quinces realized $2,500, while his apples, plums, and peaches, which heretofore have been his main dependance, yielded him nothing. A third party with a large planting of apples, plums and quinces, found his cash in hand from a fine crop of quinces. Instances might be multiplied showing the very great importance attached to growing a variety of fruits, in the attainment of the object sought. If this idea be correct, how many throughout this favored region have made a very great mistake! We think no wise farmer would for a moment entertain the idea of devoting his entire farm to any one product like corn, wheat or barley, no matter how well his soil be adapted to either.

Geneva, N. Y. S. D. WILLARD.

THE CULTIVATION OF STRAWBERRIES.

THE price of strawberries has come so low as to make it difficult for the average man with the average experience to make berry growing pay. Only those living near a good local market or growing a large quantity can make it pay at all. Four things are necessary in growing strawberries successfully.

First, the man must be thorough going and industrious, not lazy.

Second, he must have the right kind of preparation of soil.

Third, he must have the right kind of plants.

And, lastly, he must put out and care for the young plants properly.

I want to emphasize this point of thorough cultivation. No use of securing the right soil and the right plants, and then after six or eight weeks of hoeing and care, to allow the ground to grow up with weeds and thistles. We all have seen this kind of strawberry culture.

This difficulty does not occur with the man who devotes his whole time to this business.

Very little need be said as to the kind of soil. Strawberries may be grown on either clay or sand, although they will be later on heavy land.

Ground that has been used for growing potatoes or turnips, or some such crop the year previous, is desirable. When this cannot be had, the ground that is to be used in the following spring should be ploughed, not later than the middle of August, then kept well worked on top until the ground freezes up. Then apply your manure, which should be not less than twenty-five loads per acre. Spread it evenly on the ground, and leave until spring. The manure should be well rotted. Then in the spring plough five inches deep, by which process you have the strength of the manure evenly through the soil, and the young plant will start off vigorously. Work the top well, and finish by rolling. And if you are growing on a large scale, mark with a common corn marker four feet one way and three feet the other. Now secure your plants. It does not come under the head of my subject to tell the kind of berries to grow for profit. But I would insist on securing plants from new vines of one year's growth, and in taking up your plants care should be taken not to break the roots of the plants. A basket should never be used to carry the plants while planting, as the wind dries the roots of the plants much more than when carried in a wooden or tin pail, and in no case should the roots be allowed to dry. A drizzly or damp day is the best for planting.

I now use a spade for planting, by shoving the spade down about six inches, then shoving the top to and from you until the spade can be drawn out, leaving the ground sufficiently open to admit of the roots being put in straight down. Care should be taken to put the crown of the plant on a level with the top of the ground.

This should be done as early in the spring as the ground will admit of being worked. The plants, after planting, may stand for twenty days without any attention. Then cultivate the same way that you intend your rows to run; ten days later cultivate crosswise, following with the hoe, and being careful to remove every little weed, for if a weed is left until your hoe comes again, it will be large enough to disturb your plant being pulled. They now should be cultivated every ten days, one way, and should be hoed every time you cultivate crosswise, which would bring the hoeing every twenty days. As soon as the average plant has runners long enough to take root, the cultivator should be stopped crosswise, and the runners placed by hand one half each way. Put a little earth on them to keep the high winds from blowing them out of place. Then run the cultivator the one way every fifteen days, until the ground freezes up or becomes too wet with the fall rains to work longer.

I suppose it will be expected that I say something on the care of the plants during the winter. Young plants should be covered lightly with straw as soon as the ground freezes enough to admit of drawing the straw. This should be removed in the spring as soon as the plants show signs of growth. No more straw should be taken off them than to allow the plants to come up through without doubling their leaves. This will injure your plants.

I do not approve of spring hoeing and cultivating if the foregoing plan has been perfectly carried out. If this has not been done then there may be some excuse for spring culture. Now I must leave the plants until after the fruit has been gathered and marketed, as that does not come under the head of strawberry culture.

As soon as the last berries are picked, the plow should be put in and a furrow about four inches deep should be thrown each way from the row, leaving twelve inches. The weeds should then be removed with as little disturbance to the plants as possible.

In about twenty days (if it be not too dry) the earth may be put back, and the centre of the row well worked until it becomes too wet in the fall to work. I have cultivated with good effect in the first week in December. But it is seldom that it is dry enough on any heavy land to cultivate even in November.

Paris, Ont. D. M. LEE.

HOME MARKETS FOR FRUITS.—J. C. Gould: If we are to sell our fruit at home we must have enough fruit to get buyers to come. It was about three years ago before we could get them to come to Lawton, but now we find we can do better than to ship it. E. C. Reid: As Secretary of the State Horticultural Society, I have numerous inquiries as to where fruit can be bought. The number of buyers coming here is increasing, and, if we work the matter up judiciously, the buyers will all come and we will get better prices from the direct competition; and it is more satisfactory to sell your fruit at home and get your money.—*Discussions Michigan Fruit Growers.*

FRUIT PROSPECTS.

E hope, during the coming season, to post the readers of the CANADIAN HORTICULTURIST as fully as possible, both with regard to the prospective fruit crops of Ontario, and also with regard to the best markets for the disposal of the same.

Although it is yet too early to judge with any certainty, yet it is cheering to note that, for the most part, there is a promise of a fairly good fruit harvest.

In Southern Ontario there is a good show of apple bloom upon such varieties as the Red Astracan, Duchess of Oldenburg, Cranberry Pippin and the Greening, but, curiously enough, the Baldwin still continues to be obstinate and shows scarcely any bloom. The Ribston and the Russets also make a very scant show. Cherries of every kind appear to be unprecedentedly full and are set well Even the peach trees promise a heavy load of fruit, which is almost a surprise after so many recent failures.

The late frosts have done very little damage in the Niagara district except to some early strawberry blossoms which have been blackened by them. We doubt, however, if the fruits of the north have escaped so well. We will be pleased to receive the fullest reports from correspondents in every direction as the season advances.

The following are a few reports from other sections of Ontario :

Mr. T. H. Race, of Mitchell, writes : "Judging from the show of bloom, the fruit prospects are not particularly promising in this locality. Pear blossoms are very scant ; plums, on the contrary, very heavy. Apple blossoms are the lightest we have had for years All the smaller fruits promise favorably except the strawberries, which are kept back by the cold, dry weather."

Mr. G. C. Caston, of the County of Simcoe, says : "The prospects here, so far, are very good, but everything is very backward We have had frequent frosts, and early strawberries that were in bloom, have been cut off."

Mr. Thos. Beal, of Lindsay, in the County of Victoria, writes : "Apple, pear and plum trees look well. The frost has done no injury (May 20th). The small fruits all promise well except strawberries, of which the earlier varieties are badly injured by late frosts."

Mr. W. C. Searle. of Clinton, says : "I am afraid that the fruit blossoms here have suffered from late frosts. If any have escaped it is those which bloom late."

Mr. J. M. Waters, of Fernhill, writes : "Our winter here was very mild, and the fruit buds were in excellent condition when the spring opened, but we are having a succession of heavy frosts which have injured peaches, pears, cherries, plums, currants and strawberries to a large extent, while our grape vines have been killed back to the old wood. Very few interest themselves in fruit culture here, and were it not for the tree agent little would be done in fruit culture in North Middlesex '

Mr. D. Nicol, of Cataraqui, of the County of Frontenac, writes : "On all kinds of fruit trees the show of bloom is unprecedented. The late frosts may have injured some of it, but I cannot say to what extent."

Mr. W. H. Wylie, of Carleton Place, writes (May 28) : "Yesterday morning water in exposed places was covered by nearly one quarter inch of ice, and one day last week by nearly half an inch. Grapevines, leaves and buds, were frozen crisp. Plums have been injured and will be a smaller crop than at first anticipated. Currants and gooseberries promise well.

Mr. A. M. Smith, of St. Catharines : "Prospects of fruit : Apples light, only a few varieties blossomed ; peaches, fair ; pears, Bartlett's, light, hurt by frost ; plums, ditto ; berries and grapes uninjured on lake shore."

New or Little Known Fruits.

GREENFIELD'S SEEDLING APPLE.

SIR,—I send you to-day two seedling apples, the tree of which is grown by Mr. Samuel Greenfield, near Ottawa. The apple, it is said, will keep till *June* in a fairly cool cellar; the tree is as hardy or hardier than the Duchess, and it is a free and early bearer. You will notice the apple somewhat resembles the Spy in color and general appearance, the calyx, however, being more prominent. The apple at the present time is not ripe, being quite hard; the flesh is crisp and moderately juicy. I class it as fairly good fruit, about second class; but the hardiness of the tree, its early bearing, and excellent keeping qualities, ought to commend it for this and colder localities, even I think for Manitoba.

P. E. BUCKE, *Ottawa.*

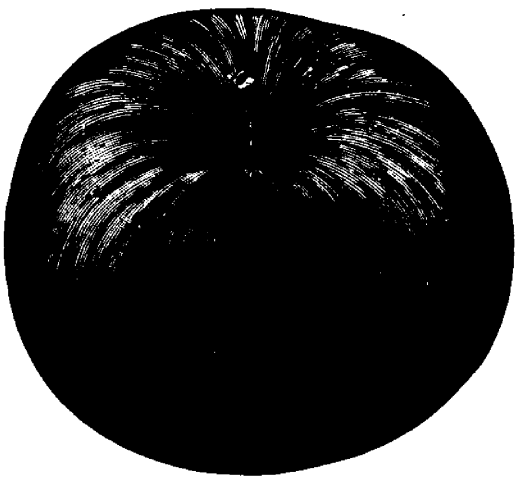


FIG. 39.—GREENFIELD'S SEEDLING APPLE.

This apple is certainly rather attractive. It is a little small to be commended for cooking, and the quality is hardly good enough to make it a high class dessert apple; still its hardiness gives it a claim upon our notice, for the good winter apples, possessing this characteristic, are very few. On this account we have thought best to prepare an engraving of the apple for our pages, in order that a more exact record of it may be kept, than can be made in words.

DESCRIPTION.—Size, below medium; form, roundish, slightly conical, ribbed; skin, light green, washed and striped with carmine; stem three-quarter inches long, in a deep narrow cavity; calyx closed in a very shallow wrinkled basin; flesh white, crisp, tender, mild sub-acid, juicy; flavor poor, but scarcely mature enough to be fairly judged.

GREENFIELD'S CURRANT.

Mr. W. W. Hilborn, of Leamington, sends us two plants of a new red currant for testing. It was originated at Ottawa by Mr. Samuel Greenfield. Mr. Lowe, Deputy Minister of Agriculture, of that place, says it is by far the best red currant he has seen, either in Canada or England. Mr. Hilborn states that he has counted as many as twenty large-sized currants on a single stem, and that the bush is a strong grower and very productive.

The Garden and Lawn.

MORNING GLORYS.

LAUGHING sunshine, summer showers,
Freshen all our leafy bowers,
Each baby creeper firmly clings
To its tiny leading strings.

Morning Glorys ope their eyes,
And look up where the glory lies,
With steadfast gaze the livelong day,
Until the hour when cherubs say

"Our Father," and sweetly sink to rest
Until the hour of all the day the best,
The hour my gentle "angel boy"
Sprang from his little couch with joy,

To count his morning glorys o'er,
And laughed as "Flora" added more.
One day our darling did not rise,
His "glorys" gazed up to the skies,

Where he had fled on angel wing
Right to the "Palace of the King."
God knew his holy love for flowers,
And gave him everlasting bowers,

Where beauteous buds and blossoms spring,
When'ere they hear the seraphs sing,
As the morning stars together sang
When Eden was prepared for man.

GRANDMA GOWAN.

ROSES.

I HAVE just read S. P. Morse's excellent and timely article in the April issue of the HORTICULTURIST, and have noted one point in it which will bear a little extension. He says that "there are nearly a thousand varieties of roses alone." The "Grand Dictionnaire des Roses," published by Max Singer at Tournai, Belgium, in 1888, contains detailed descriptions of over 6000 varieties of roses. Extensive European dealers offer as many as 2000 sorts in their commercial lists, and it is quite common for leading continental growers to exhibit 600 varieties in a single class, at the great rose shows. I remember that at a grand horticultural exhibition held in the Champs Elysees, Paris, a few years ago, the celebrated rosarians, Leveque et fils, of Ivry-sur-Seine, displayed a collection of roses in pots, comprising 1800 varieties. The plants, models of health and vigor, were in full bloom and filled the vast enclosure with their delicious odor. The section of Tea roses was represented by a collection of 600 distinct sorts, and one plant of the hybrid Tea, La France, bore 200 buds and open flowers. The general rose list of the world is constantly increasing, and new classes are from time to time produced by crossing the different sections; recent examples of which we have had in the hybrid Ayreshire and hybrid Rugosa. The French, English and German growers, now annually bring out about one hundred new sorts, principally seedlings, though many fine varieties are the result of dimorphisms or sports. To the latter freak of nature we are indebted for many choice flowers, such as Mabel Morrison, White Baroness, Pride of Waltham, Madame Louis Donadine, Duchess of Albany, Sunset, The Bride, and many others. As to the seedling novelties annually produced, only a restricted number ultimately achieve permanent fame; while the majority, from inherent defects, or lack of distinctive individuality, sink back into oblivion.

Raising roses from seed by the elaborate procedure of cross-fertilization, is now more common than in former times, and is usually more productive of satisfactory results than the old-time method of employing chance-bred seeds.

Not all the varieties produce seeds naturally; the number of such is limited; others bear seeds if artificially fertilized; while many are barren. Of the Hybrid Remontants, a few good seed-bearing sorts may be mentioned: Gen. Jacque minot, John Hopper, Prince Camille de Rohan, Jules Margottin, Lady Suffield, Madame Victor Verdier, Marie Baumann, Victor Verdier, Fisher Holmes, Dr. Andry, Alfred Colomb, Jean Cherpin, Mlle. Annie Wood, Baron Bourtellin, Antoine Ducher, Beauty of Waltham, Baronne de Rothschild, and Duke of Edinburgh. In France, as a general rule, the seed is sown immediately when ripe, and germinates in from one to three months. The young plants often produce tiny flowers, in keeping with the lilliputian size of the plants, the first month, and indicate to a certain extent the color and future form of the flower, but it is not

till the second or third year, when it attains its full development, that a satisfac tory judgment can be formed of its beauty or merits, or that its imperfections may be detected.

In England, seedlings often bloom when not more than three inches high, and at the end of the second or third month; while others of the same sowing do not show their flowers before the end of the second and third year. It often occurs that from a batch of 2,000 seedling plants, not more than one or two prove worthy of propagation; hence it may be seen that a rosarian must be equipped with an inexhaustible fund of hope, patience and energy, to stoically endure the oftime discouraging results of his labor, and above all, he must be endowed with a boundless love for the rose.

A writer in the January issue of the *American Garden* gives an amusing account of his experience as a hap-hazard florist and nurseryman, and in an incidental way reveals a few modern trade secrets. He relates that, "When Enoch and I get orders for huckleberries and toad-flax, we do not bother to go to work and grow them, but go out in the cow-lot and dig them, and we can get ten dollars worth from a square yard, and leave enough for seed. Enoch and I have sold the cow-lot clean of weeds half a dozen of times already." There is a depth of wisdom, and a strong dose of sarcastic truth in this seeming exaggeration, for if we are to judge by some of the catalogues of the present season, the principle which animated Enoch and his master is being carried out almost to the letter. Two catalogues at the present moment *lying* on my desk sing the praises of one of the most insidious and irrepressible weeds I have ever met. The botanical name, *calystegia pubescens*, is given, to which is added the euphonious and alluring titles of "California Rose," "Double Pink Morning Glory," "Rose Vine," etc.

Several years ago, in an unguarded moment, I accepted a few roots of this treacherous humbug, from an enthusiastic friend, whose knowledge of plants was limited. Unaware of the shortcomings, or rather, the "longcomings" of the thing, I planted it. It spread over my garden with startling rapidity, and in a couple of years had almost taken complete possession of it. Then followed unceasing labor to eradicate the pest—a result not yet accomplished—for every fragment of root left in the ground, even if not more than an inch in length, forms the nucleus of an independent plant, sending out yards of slender snake-like roots in all directions, which crop up here and there in riotous and prolific vigor.

The feverish thirst to outstrip business rivals in the novelty line, leads some of our florists of the present day to play high stakes, *i. e.*, their reputation, in carrying on the game; for very few customers, who may be tempted to buy worthless plants, will, after such an experience as I have had with Calystegia, "rise up and call them blessed," "*au contraire.*"

Yet there are truthful items in the elaborate description, for instance: "It is perfectly hardy"; not the shadow of a doubt as to that, in fact, it's too hardy

"When once planted, will live and increase every year;" true as gospel. "Beautiful as a pot plant;" well, yes, after mature reflection, I concede that a pot is the only safe and suitable place for it, and to make matters doubly sure, after it has been carefully potted in rich loamy soil, slightly mixed with bone dust, pitch the plant, pot and all, into a roaring furnace, in case you should not have a lime-kiln in full blast in the vicinity.

St. Féréol de Ponsonby, Que., May 1st. F. LANCE.

CARE OF OXALIS.—The oxalis need never be cut down for lack of blooming capacity, for it will bloom on and on. But common sense teaches that if permitted to do so, it must in time exhaust itself. Therefore in May or June when turning some of the window plants out into the borders, and laying away others to rest a season, cut off all the leaf stems of the oxalis close to the earth; let the earth thoroughly dry for a week or two, then turn the whole out upon a newspaper and search the earth carefully, saving not only the old bulbs but all the tiny new ones. Three old bulbs may in one season throw out from two to four or more bulbs each; some of them may not be larger than half a pea. Old and new may be rolled in tissue paper and laid away in a dry place (so they may not sprout, as they will do in a moist spot) to remain until September. But as the young bulbs not having worked need no rest, my experience teaches that their season of blooming may be expedited and improved by setting them out in new earth and allowing the foliage (nip off the buds for five months) to put forth, and the bulbs to attain larger growth for winter blooming. If one saves, as he should, all the oxalis bulbs, he ought in a year or two to have enough of all varieties to have them divided into two distinct sets, winter and summer bloomers, thus giving each a season of rest. The summer bloomers may be set in the rockeries or in hanging baskets on the balconies. The earth should be fairly rich, and the bulbs covered to not more than the depth of half an inch. Set in a light place, but they do not like too hot a sunlight.—F. H.

A BEAUTIFUL HEDGE.—For an ornamental deciduous hedge almost anywhere there is nothing to surpass it, if to equal, the Japan Quince (Cydonia japonica.) There are a number of deciduous plants that make pretty hedges, but the most of them are difficult to form and troublesome to keep in good shape and order. The Cydonia is almost entirely free from these objections, provided only that young plants be used to start with. What a lovely sight it is when in bloom, and how picturesque at all other times! Those who have a fancy for more than one color, can use the rose and white-colored to mix with the crimson. There is this farther to be said in favor of the Japan Quince, that scarcely any manner of neglect can spoil its beauty. It can be easily and quickly brought into shape again. It will always retain its beauty, though it may lose its primness by neglect to be sheared. No amount of shearing, however, can give it that hard, solid surface so common to evergreen hedges.—G.

The Canadian Horticulturist

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

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

NOTES AND COMMENTS.

THE SOUTH HAVEN SUB-EXPERIMENT STATION, in charge of Pres. Lyon, was referred to on page 148. We are informed that the tract of land for special experiment is a portion of Mr. Lyon's own farm, and that it is rented, not purchased, by the Government. Mr. Lyon receives a special grant for his services.

THE LARUE APPLE.—At our last meeting at Hamilton, Mr. G. C. Caston, of Simcoe Co., said that he has been growing this apple in his orchard for some years, and finds it to be one of the best for the market. It keeps with him until February, and brings a higher price than any other kind which he grows. Unfortunately it was affected somewhat last year with the apple scab, but it is not generally subject to this evil.

DELAY IN ISSUING LOCAL FRUIT LISTS.—Mr. N. J. Clinton, Windsor, complains of the delay in issuing lists of fruits adapted to various counties, a work which was placed in the hands of a special committee. He thinks it very important that they should be out at once. We regret to say that this work was in too crude a state at our winter meeting to be suitable for publication; it will, no doubt, be completed before the next meeting, and printed in our next annual report.

FRUIT GROWERS REJOICE.—A grand discovery, so says Prof. J. A. Lintner, State Entomologist for New York. He shows that Paris green and London purple can be used of double or treble strength if mixed with lime water, and no evil results will follow. If the Bordeaux mixture be used as a dilutant instead of lime water, the poisons can be applied four times as strong as if only pure water be employed. London purple should not be used on the peach unless

diluted with 500 gallons of water to the pound. This poison is more likely to injure the foliage of fruit trees than are the other arsenities, being more readily absorbed by the leaves.

A REMEDY FOR APPLE SCAB.—The most approved fungicide and the most economical one, which has yet been suggested for destroying the apple scab, is ammoniacal carbonate of copper in its improved form. It is prepared as follows:

3 oz. carbonate of copper,
1 lb. carbonate of ammonia, and
50 gallons water.

Mix the carbonate of copper with the carbonate of ammonia, pulverized, and dissolve the mixture in two quarts of hot water. When they are wholly dissolved, add the solution to enough water to make the whole quantity fifty gallons.

The carbonate of ammonia can be purchased at 15 cts. a pound, and therefore the cost of the whole fifty gallons of this mixture, counting the copper carbonate at 60 cts. a pound, would not be more than 30 cts.

THE RUSSIAN APPLES.—We feel sure that the Russian apples sent out this spring will give satisfaction. All except the Golden White were grown by Mr. Craig at the Experimental Farm, Ottawa. They were all rooted, and have come to us in good order, and we hope our subscribers will have success with them. The following is a list of the varieties sent out, additional ones being added because there were not enough of the Sari Synap and Stone Antonovoka: Plodovitka, Arkad, Sari Synap, Stone Antonovoka, Titovka, Lebedka, Kara Synap Golden White, Polu Miron, White Pigeon, Round Borsdorf, Winter Stripe and Saccharine.

LAWSON VALENTINE.—The death is announced on the 5th of May, of Mr. Lawson Valentine, at his home, Houghton Farm, Orange Co., New York. To many of us, this gentleman is known as the moving spirit in the publication of the *American Agriculturist*, *Rural New Yorker* and the *American Garden*. His capital had been made in mercantile life, but as a matter of choice, he had devoted himself latterly to experiments in agriculture on a large scale on a tract of land which he named "Houghton Farm." Here he had proposed to conduct experiments after the manner of those carried on by Messrs. Lawes & Gilbert, of Rothamsted, Eng, purely from philanthropic motives. The loss of such men seems like a universal calamity.

FRUIT INSPECTION.—The Committee of our Association to whom this subject was entrusted at the winter meeting last December, interviewed the Hon. John Carling, the Minister of Agriculture for the Dominion, on Friday, May, 1891.

It was shown that Canadian apples were in danger of losing the high reputation they now hold in foreign markets, owing to careless packing and want of uniformity in grading. Growers could not sell by letter to distant buyers without being wholly at the mercy of the latter, should any dispute arise regarding quality. What is needed is a uniform system of packing and grading, and thoroughly qualified inspectors, who could by inspecting every tenth barrel, more or less, satisfy themselves regarding the grade and condition of a car-load of apples, and brand them 1 or 2 accordingly. Every barrel should have grower's or packer's name and the inspector's brand should include the words Ontario, Canada, or Nova Scotia, Canada, as the case might be, with the grade No. 1 or 2 of the contents. Although this would not be compulsory upon the shipper, yet the inspector's brand would so win the confidence of buyers and a consequent high price that very soon no one could afford to export apples without first submitting them to inspection.

The whole matter was most favorably considered by Mr. Carling, and we feel quite encouraged to hope for some action to be taken at an early date.

Question Drawer.

TO PREVENT GRAPE MILDEW UNDER GLASS.

SIR,—**What is the best preventive of mildew on grapes grown under glass?**

J. M. MCAINSH, *West Nissouri.*

Reply by Mr. John Craig, Experimental Farm, Ottawa.

One of the first essentials in seeking exemption from mildew in growing grapes under glass is a well-drained soil. If situated on a gentle slope with a gravel subsoil, making artificial drainage unnecessary, so much the better.

The fungus spreads rapidly in a moist, warm atmosphere, and is greatly checked in dry air, and also by heavy syringing with water, which washes away the spores.

The powdery form (*oidium tuckeri*) of mildew, most prevalent in grape houses is entirely external in its habits, and yields readily to the application of flowers of sulphur. All dead leaves should be removed and burned, to destroy the conidia, or spores. Flowers of sulphur form a complete and thorough cure, as they destroy the parasite without injuring the vine. The sulphur should be dusted on the vines when growth begins, again when the blossoms open, and again when the grapes are beginning to ripen. Mr. Nicholson, of Kew Gardens, says, in a forcing house the heating flues may be washed with "a mixture of ¼ lb. each of flowers of sulphur and of quick lime, in three gallons of water." The fumes emitted kill the fungus. The door of the house should be kept closed for eabout an hour, to retain the fumes, and thn the place should be well aired.

The downy mildews represent a more difficult family of parasites to treat uccessfully, the tissues of the host plant being penetrated by the mycelium of the fungus. As in the former case, all dead leaves and prunings should be burned.

The following remedy has been used with considerable success: it is prepared by boiling 1 lb. of flowers of sulphur and 1 lb. of quick lime in 5 pints of water in an earthen pot for ten minutes, stirring constantly; when it has settled the clear liquid is poured off. The plants should be syringed with a mixture of this preparation in one hundred parts of water. This will kill the outside and fruiting threads, but the internal mycelium renders a thorough cure very difficult.

I had excellent results last season in treating downy mildew on outdoor grapes with the ammoniacal copper carbonate 2 oz. to 25 gallons of water, and would recommend a trial with this under glass. When it is not readily procurable, the Bordeaux mixture can be used with equally good results, as demonstrated by experiments by the Department of Mycology at Washington last year. Formula for preparation as given in Horticulturists' Rule Book: Dissolve 6 lbs. of sulphate of copper in 16 gallons of water. In another vessel slake 4 lbs. fresh lime in 6 gallons of water. When the latter mixture has cooled it is slowly poured into the copper solution, care being taken to mix the fluids thoroughly by constant stirring. Prepare some days before using. Stir before applying.

NUT TREES FOR WIND BREAK.

Would you oblige me with information as to the value of nut trees as a wind break. Do they grow well on sandy soil? Would the walnut or filbert screen an orchard from the wind as well as pine? Would the catepillars that infest the walnut be likely to attack peach or other trees, when having distroyed all leaves on the nut trees? Please give me advice as to planting; and the distance apart the trees should be set?

WM. CLAPTON, *Fenwick, Ont.*

Reply by Hon. H. J. Joly, Quebec.

In answer to the enquiries of yours of the 10th inst, I do not think the Black Walnut fit for a wind break. Its leaves come out too late and drop to early, and its branches are too easily broken off by the wind, and even by very heavy summer rains; in fact, it requires shelter for itself against the storms instead of affording it to other trees. The spruce or pine are much better for the purpose.

You ask "if the Black Walnut would grow well on sandy soil?" I certainly would not select it for planting on such soil, except as an experiment which ought to be made. Its favorite home in the west is the deep alluvial soil. I have only tried it near Quebec, on clay soil and on some islands formed at the mouth of a river, by successive deposits containing, with a large proportion of sand, other elements of much richness, which make it very different from ordinary sandy soil.

We have found our young Black Walnuts very free from caterpillars at a season when the apple trees in the orchard close by, are covered with patches of

young caterpillers which require vigilance to keep them from spreading. At that season there are no caterpillars on our Black Walnuts. Later on a very few may appear, but in such small numbers that it appears as if, so far, the Black Walnuts have found no special enemy in their new home. The strong aroma emitted by their leaves may tend to keep away caterpillars.

GOOSEBERRY FRUIT WORM.

SIR,—Last year our currants and gooseberries were webbed together by some insect with a web resembling a spider's web. When the fruit was ripe, a green worm resembling a cabbage worm was found. Fully one-half the fruit was destroyed.

SUBSCRIBER.

This pest is no doubt the gooseberry fruit worm. According to Mr. Saunders' "Insects Injurious to Fruits", it spins its silken cocoon in the leaves or rubbish and remains in a small brown chrysalis until the following spring. In the month of April the moth appears and deposits its eggs in the young gooseberries soon after they are set. As there is only one brood during the year, they may be more effectually destroyed by hand picking, particularly as its habits are such that its presence can be easily detected. All berries coloring prematurely should be examined and the larva destroyed before it escapes to the ground. The leaves or rubbish under the bushes should be gathered and burned and the ashes scattered freely over the ground in their places. Dusting the bushes freely with air-slaked lime early in the spring helps to deter the worms from depositing their eggs on the young fruit as it forms.

PLUMS FOR LACHINE, QUEBEC.

***Sir*,—Would you please advise me what kind of plums would do for this district; an early, medium, and a late variety? The kinds I see mentioned for South Ontario are too tender here. The Damson bears well but is not profitable. Are those western kinds—Weaver, Mariana, DeSoto, etc.—of any decided merit? I have planted some Moore's Arctic, but have seen it unfavorably spoken of lately.**

C. P. NEWMAN, *Lachine Locks, Que.*

Reply by A. A. Wright, Renfrew, Ont.

In reply to Mr. C. P. Newman's letter, asking for information about Weaver and DeSoto plums, I can state that they are undoubtedly good varieties for northern latitudes, not only as regards hardiness and productiveness, but also as regards quality. Mariana, I know nothing of. Moore's Arctic is too tender for us here, but doubtless will succeed with him. But Mr. Newman is in a very favored locality—considering his northern latitude—for, owing to his insular position, and consequent exemption from early fall frosts, he can grow varieties that would be perhaps more saleable than any of these above mentioned. For example, Corse's Great Bearer or Bradshaw, both dark color, for early, or, if he prefer a yellow, take Yellow Gage; Admirable, for medium, and Victoria, for late.

Mr. Jas. Brown, of 775 Craig St., Montreal, has a very remarkable plum. It is not on the market, but doubtless cuttings could be got, and Mr. Newman could do his own grafting. It begins to ripen about the 15th of August, and continues ripening for a month, the ripe fruit dropping off as they mature. Some years ago there was a very superior variety of Damsons grown on the farm of the late Dr. Leitch, near the Blue Bonnets, and I have no doubt he could get some of these there. In fact, I see nothing to hinder Mr. Newman from growing any of the standard varieties. If he would only attend the exhibition of the Montreal Horticultural Society this fall, and see for himself the magnificent fruit that will doubtless be on exhibition there, and consult with either Mr. Brodie or Mr. Shepherd, who are always in attendance at these exhibitions, he will have no trouble in selecting the varieties best suited to his wants.

USE OF LONDON PURPLE.

SIR,—The subjoined letter is clipped from the *London Advertiser* :

"Having heard that Mr. Flint, of Byron, had a very large crop of apples last season, of which an unusually large portion was fit for shipping, I called on him to find out the method he adopted to obtain such desirable results, and found that he sprayed his trees only once with a weak solution of London purple in the month of June. Mr. Flint is so well satisfied with the result of his experiment that he will treat his trees in the same way the coming season. "Yours truly, "M. K."

What better for spraying purposes, or any other purpose, is London purple than Paris green, and what effect can either one of them have as a remedy for blights, such as we had last year? T. H. RACE, *Mitchell.*

The relative merits of London purple and Paris green, for spraying the apple and pear for the destruction of the Codling moth, has over and over again been discussed in this and other fruit growers' journals, and the conclusion is in favor of the Paris green. Both are arsenical poisons ; the London purple is the refuse product from the preparation of aniline dyes, and is exceedingly variable in strength. For this reason it is not so reliable as the Paris green, which, if unadulterated, is more constant in its percentage of arsenic.

Neither Paris green nor London purple could have any effect as a remedy for the blight or the scab upon our fruit trees.

TREES HOLDING FOLIAGE.

SIR,—Is it any advantage for a tree to hold its leaves late in the autumn, and if so, what? W. E. TAYLOR, *Beaverton.*

Trees cultivated during the summer and late in the autumn will usually hold their leaves much longer than those which grow in the sod, or in uncultivated ground. Trees of which the wood is tender should not be kept growing late in the season, lest they do not reach a sufficient degree of maturity before the winter sets in ; therefore, in such cases, cultivation should cease early in the autumn.

PEAS AND BEANS ON THE SAME GROUND.

SIR,—How many years should peas and beans be grown on the same ground?

W. W. R. *Toronto, Ont.*

Reply by Mr. J. J. H. Gregory, Marblehead, Mass.

I cannot say from actual test. Peas when the seeds are ripened are more exhausting than when picked green. A neighbor tells me his experience. He planted peas to eat green ten years in succession on the same piece of ground. The first three years the yield was the same, the next five years the yield began perceptibly to decline, and the last two years they were nearly an entire failure. They were manured and treated the same each year.

⁂ Open Letters. ⁂

TRAINING GRAPE VINES.

The subject which I wish to bring before the notice of your readers is a subject which I have often seen information asked for, namely: What is the best plan to train grape vines?

Now, sir, in order to get at the best mode we must consider the requirements of the plant in question. The principal things, in my estimation, are, first, sunlight; second, every branch equally exposed to the dew; third, its adaptability to laying down for winter protection; fourth, exposure to high winds and gales; fifth, expense and general utility.

Now, with regard to the old-fashioned method of high posts and wire stretched one above the other, or strips nailed on, as the case may be, and the vines fastened to them, I think you will agree with me that it does not give to every branch equal sunlight, nor equal dew.

If you look at vines so trained, you will see the largest grapes and the strongest growing wood at the top of the trellis and oftentimes those at the bottom are only half the size.

Now, the flowing sap in the grape vine is like hot water in the hot water pipes, the highest pipe in the house always works the fastest (providing the pipes are of equal size) and if we want each branch of the grape vine to grow alike, we must train each individual branch on the same level or distance from the ground.

Now, in the method which I propose, I would take four or five wires (you can use any number of wires) and stretch them side by side, say eight or ten inches apart, (distance according to number of wires used).

As all climbing plants grow best towards the south, we will suppose a row of vines planted running north and south, this will require two strong posts at each end. At the north end place one post in the ground on each side of the first vine from three to four feet apart according to the number of wires used. Now, place two in the ground at the south end, same distance apart, but ten feet beyond the last vine, to allow for growth of vine in that direction. In case of a long row it will require some central support to carry weight of wire and vines. I would suggest two small posts placed opposite each other, and in the center between two vines. Now saw off all posts 16 or 18 inches from the ground. The next thing required will be crossbars for each set of posts, pieces say, 2x2, the two end ones to be let into the posts at the back, the center ones can either be nailed on top or dovetailed in, the latter being most convenient for future use. Now fasten your wires to end crossbars, placing them underneath the bar, but over all the centre ones. The strain coming on the underside of the end bar will tend to keep it in place without nailing. The idea being, that when you want to lay down your vines for winter protection, if the cross-

bars are all dovetailed in, you have only to lift them out of their place and everything drops to the ground, so that an acre of vines can be made ready for covering in about an hour, which is a great advantage over the old method, having to untie them all from the trellis, and in the spring after the covering is removed you can lift everything back into its place. The vines should be made to grow all one way and two or even three branches may be tied to each wire.

I think it will be seen at a glance that this method gives every branch perfect sunlight and full exposure to the dew, and that it is the best for convenience in laying down for winter protection, and that the vines are not so much exposed to winds and gales as the old-fashioned method of upright trellis, and I don't think the first cost will be any greater, while the labor saved every fall and spring will be considerable.

There are some other points also which I claim for this method, which I think are of considerable value. You will have noticed that, unless the vines are well pruned back every year, there is very little foliage near the roots. Now, if the vines are planted near enough together, the tops of one will in a few years cover the roots of the other and form a perfect shade for them, which, in my mind, is necessary they should have. I have noticed that in laying down vines, if the wood is several years old it is almost impossible to bend them down without a certain amount of injury being done to the wood. Now, in my plan, the vines are started in a slanting direction, and the bending is very slight.

I send you this, Mr. Editor, and if you think it worth inserting in the HORTICULTURIST for the benefit of those who live in districts where it is necessary to cover vines for winter protection, please do so.

E. LANE, *Galt.*

PRICKLY COMFREY.

Dear Mr. Editor,—Having read carefully Mr. A. G. Heaven's remarks on Prickly Comfrey, I feel it my duty to give your readers the benefit of my experience with the above forage plant. Four years ago last March I agreed, after a good deal of persuasion by an agent from Michigan. to invest $5 (which was only one-third of the supposed value; the other $5 to be called for in the fall) in Comfrey root, which was shipped to me the following month, C. O. D., per Detroit. I prepared the ground and planted similar to Mr. Heaven's direction. It grew fast, answering in thisparticular everything the agent represented it to do. But alas! when I came to cut and feed it, the cows would not touch it, nor yet the horses. But I was not satisfied with one trial; I tried and tried again, thinking I might get them to cultivate a taste for it, but it was like teaching some English people to eat tomatoes, for I have never yet seen them eat a mouthful of it. We left it in the ground for two seasons, and then I ploughed it out. I am told the root is used for medicinal purposes, but the amount the druggists use is limited. The agent called it Caucasian Prickly Comfrey, but, from the description Mr. Heaven gives of the growth of the plant, I think it is identical with those I experimented with.

N. J. CLINTON, *Windsor.*

TASMANIAN APPLES.

Sir,—The prospects of fruit here seems very uncertain. The season is backward, and we are still having very cold winds, and the trees are not yet in blossom.

It may interest you to know that this season there will arrive in England 140,000 cases of Tasmanian apples. This fruit is brought in the mail steamers from Hobart, in refrigerators, and, as a rule, arrives in very fine order. The cases contain about thirty-six or forty pounds of fruit, and they consist principally of King Pippins, Ribstons, Blenheim Oranges and Scarlet Nonpariels all soft fruit. They reach us as if freshly gathered.

The fruit consignment of 800 cases sold at prices varying from 14/ to 20/ per case. The second arrival of 12,000 cases this week realized from 9/ to 15/. The next steamer brings 25,000 cases.

Although the prices may appear high, the incidental expenses are tremendous. The freight, cost of case, packing and incidental expenses alone amonnt to 7/6, and this without the cost of the apples.

GARCIA, JACOBS & CO., *London, Eng.*

SURE DEATH TO THE CURRANT WORM.

Mr. Editor,—I often have read of recipes with the above heading, but lacking in details. I think the following will fill the bill, as I have tried it with success:—Take one pound of good white hellebore, and to take all the goodness out of it, pour a pint of boiling water over it; let stand till it cools. Now take about three tablespoonsful of flour, make a thin paste of it and mix it with the hellebore tea, put into a patent pail, and fill up with water. Apply with a hand-broom or syringe. The paste makes the hellebore adhere to the foliage, so that no ordinary rain will wash it off.

W. S. TURNER.

GRAFTING THE MULBERRY.

SIR,—In the April number of the HORTICULTURIST the question is asked, what kind of fruit can be grafted on the Russian mulberry? You can graft Downing's everbearing mulberry, or the Black English on it with success. We have some here that made four feet of growth last summer, grafted on the Russian stalk.

WM. WALLACE, *Ridgetown*.

Our Book Table.

REPORTS AND BULLETINS.

BULLETIN No. 10 of the Central Experimental Farm is interesting to fruit growers, being specially devoted to the treatment of apple scab, grape and gooseberry mildew. It has been carefully prepared by Mr. John Craig, the Horticulturist, and will be sent free to all on application.

BULLETIN No. 62 of the Ontario Agricultural College deals with the bark louse and the pear trees' slug, and has been prepared by Prof. J. Hoyes Panton, Professor of Natural History. Both these insects are so widespread and are doing so much mischief to our fruit orchards that this bulletin is quite opportune, and should be in the hands of every fruit grower.

The College bulletins are, of late, being printed in a larger sized pamphlet, and have a much more creditable appearance than formerly.

THE EXPERIMENTAL FARMS. Mr. William Saunders, Director of the Experimental Farms of the Dominion of Canada, has issued through the Department of Agriculture a very large and complete report for 1890, of over 300 pages, showing the great amount of really valuable work which is being accomplished by the Experimental Farms. While the departments which interest the general farmer are of a most practical and useful nature, we are pleased to notice the work that is being undertaken in the line of Horticulture, under the able direction of Mr. Craig, the Horticulturist. New fruits, both native and foreign, are being tested; seedlings and small fruits are being produced on a large scale, many of which promise to be of great value. We hope that the Ontario Fruit Growers' Association may be made the means of testing some of the best of them, in order that we may know how they are suited to the various localities.

THE ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM, 1890. A valuable report of over 250 pages, by President Mills, showing that this College is thoroughly alive and wide awake in all departments of agriculture. Not only are the professors all men of great practical as well as theoretical knowledge, as is seen by their work among farmers at the numerous meetings of the Institutes, but the farm itself is being conducted in a most creditable manner. The great want here is a professor of Horticulture, who can devote himself entirely to the working out of this department, in its relation to commercial fruit culture. No doubt this want will be supplied in the near future.

BOOKS AND MAGAZINES.

MEEHAN'S MONTHLY is an octavo magazine of sixteen pages, with a colored plate of some wild flower in each number. Devoted to American wild flowers and general gardening. Edited by Thos. Meehan, Germantown, Phila. Price $2 per annum. The first volume commences with July 1st, 1891.