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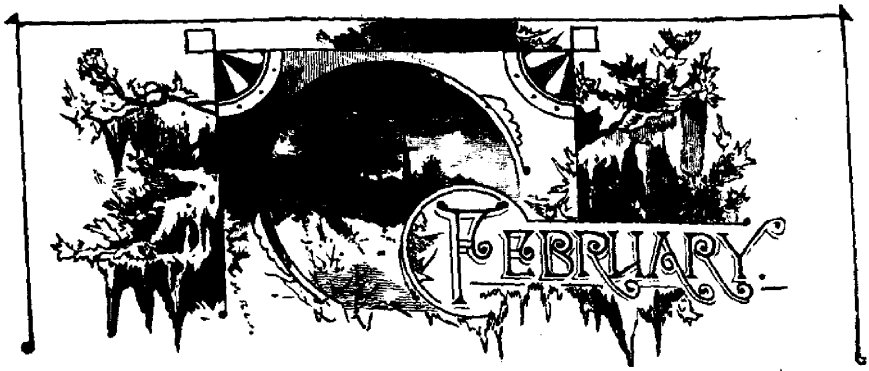
THE

Canadian Horticulturist.

VOL. XIII. 1890 NO. 2.



SOME PROMINENT CANADIAN HORTICULTURISTS.—IX.

WILLIAM SAUNDERS, F.R.C.S.

NO APOLOGY, we are persuaded, is required, for substituting for our usual colored frontispiece of some fruit or flower, the photograph of one so highly esteemed by the fruit-growers of Ontario, as Prof. Wm. Saunders, Director of the Experimental Farms of Ontario. Ever since the early days of the history of our Association his countenance has been familiar to us as that of one whose very presence seemed to contribute much to the pleasure and profit of our gatherings. Possessed of remarkable ability for grasping many facts and systematising all into the one harmonious whole, endowed with a fertile brain for divising wise schemes, and withal having a pleasing address coupled with a modest, yet firm bearing, he has advanced from one position to another, without that adverse criticism which so often falls to the lot of those who reach exalted stations.

Mr. Saunders is a native of Crediton, Devonshire, England, where he was born on the 16th of June, 1836. At the age of twelve he came to Canada, and was at fourteen apprenticed to a chemist, a line of business he pursued until quite recently, when called to his present position by the Government of Canada. In addition to his chemistry, he pursued the somewhat allied studies of Botany, Entomology and Horticulture, thus

unconsciously preparing himself for the requirements of his present position. In May, 1863, he published in the *Canadian Journal* a list of 545 named species of plants which he had collected and identified in Western Ontario. In the same year, he took an active part in the formation of the Entomological Society of Ontario, then of Canada, a society in which he has been an arduous worker, as his many papers, both in its annual report and its monthly *Journal* clearly testify. The *Canadian Entomologist* was first published in the year 1868, and in 1875 Mr. Saunders was appointed editor of it, and continued to write voluminously for its pages. Ten years later, our own journal, THE CANADIAN HORTICULTURIST, was first published, its promoters catching the idea, no doubt, from its sister publication.

In 1867, he was elected one of the directors of the Ontario Fruit Growers' Association, and took a very active interest in its prosperity. Catching the spirit of the discussions, he planted largely of fruit and ornamental stock, both for profit and experiment, in the neighborhood of London, and thus was able to speak from practical acquaintance upon the subject of horticulture.

It seemed to be universally recognized that Prof. Saunders was by nature suited to lead, for in 1875 he was made President of the Entomological Society; in 1877, President of the American Pharmaceutical Association; in 1882, of the Fruit Growers' Association of Ontario; and in 1885, Director of the Experimental Farms of the Dominion of Canada.

It does not here concern us to speak of his work as a member of the American Association for the Advancement of Science, as Fellow of the Royal Microscopical Society of London, as Public Analyst of Western Ontario, or as Professor of Materia Medica in the Western University, at London, Ont. It more particularly concerns us to note that it was on the 19th of September, 1882, at an annual meeting of our Association, held in Kingston, that he was made President of our Association, a position he filled until September, 1885, when he was called to his present office.

His able addresses, during that period, are found in our Reports of those years, and are still fresh in our memories, as also is the record of his work in preparing the collection of tender fruits, in a preservative fluid, for the Colonial and Indian Exhibition, which reflected so much credit upon our country, and drew the attention to it of so many intending settlers.

It is not surprising, then, that when the Minister of Agriculture was looking for a man qualified to organize and conduct an experimental farm, that Prof. Wm. Saunders should have been selected; and we, as fruit-growers, regard his appointment as a subject for much congratulation, believing, that in course of time, his experimental work in the line of Horticulture will do much toward advancing the interests of our favorite industry.

EXPERIMENTAL GROUNDS OF "THE CANADIAN HORTICULTURIST."

THE EXPERIMENTAL GROUNDS OF THE "CANADIAN HORTICULTURIST."

SINCE it is the fashion with some of our contemporary horticultural journals to boast of their experimental gardens, in order that their readers may not have it to say that their editors are only bookworms and know nothing practically of gardening, we have thought it wise also to give our readers a glimpse of the Woolverton Homestead and fruit farm, sometimes referred to in these pages as "Maplehurst."

It is winter. The deep snow will prevent our tramping through the orchards, so we will climb the "Mountain" and take a view from there. Yonder is the beautiful Ontario, now ice-bound and scarcely distinguishable from the sky which meets it; and lying between, the orchard of nearly one hundred acres, planted with apple, pear, peach, plum, cherry, quince trees, grapes and small fruits of many varieties. On the west lies the fruit farm of Mr. E. J. Woolverton, President of the Niagara District Fruit Growers' Stock Co., an organization for the sale of fruit in the various cities; and on the east, that of Mr. A. H. Pettit, President of the Lincoln County Farmers' Institute.

The farm was purchased nearly one hundred years ago by the writer's great-grandfather, and formed a portion of a four hundred acre stock and grain farm. About thirty years ago it was used as a nursery of young trees, by Mr. C. E. Woolverton, with Mr. A. M. Smith, now of St. Catharines, as a partner; both of whom also took an active part in the early meetings of our Association, and were among the eighteen constituent members who met for its formation in the Board Room of the Mechanics' Hall, Hamilton, in the month of January, 1859. Latterly it has been entirely devoted to fruit culture and experimental work. The apple orchards are of various ages, some of them nearly one hundred years planted, and consist of about sixty varieties. There are some twenty or thirty kinds of pears grown, the chief among which is the Bartlett, of which variety there is a large bearing orchard. The principal market grape is the Concord, and some eighty other kinds are being grown for trial. The Wilson and the Crescent are the chief strawberries, but there are several out of the forty varieties under test which promise to be more desirable. And so we might go on to enumerate quinces, plums, cherries, blackberries, etc., but enough is already mentioned to give our readers some idea of the practical work of which the results are from time to time given to the readers of the CANADIAN HORTICULTURIST.

SEASONABLE HINTS.

CONVENIENT LADDERS.

A LITTLE forethought during the leisure hours of the winter season will provide many a useful implement for the farmer and gardener. During fruit season it is almost impossible to have a super-abundance of ladders for gathering fruit. In recent volumes we have described several easily made fruit ladders, and now give cuts of one or two others.

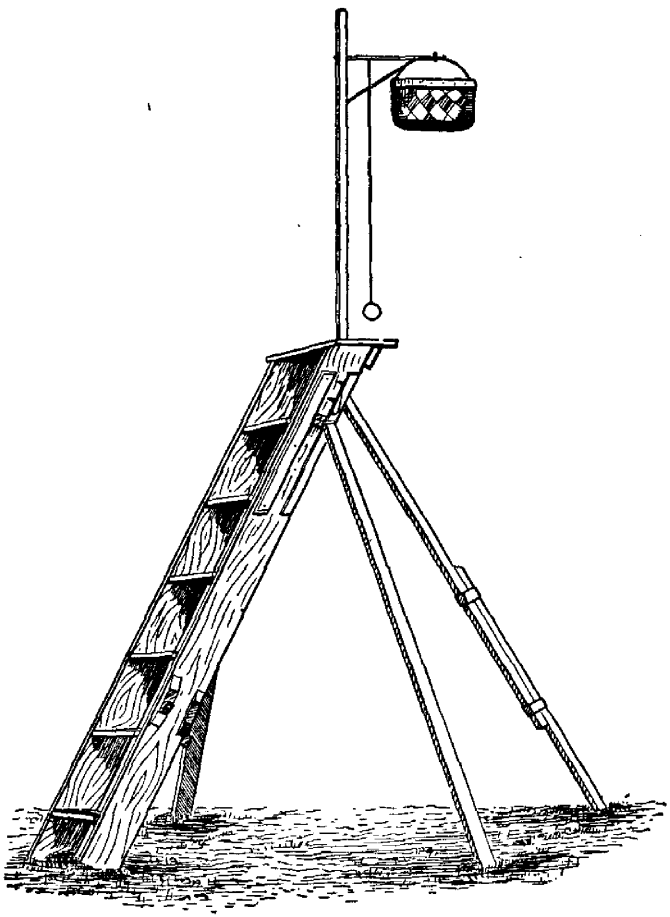


FIG. II.—SELF-SUPPORTING LADDER.

A correspondent, Mr. Harris, of Meaford, sends a photograph of a self-supporting step-ladder, which he describes as resting on five bearings, three of them adjustable as to length and position, and easily adapted to all inequalities of surface, perfectly secure, and very portable; a six-foot ladder

weighs about 40 pounds (see fig. 11). The crane, or basket and hook holder, rotates, or may be shifted to either side of the operator, will support thirty pounds of fruit in basket with ease, and the legs all fold in when required. The object of the inventor to provide a safe stand, and at the same time increase the facilities of the operator in picking fruit, pruning trees, etc., giving him the full use of both hands, and placing the basket within easy reach of the same, thereby saving time in transporting the fruit from the tree to the basket. The inventor believes that by the use of this ladder a great saving of time will be effected in the picking of fruit, which is equivalent to a saving of money; also that fruit can be handled with less damage by bruising, etc., and therefore bring more money.

FIG. 12.—LADDER FOR DWARF PEAR TREES.

The *Ohio Farmer* illustrates a very convenient self-supporting stepladder for use in gathering fruit from high grown dwarf pear trees. Most of us know how difficult it is to use an ordinary ladder in a full grown dwarf pear orchard, for, either the ladder will bruise the fruit in placing, or will be so insecure as to render climbing unsafe. Fig. 12 represents the ladder referred to, and is so simple in construction that it needs no description. Its use in case of slender trees is plainly evident, whether pruning or fruit gathering is required to be done.

PRUNING THE GRAPE.

The best time to prune the vineyard is, no doubt, the month of November, when the weather is pleasant for the operator, and the vines need loosening from the trellises, and laying down for winter protection, especially at the north; but, if done in that month, they should be pruned a little longer than if left until March, because the severe weather of winter is very likely to destroy the last bud, or, at least, to weaken it. In practice, however, a great many postpone this work until the latter date, a time of chilling winds, muddy walking, and of bleeding vines. However, better late than never, and hence the following hints which may be of service to the beginner. It is astonishing to any one who is posted, to notice the

neglect of pruning by many grape-growers. Year after year, the tangled, matted masses of wood continue to grow more and more tangled, until all hope of better things is dead.

The old system of staking the vines is still followed in some parts of the country; a much more expensive method than that of the post and wire, as well as more troublesome to keep in order; besides, it allows no satisfactory method of pruning. The simplest possible trellis is the post and wire, for which solid posts six feet high may be placed forty-five feet apart, and stakes at distances of fifteen feet between, to all of which the wire is stapled. Three strands of galvanized wire, No. 13, or even as small as No. 16, may be used, the lower one about two feet from the surface of the ground. A very simple method of bracing posts is used about Grimsby, by which wires are tightly strung from the top of the post to a flat stone about which it is wound, and which is buried a few inches below the surface.

FIG. 13.—BRACING WITH WIRE.

It is very important to follow some system in pruning. A hap-hazard method may do for a time, but, as the vineyard ages, the mistake will be very evident. The fan system, as employed in many places, is no system, and in time will leave the vines in a very unsatisfactory condition. By it, the young wood is constantly being removed farther and farther from the root, and the great ugly stalks are too unwieldy to be ever put down for protection. For the Concord and Worden, winter protection in Southern Ontario may not be necessary, but for the Rogers grapes, there is no doubt about its importance.

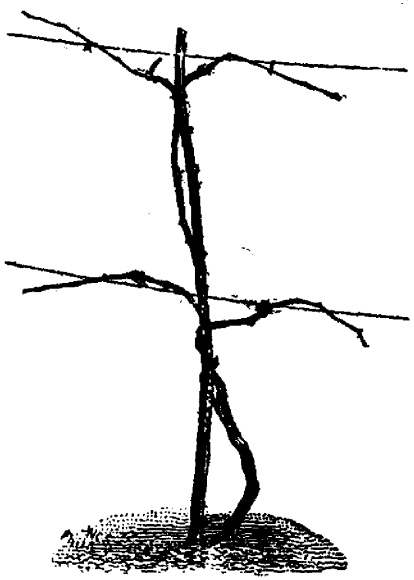


FIG 14.—KNIFFEN SYSTEM.

Another method, known as the Kniffen System, is open to the same objection, though in a less degree. This system is shown in Fig. 14, and has some good points, for the pruning consists only in spurring back to the four arms, and little tying is needed, as the young wood can hang down from the two wires. On the whole, this is, perhaps, a commendable method for the busy farmer, who cannot find time to tie up the young wood in early summer.

The most satisfactory method is, no doubt, the Renewal System, or some modification of it, as described in Vol. XII., p. 66; for although it may

be a little more troublesome in the matter of summer tying, it has, in other ways, every advantage. For winter protection, it is best because the main arms are so near the ground that they may be easily loosened, and laid down; for fruit bearing, it is best because the horizontal is the best position for bearing wood, and because the latter is thus kept near to the roots, the source of nourishment; and for the shapely appearance of the vineyard as it increases in age, this mode is also best, for evident reasons. Mr. Thos. Beall, of Lindsay, says he has employed, with much success, a modification of this system, using only one arm instead of two, as shown in Fig. 15, in which only one arm is grown instead of two, in which case, of course, it may grow seven or eight feet long instead of four. He claims

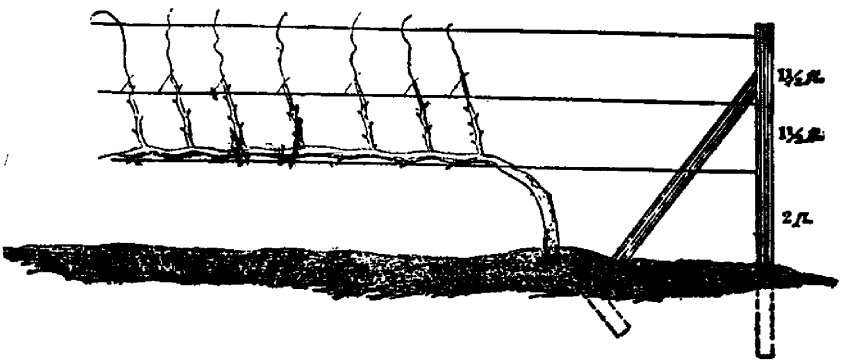


FIG. 15.

that, in this way, the vine is much easier laid down for winter protection, and therefore this mode is better, at least for colder sections.

The two-arm method of grape pruning was well described at our Windsor Meeting, in a practical manual, by Mr. O. Neill, and his address will appear in the Annual Report for 1890. We will give here, in advance, the following six principles, which, in his opinion, should govern all systems of grape pruning:

"Any correct system of pruning the vine must accommodate itself to the following observed facts:

(1) The growth tends to divide itself among many small and weak stems.

(2) There is a strong tendency to develop the highest buds.

(3) Other things being equal, the most vigorous buds are found neither at the base nor at the top of the cane, but midway.

(4) A short bend in the cane tends to develop the buds just above the bend.

(5) The destruction of the terminal bud during the growing season checks the growth in length, but hastens the maturity and development of all the tissues and buds below it, the effect decreasing with the distance from the terminal bud.

(6) A strong growth in one cane arrests the growth and development of the other canes."

HOME-MADE PRUNERS.

THE *American Agriculturist*, of recent date, describes a set of home-made pruners of very simple construction, which any one can make.

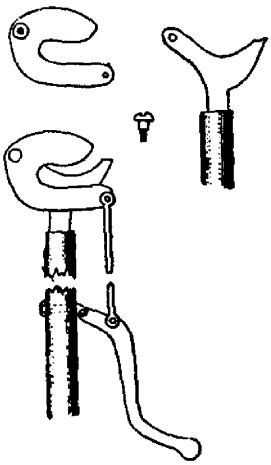


FIG. 16.

We copy the cut and description, as we believe they will be of value to our readers :

The moveable shear, to which the pitman rod is attached, does most of the cutting. Both shears are made of thin, hardened steel. From the bolt-hole in the moveable shear a rod longer or shorter (the pitman), to correspond with the length of the pole used, runs to the lever shown at the bottom of the cut. In pruning trees and vines the handle of this lever is raised, which forces up the bar and opens the jaws of the shears. Then, on lowering the lever, the twig, if it be placed in the shears, is clipped off. The jaws of the shears must be ground at an angle somewhat more acute than that commonly employed for tailor's shears. The highest part of each bevel must come against the bevel upon which it acts. The screw shown connects the shears.

Anyone who has tried such pruners in his young orchard, and has found the great advantage they afford over the saw, will be wholly unwilling to do without them. Not only does he save time by the use of such pruners, but if the knives are sharp the cuts will be smoother than those made by the saw, and consequently easier healed.

FERTILIZERS FOR THE GARDEN AND ORCHARD.

WOOD ASHES.

IT is an astonishing fact that Canadian wood ashes, one of our most valuable fertilizers, is being exported to United States in car lots, while in Canada it is so little valued by our farmers that it is sold for a mere song to the ash collectors, or allowed to waste its strength in neglected piles about the house.

Fruit farmers in the States are paying twenty-five cents a bushel for Canadian ashes by the carload, and are finding in them one of the most economical fertilizers which they can apply. The Experiment Station at New Haven, Conn., has been analysing various brands of Canadian ashes, and found them to vary considerably in the amount of potash which they contain, some having only four per cent., and others as much as ten per cent. The variable nature of the composition of various lots of wood ashes is no doubt largely due to the wood from which it is derived, thus it has been found

that old field pine only yields about four per cent. of potash, while hickory gives twenty-eight per cent., and white oak forty-two per cent.

The most important difference between leached and unleached ashes consists in the amount of potash; and the following table will show explicitly the per centage composition of each, from certain lots analysed:

	Unleached Ashes.	Leached Ashes.
Sand, Earth and Charcoal	13.0	13.0
Moisture	12.0	30.0
Carbonate, with some Hydrate of Lime	61.0	51.0
Potash, (chiefly as Carbonate)	5.5	1.1
Phosphoric Acid	1.9	1.4
Other matter	6 6	3 5
	100	100

The effect of the application of unleached wood ashes to the soil depends upon the kind of soil to which it is applied. On heavy clay soils the potash has effect making them heavier and more tenacious, but on light soils the effect is most beneficial, rendering them compact and better able to resist a drought. They also tend to correct "sourness" of the soil, by precipitat ing the soluble iron salts to which this state is due.

Another way in which ashes benefit the soil is in promoting nitrification, by which is meant the process by which nitrates are furnished for promoting the growth of plants, and for this, carbonate lime is necessary to form a base, with which the nitric acid may combine.

The writer has experimented for some years in the use of wood ashes for peach, pear and apple trees, on light soils, and has found them to give excellent results. The wood growth has been stronger, the fruit larger and better colored, and the crop more abundant. It surely does not pay to allow such a valuable fertilizer to go to waste, or to be exported to enrich the orchards of our Yankee cousins, when we have orchards at home starving for want of them.

BARN MANURE AND COMMERCIAL FERTILIZERS.

While we highly commend ashes for fruit trees, we by no means undervalue the product of the stables, for in it we have a most important element, called Nitrogen, which is absent in wood ashes, the only difficulty is to get a sufficient quantity for the farm, garden and orchard, and usually the latter goes entirely without. Now, this is a most serious mistake, and no doubt is one reason for the present discouragement of many orchardists, for the trees have been, year after year, exhausting the soil, without any return of fertilizers.

Nothing is lost, unless on side hills, in drawing out barn manure in winter-time, as fast as made, and spreading it upon the ground, and much valuable time in spring is saved.

Where barn manure is scant, it is no doubt wise to buy commercial fertilizers for the orchard and garden, especially in connection with good cultivation, but it is unwise to apply fertilizers and neglect that careful working of the soil by which its own native fertility is rendered available for tree and plant growth. Frequently, indeed, it is found that cultivation alone is wanted to bring a barren and profitless orchard into a fruitful and paying condition.

Sometimes it will pay the farmer to make his own chemical fertilizer, by buying the raw material, and mixing it himself. Prof. Panton stated, at our meeting at Chatham, that a saving of twenty per cent. can be effected by making a superphosphate at home. His recipe for the mixture will be found on page 82 of our Report for 1887. It was by bulk, one part bone dust, two parts of ashes, one third of water, and one sixth of plaster. This of course lacks nitrogen, but this can be furnished in barn-yard manure. His recipe, by weight, was one part of bone, one of ash, about a quarter of slacked lime, and about one-eight of crude carbonate of soda. After this has stood a while, add some soil, say one-fifth of the bulk.

Either one of these will form a most excellent fertilizer for the garden and orchard.

In order that our readers may be able to judge of the value of any commercial fertilizer offered for sale, we give here the average trade values, or retail cost per pound of the ordinary occurring forms of nitrogen, phosphoric acid and potash, according to a late bulletin of the Connecticut Experiment Station:

	Per Lb.
Nitrogen in ammonia salts	19
" nitrates	17
Organic nitrogen in dry and fine ground fish, meat and blood	19
" " in cotton seed meal and castor-pomace	15
" " in fine bone and tankage	16
" " in fine medium bone and tankage	13
" " in medium bone and tankage	10
" " in coarser bone and tankage	8
" " in hair, horn shavings and coarse fish scrap	8
Phosphoric acid, soluble in water	8
" " " in ammonium citrate*	7
" " " in dry ground fish, fine bone and tankage	7
" " " in fine-medium bone and tankage	6
" " " in medium bone and tankage	5
" " " in coarser bone and tankage	4
" " " in fine ground rock phosphate	2
Potash as high-grade Sulphate and in forms free from Muriate (or Chlorides)	6
" as kainit	4
" as muriate	4

NEW OR LITTLE KNOWN FRUITS.

THE APPLE SAMPLES FROM MR. NICHOL.

IN our last number a letter was published from Mr. Nichol concerning four comparatively little-known apples, which, in his opinion, are worthy of general cultivation. One of these, the "La Rue," has already been frequently noticed in our Journal and Reports, either under that name, or under its synonyms of "Red Pound," or "Baxter's Red"; and an engraving,

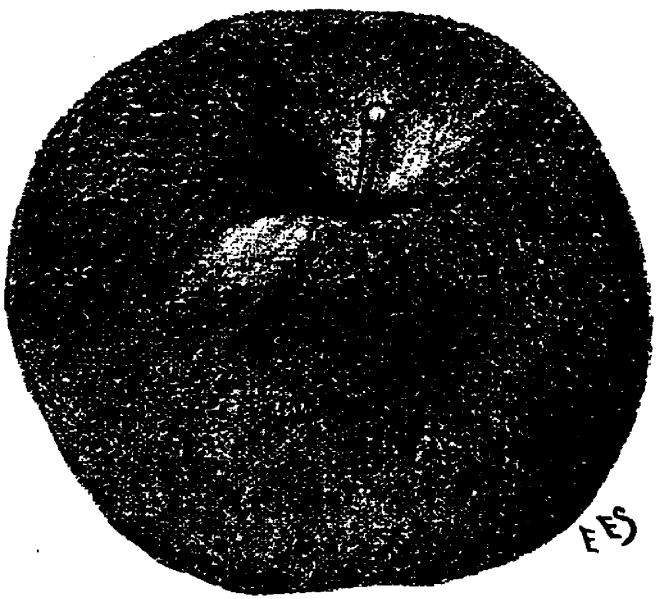


FIG. 17.—THE GIBSON.

very truthfully showing its exact size and shape, appeared on page 8. It is indeed a beautiful apple, quite equal to the King in this respect, larger in size, and reported to be a more abundant bearer. Mr. G. C. Caston, living in the County of Simcoe, reports it quite hardy, and with this combination of excellent qualities it cannot fail to become a valuable apple for the commercial apple orchard. We cannot give its exact season, but, from the sample lying on our table, and still (10th January) in good condition, would judge it might be classed as an early winter apple, along with the King. In quality it is inferior to the King, but superior to the Ben Davis or even the Baldwin.

THE LEEDS is a fine looking, yellow apple, that would suit many people's taste as a dessert apple; it comes under the head of sweet apples, and yet is less saccharine than most of that class. It may be described thus:—

Fruit, large, oblate. Skin, fine yellow, waxen, considerably dotted. Stalk, short, inserted in a deep cavity. Calyx, closed, inserted in a large, moderately deep basin. Flesh, white, firm, fine-grained, juicy, sweet, of excellent quality. Season, probably January and February.

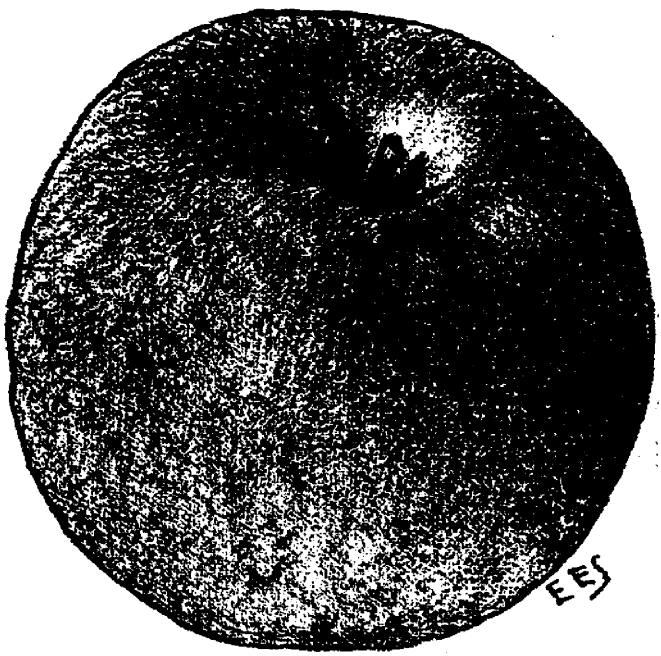


FIG. 18.—THE MCLEAN.

THE GIBSON is rather a fine dessert apple, of the Fameuse type of apples, and is well represented in our engraving, which was made from one of the samples sent by Mr. Nichol. Size, medium; form, oblate, conical, somewhat shouldered; skin, greenish, well-covered and striped with dark crimson; flesh, white, tender, juicy, sub-acid, of good quality. Season, probably January, judging from the sample before us.

THE MCLEAN, of which we also give an engraving, is in appearance a strikingly beautiful apple. Fruit, round, medium size; skin, with delicate yellow ground, with waxen lustre, covered with beautiful pale rose color on the basal half; stem, slender, about one inch long, in an even, russeted cavity; calyx, small, in a moderate-sized basin, slightly corrugated; flesh, fine-grained, tender, moderately juicy, very good, but having a tendency to rot at the core.

The above descriptions are based upon single specimens, the others having been sent away to either the artist, or to the Windsor Meeting, and consequently may need qualifying. We subjoin the report of the Fruit Committee at Windsor on these apples.

"D. Nichol, Cataraqui, shows the following apples :—GIBSON strongly, resembling the Black Detroit in flavor, scarcely any better. LEEDS, large, green apple, with slight blush, closely resembling Holly in form, and about the same in size, but inferior in quality. LA RUE, very large, handsome, but rather poor in quality. MCLEAN, a handsome apple, much resembling Princess Louise, with which in its size, form, color and flavor (?) it is almost identical."

THE PRINCESS LOUISE.

MR. T. T. LYON, speaks of this apple as follows :—The Princess Louise is a still more recent introduction by our Canadian friends, which, whatever its actual parentage, betrays in its size and color, as well as in the whiteness, aroma and juciness of its flesh, indications of a close relationship with this type of apples.

Its aristocratic name accords well with the daintiness of its quality, as well as with its general appearance, as also with the political peculiarities of its native region ; but it will be very sure, if naturalized on this side of the border, to lose the aristocratic prefix ; and despite its acknowledged delicacy and beauty, become plain Louise.

GALVANIZED WIRE TRAYS FOR EVAPORATORS.

MR. E. B. RICE, of Port Huron, Michigan, read a paper on the subject of Evaporated Fruits at our Windsor Meeting, and in the course of it he showed that the use of galvanized wire trays was a serious matter ; several cases of zinc poisoning have resulted. Owing to this danger in the use of American evaporated apples, Germany has refused them if cured on galvanized wire trays.

After quoting various excellent authorities in proof of this, Mr. Rice said, that unless a wire cloth could be found, so galvanized that the acid of the fruit will not affect it, it is clear that its use must be abandoned. The question is, what is to be substituted, for the only metals in use that are proof against fruit acid are gold, silver and platinum. The new metal, aluminum, when it becomes cheap, may answer the purpose. For the present, Mr. Rice favored the use of iron wire cloth, as iron rust cannot be called a poison, or else return to wooden trays.

AN ESTIMATE OF APPLES.

DR. T. H. HOSKINS, excellent authority upon pomological matters, notes the statement that not more than one tree in twenty-five (some say not more than one in fifty) ever gives even one profitable crop; declares that his own experience is that common varieties pay less on the same ground than potatoes, where there is a good local market for the latter, but thinks, nevertheless, that, owing to the fact that we must vary our crops, good orchard land—strong soil which may be too rocky or uneven for convenient tillage—may well be set to apples by a person young, industrious, persevering, and who will study the business. But "the money" is in the best well known winter sorts to which the locality is adapted. In reference to this important point we quote the doctor's views in full, as expressed through *Our Country Home:*

"The American apple of which by far the larger quantity is sold, and at a full price, is in quality third rate. This is the Ben Davis, the leading market apple of the Mississippi valley. The Baldwin region is very limited compared with the Ben Davis region. By this I mean the Baldwin is a keeping and shipping apple. South of 40° north latitude, the Baldwin fails as a keeper, while north of 43° the tree fails in hardiness. It also fails in the Mississippi valley everywhere. Ben Davis succeeds further north, further south, and further west, and is indeed entitled to stand first as the great American market apple; but it has not succeeded as an export apple for lack of quality. South of the Baldwin region, on the Atlantic slope, unquestionably the finest commercial keeping apple is the Yellow Newton Pippin—the Albemarle Pippin of Virginia. Like the Baldwin, it is rather local as regards success, but it succeeds much further south and is a much better apple, always bringing a fancy price in Europe, where it is well known. In Pennsylvania and Virginia the culture of this queen of apples is yet capable of large and profitable extension. It is just about as much better as the Ben Davis is poorer than the Baldwin. Further north than the Ben Davis will thrive, there has been, until lately, no great commercial apple which would endure the winters and be remunerative. But in the Wealthy, of Minnesota, such an apple has appeared. Like the Baldwin, it is apt to become unsound in the trunk, and will unquestionably prove most profitable when grafted in the tops of ironclad varieties having sound bodies. Some Wealthies have already been shipped to England from Canada, and received with great approval. The discovery of this variety has extended profitable apple culture at least 100 miles further north, and given to the St. Lawrence valley a good export fruit."

RESULTS OF EXPERIMENTS IN TOMATO CULTURE.

FREQUENT transplanting of the young plant, and good tillage, are necessary to best results in tomato culture.

2. Plants started under glass about ten weeks before transplanting into field gave fruits from a week to ten days earlier than those started two or three weeks later, while there was a much greater difference when the plants were started six weeks later. Productiveness was greatly increased by the early planting.

3. Liberal and even heavy manuring, during the present season, gave great increase in yield over no fertilizing, although the common notion is quite to the contrary. Heavy manuring does not appear, therefore, to produce vine at the expense of fruit.

4. The tests indicate that poor soil may tend to render fruits more angular.

5. Varieties of tomatoes run out, and ten years may perhaps be considered the average life of a variety.

6. The particular points at present in demand in tomatoes are these: regularity in shape, solidity, large size, productiveness of plant.

7. The ideal tomato would probably conform closely to the following scale of points: Vigor of plant, 5; earliness, 10; color of fruit, 5; solidity of fruit, 20; shape of fruit, 20; size, 10; flavor, 5; cooking qualities, 5; productiveness, 20.

8. Solidity of fruit cannot be accurately measured either by weight or keeping qualities.

9. Cooking qualities appear to be largely individual rather than varietal characteristics.

10. The following varieties appear, from the season's work, to be among the best market tomatoes: Ignotum, Beauty, Mikado, Perfection, Favorite, Potato Leaf.

11. The following recent introductions appear to possess merits for market: Bay State, Atlantic, Brandywine, Jubilee, Matchless, and perhaps Lorillard, Prelude and Salzer.

12. The following recent introductions are particularly valuable for amateur cultivation: Dwarf Champion, Lorillard, Peach, Prelude.

—L. H. BAILEY, *Cornell University.*

THE NOVA SCOTIA APPLE CROP OF 1889.

A PROVINCIAL Crop Report of fruit and field crops, has been issued by the Nova Scotia Department of Agriculture. The following table shows the per centage of yield of apples in 1889 by the twelve principal market varieties, grown in Nova Scotian apple orchards.

VARIETY OF APPLES.	PER CENT.
Nonpareil	88
Golden Russet	86
Blenheim Pippin	84
Ben Davis	83
Roxbury Russet	83
Gravenstein	83
Ribston Pippin	82
King of Tompkin's County	82
Baldwin	80
Rhode Island Greening	76
Blue Pearmain	70
Bishop Pippin or Yellow Bellefleur	62

Total average of all varieties 80 per cent.

The prices obtained for fruit are reported as generally good; but, in consequence of the fruit maturing much earlier than usual, losses have been sustained in marketing, and especially by agents who purchased largely for export. Early ripening means imperfect keeping quality, for it is only fruit that is not quite ripe that can be kept. At Canning, a central shipping port in the apple district of Kings County, Ribstons and Kings have sold for from $3.00 to $3.50 per barrel, Baldwins and Gravensteins for $2.25 and $2.50. At Aylesford the prices ranged from $2.00 to $3.50, according to quality. In Pictou County prices were good, compared with those of former years. In Queen's County good winter apples sold for $2.50 per barrel.

CARE OF FRUIT PAYS.

THE men who succeed best, obtain the best prices, and who receive returns every year, are those that take the best care of their trees and the crops which grow on them. They do not shake off their fruit in gathering, nor allow it to become small and wormy. They treat their orchards as well as they do their corn and potatoes, manure them as freely, cultivate them as carefully. They do not allow apples to become small and scabby from over bearing, any sooner than they would allow a field of corn to fail by planting three times too thick. Poor pears can hardly be sold for fifty cents a bushel; the best, put up in the best condition, often bring from three to five dollars, if marketed at the proper season.—*C. Gentleman.*

THE CRIMEAN APPLE "SYNAP."

I AM glad to see in the issue of January, the notes by Mr. Niemetz on what he calls the "Synap" apple. It is singular that he does not state that, in many parts of Russia, the Sary Synap is grown under the name of Persian. When at the Bogdanoff estates, near Koursk, in 1882, I saw hundreds of bushels of this apple beautifully colored in early October, and as firm as the Gilpin would be with us at that season. But we were assured that "Synap" was a local name for this fruit, and that it had been known for a century in Koursk as the *Persian*. Hence we imported it from the Bogdanoff grounds under this name, and have widely distributed it for trial. In tree it proves nearly or quite an iron-clad, and quite as free from blight as the Duchess. As yet, we have only had specimens of the fruit from young trees reserved for scion cutting, which were much smaller than those we saw in Russia, but have kept well through winter. A friend in South Iowa who top-worked the Persian on Fall orange, has sent me fruit as large as Ben Davis, but far more oblong and handsomely colored. I believe it will prove a profitable apple of medium size over a wide range of country at the north, but I shall be sorry to see it go out under varied names. I will also add that we saw two other varieties of these oblong, peculiarly colored apples, at Saratov, on the Volga, where they were called "Persian," followed by an adjective to indicate the particular variety meant, as is the custom in Russia.

Ames, Iowa. J. L. BUDD.

CANADIAN RAISINS.

THE *Hamilton Herald* reports that the production of raisins is being undertaken as an industry in that city. The following is the item as it appears in that paper.

"The production of raisins in Canada is indeed a new industry. The *Herald* was shown to-day a fine sample of raisins from grapes grown in open air in the city of Hamilton, which were taken from the vine on the first of October, 1889, and laid aside in a cool room, where they remained without special attention. It is a matter of surprise to find an article of commerce of so great value originating in Ontario, and in this city. It will not be forgotten that the vintage of 1889 was almost totally destroyed by the extreme frost of the 28th of May last, followed by atmospheric influences favorable to mildew, completing the destruction of plant life. Despite this, however, could this fruit have received the same process of raisin curing as undergone in Spain or California, it would likely bear a favorable comparison. Notwithstanding the above drawbacks, the raisins shown us are no mean specimens.

"The vine originated in this city, under the skilled manipulation of an old Canadian hybridist. It has made its way to California and other distant points in the United States under the name of 'Mills.'"

SOMETHING ABOUT WINDBREAKS.

I DO not think a more valuable thing was ever devised for the horticulturist than the planting of wind-breaks. Of course its greatest utility is in the winter season, when its presence gives a home the look of cosiness and comfort, and rightly located on the windward side saves much fuel, and food for animals which always require a greater amount where exposed to the cold.

The protection afforded to the more tender fruit trees is invaluable. I have known peach trees to bear heavily during the past few years when there has been such a general scarcity, on account of enjoying such protection in winter, the fruit of course bringing greatly advanced prices over years when crops were plentiful generally. A windbreak on the north and west sides of a fruit patch, twenty feet high, not only protects the trees from heavy winds but distributes the snow evenly, thus avoiding the heavy drifts in certain places to the bareness of the ground in another, making a good mulch for small things like strawberries, etc.

No one should be deterred from having an effective windbreak of the Norway Spruce, which is the best for the purpose, the trees being very low in cost for good planting stock. The proper distance apart for planting the trees should be according to the means of the planter, or his haste to obtain shelter. In time, trees planted six feet apart would give complete shelter for an apple orchard, though often the distance is as near as two feet when shelter is needed as soon as possible, though the things to which protection is given in this case have, of necessity, to be small growers.

There are other evergreens beside the Norway Spruce which make a good shelter belt, but this variety being so entirely hardy, growing rapidly on a large variety of soils, and is not easily injured by snow lodging in its branches as in some other kinds, stands at the head of the list.

In starting a windbreak the greatest difficulty lies in transplanting, so, where it is possible to procure the stock near at hand, it is much more certain to succeed than when ordered of a far-off nursery man, as the roots are very impatient of becoming dry. In fact they cannot become dry with very perceptible injury. Where the roots can be kept moist until planted, there is but little fear of having a good proportion of the plants grow. Small sizes are to be preferred, as the chances of growing are more certain. But when once planted rightly, there are no easier trees to grow.

It has been estimated by one who has planted a number of large windbreaks in all sorts of locations, from that of a small one for the home, to those of considerable magnitude now being started in some of the prairie States that the average cost of the stock is less than $5 per 100 feet, and where one has the patience to plant the very small seedlings which are often sent by mail, the cost may be reduced materially.

Buffalo, N.Y. W. F. LAKE.

COPPER SULPHATE AGAINST FUNGI.

EXPERIENCE during the summer of 1889 encourages the belief that we have in the solutions of copper sulphate a defence against many of the fungus pests which so seriously threaten the prosperity of our agriculture. In 1888, the efficacy of what is known as the Bordeaux Mixture, as a preventive of mildew and Black Rot of the Grape, was fully proved. This year experiments have taken a wider range, and many of the so-called diseases of plants have been successfully treated. The Apple-leaf rust (*Rœstelia pyrata*) succumbs to an occasional spraying with the Bordeaux Mixture. The Quince blights (*Morthiera Mespili* and *Hendersonia Cydoniæ*) are likewise prevented, and the fungus, which causes the blight of leaves and cracking of fruit of the Pear, may now be regarded as under the control of the copper solutions.

The prevention of this Pear fungus, *Entomosporium maculatum*, is, perhaps, of greater advantage in the nursery than in the orchard. Where the disease is epidemic in the nursery it places a veto upon the budding and grafting of young Pear stocks. The leaves are destroyed just when their aid is essential to the vitality of the bud or cion. By spraying the nursery rows every three weeks, during the season of growth, with the Bordeaux Mixture, the leaves are preserved in health and the success of the grafter's labor is assured.

But, in addition to this use of the copper solution, it is found to be preventive of the Tomato blight (*Macrosporium Solani*), and (which is of far wider importance to our agriculture) it prevents the Rot of the Potato, *Phytophthora infestans*. In treatment of this disease of the Potato-plant, some of our experiment stations have this year been quite successful. My experiments in this line have had gratifying results. For many years in this region of Southern New Jersey, every attempt to grow the Peachblow Potato has been a failure. At about the time the plant is in blossom, and, the tubers are, say one-fourth grown, this deadly blight invades the Potato field, and sweeps over it like fire. I have had an acre of Peachblows showing every sign of thriftiness, and giving promise of a heavy crop, and, in one week from the time of the appearance of this blight, every plant was dead or dying. It is the prevailing opinion here that the Peachblow Potato is a variety which is "run out," and its culture has been generally abandoned.

Happening to see, last autumn, a few bushels of small Peachblow Potatoes for sale, I bought them for the purpose of giving them another fair trial under the protection of the Bordeaux Mixture. Last June I plowed a clover sod between the three-rows of an orchard, and there planted these Potatoes in five equal plats of three rows each, manured in the row with the Mapes Potato Manure, at the rate of half a ton per acre.

The plats lay side by side, running north and south. When the plants were a foot high, and before they blossomed, I began to spray some of them with the Bordeaux Mixture, and repeated this operation every two or three weeks thereafter, until nearly the last of September. The times of treatments were regulated somewhat by the weather and the frequency of heavy rains. At any rate, I aimed to keep leaves and stalks on the sprayed plats pretty thoroughly whitewashed with the copper sulphate solution, so that its presence was always visible all over the plants. Whenever a drenching rain washed off the application, it was renewed as soon as possible. I made the treatments with the portable Eureka spraying machine. I thus sprayed Plats 1 and 2, left Plat 3 (the middle plat) untreated, and sprayed also Plats 4 and 5.

About the time the plants blossomed, the middle plat (No. 3) was, as usual, struck by the blight, and in two weeks all of the potato tops on this plat were dead and dry. The plants on the other plats were green and growing as vigorously as could be wished. They remained green and growing until killed by frost in November.

I then dug and weighed separately the total product of each plat. Plat No. 1, sprayed with Bordeaux Mixture, yielded 346 pounds of fine large marketable potatoes, which were sold as soon as dug for a dollar a bushel. Plat No. 3, not sprayed, yielded only 164 pounds of small-sized tubers, scarcely one of which was marketable.

The diameter of the largest tuber on the untreated plat was three inches. The diameter of the largest on the treated plat was five inches. There is a marked difference in the cooking of potatoes from the unsprayed and from the sprayed plats. Those from the plat not treated are immature and "soggy." Those from the treated plats are mealy and have all the excellence for which the Peachblow potato was formerly esteemed.

I have saved ten or fifteen bushels of these Peachblows to plant next year, in the confident expectation of a crop of 350 bushels of potatoes per acre. Under the unfavorable conditions in which these experimental plats of potatoes were grown (between rows of trees twenty feet apart and twenty years old) I did not expect a large crop. Yet the yield of the treated plat (No. 1), 346 pounds from 225 hills, is not bad, under the circumstances, being about 125 bushels per acre.

Of the Bordeaux Mixture employed the formula is: six pounds of pulverized sulphate of copper (blue vitriol), dissolved in four gallons of hot water; four pounds of fresh lime, dissolved in four gallons of cold water; mix the two solutions and dilute with cold water to make twenty-two gallons of liquid.

I believe, however, that the ammoniacal solution of carbonate of copper will be found as efficient a fungicide as the Bordeaux Mixture, and it has the advantage of being more readily prepared and more easily distributed in spray. Its formula is: carbonate of copper, three ounces; ammonia, one

quart; mix. The copper carbonate will dissolve almost at once in the ammonia liquor. Then dilute this mixture with cold water to make twenty-two gallons of liquid.

From sundry experiments which I have made this year, and which I have reported in detail to the United States Department of Agriculture, I conclude that it is the copper in solution which is specifically antidotal to fungus germs, and not the other component, sulphuric acid, of the sulphate. In experimenting on treatment of the Black Rot of the Grape, I tried quite extensively a mixture made similarly to the Bordeaux Mixture, only substituting sulphate of iron (copperas) for the copper-sulphate. This mixture had no effect whatever in prevention of Grape Rot. I saw some benefit from its use, however, in prevention of leaf mildew, and it is quite likely that it may be found sufficiently effective for treatment of the blights of the Potato and Tomato. It is much cheaper, pulverized sulphate of copper costing about eight cents per pound, while copperas costs only seven-eighths of one cent per pound.

Further experiments are required to teach which of these fungicides may be the preferable one, and for what uses. Certain fungi will endure with impunity applications under which others will perish, and certain varieties of plants are damaged by chemical solutions which do not harm others. Thus, the Tomato plant will not tolerate a spraying with Bordeaux Mixture as it is used for the Potato. The mixture for the Tomato must be reduced in strength, at least, one-half. Nor will *Vitis æstivalis* endure spraying with copper-sulphate mixtures, which do not injure the vegetation of *Vitis Labrusca*.

My counsel to those who purpose engaging in these vegetable therapeutics is to go slow. When all ready for spraying try only a few patients at first, and wait to note the effects of the medicine. Otherwise there is great danger of learning pathological wisdom as did the quack doctor who found out in his practice that "what cured the shoemaker, killed the tailor."—A. W. PEARSON, *in Forest and Garden*.

WINTER PROTECTION FOR GRAPES.

THE practice of laying down Grape-vines and covering them for winter, is not universal; yet, with most varieties, in nearly all of New England this treatment pays. Growers find that even when the buds of uncovered vines all start well, the covered vines give a better crop, and ripen it earlier. If vines are planted against the south side of a tight fence, laying them on the ground will be all the protection needed in a snowy country, as a deep drift will form in such a spot. Such a drift will not waste away for a loug time where there is snow enough for pretty steady sleighing.—DR. HOSKINS, *in Garden and Forest*.

FLOWERS.

SOME PRIMULAS.

PRIMULA OBCONICA.

THIS new Primrose from Japan, is quite distinct from any Primrose in cultivation, being a perpetual bloomer, at least for nine months in the year. The quantity of bloom is something extraordinary. A plant in a seven-inch pot last winter had seventy-five spikes of bloom on it at one time. It requires a much larger pot to flower in than the Chinese

FIG. 19.—PRIMULA OBCONICA.

Primrose, the last will do very well in a five-inch pot, but *Primula obconica* requires a six or seven-inch pot to grow it to perfection. It will become a great favorite when it is better known, not only on account of its great beauty as a decorative plant, but its commercial value as a plant for cut

bloom. This novelty has come to stay with us. It is an evergreen plant, starts to flower in August, and continuing until June, and a few flowers all summer. The flowers are produced on slender stems, about 9 inches high, white, with a slight tinge of purple. It succeeds best when grown from seed every year. Seed sown in March, the plants will start to flower in August, I had them in bloom by the first of September, but as the seed is very slow to germinate it would be better to sow it when the seed crop is harvested in the fall. It also can be divided in spring after flowering all winter. I do not recommend this practice; the young plants do not grow nor flower so well as young plants from seed. A temperature of 50 degrees seems to suit it to perfection. As a window plant it can have no equal. In cloudy weather the flowers take on a purple tinge, in clear bright weather they are pure white. It is a pure species from Japan, and is not hardy in our climate, I think it might be improved by our florists. The flowers have a disposition to vary greatly in size, some florets are 1¼ inches in diameter, others only half that size. Last winter I tried to cross it with other Primroses, without success, also the Chinese red and white *Primula Cahsmeriana*, *P. Rosea*, *P. Vulgare*, all to no purpose. Thousands of blooms were operated upon, but the Jap refused to have matrimonial relations with any other nationality. However, I found that it will not seed in confinement, even when fertilized with its own pollen. I understand that John Thorpe has been trying the same cross, I hope he has been successful; I will try again at another season of the year. Another remarkable thing that no writer seems to have noticed, about one half of the plants have the anthers longer than the pistil, the other half of the anthers shorter than the pistil. The Corolla is very persistent, it never falls off; on that account it is valuable for cutting, and the long stems adds to its value in that respect. But, what may be against it, perhaps—it may not become fashionable. There is fashion in flowers as well as in everything else, and this tyrannical fashion boycotts many a beautiful flower. It should not be so.

PRIMULA VULGARE.

The old Primrose of our young days is not to be despised as a window plant, flowering about Christmas, lasting about two months. How my heart warms to this old flower; it is deliciously fragrant. It is the plant for the palace and the cottage. It is very easily managed. By sowing the seed in early spring most of the plants will bloom next winter. Plant out in a shady place in summer, lift them in the fall, and they will be in flower by Christmas. I rather think seed of this old Primrose is a little mixed. I sent for a packet of seed to two Canadian seedsmen, and both packets turned out to be Polyanthus, after growing them all winter in the greenhouse.

PRIMULA CASHMERIANA.

This is a new hardy Primrose from the Himalayan Mountains. It is a charming plant, foliage large, covered with a golden farina on the under

surface of the foliage, as well as on the stems. The flowers are of a rich voilet purple, in a close globular umbel. It has proved hardy, but would be better to cover it with a few leaves. It requires shade in summer; flowers in early spring.

PRIMULA ROSEA.

Another new Primrose from the Himalayan Mountains; a plant of great beauty. The color of the flowers is a bright clear rose; also hardy and is easily grown. A scarce plant as yet, but every garden should possess it.

PRIMULA FARINOSA.

A Canadian Primrose, growing on Lake Huron shores. Corolla, pale lilac, with yellow eye. Quite hardy.

PRIMULA MISTASSINICA.

Another Canadian Primrose. I have found this one growing at Elora, also growing on Lake Huron shore. Corolla, flesh-colored. A pretty species, well worthy of a place in the garden.

West Toronto Junction. A. GILCHRIST.

PRIMULA OBCONICA.

ALTHOUGH this is becoming well known in the greenhouses and conservatory, few people are aware what an excellent plant it is for a room. It has been continuously blooming with me in a sitting-room window facing east, since February, 1888. Its handsome leaves and heads of light flowers are always much admired. Its only requirements are potting in pure loam and plenty of water. Unlike most of the Primulas, itis not injured, but seems to be the better for an occasional application of one of the artificial manures. Plants should be purchased in bloom, as they are very variable, and some varieties are much better than others.

A. J. BRUCE.

PRESERVING A LAWN.

AFTER a lawn has been neatly levelled, sown, and become well set in grass, the main point is its preservation. This is in no way difficult, if frequent applications of fertilizers are made, and severe wear is not allowed in particular spots, for games or otherwise. Though fine bone is the best to seed down with when it is harrowed into the soil, it is of little or no use when sown upon the grass. Instead of that, a good complete fertilizer, using about five pounds to the square rod, once in a season, after the first spring mowing, will keep it up. An odorless brand is to be preferred. Wood ashes alone will keep up the grass for some time; but when this is used it is well to apply some nitrous fertilizer occasionally, say a pound of nitrate of soda to the rod, when and where the grass lacks greenness.

LILIUM LONGIFLORUM HARRISII.

LILIUM auratum has had a great run, and is still very popular; but for pot-culture it seems as if L. Harrisii will be even more sought after, as by potting and starting the bulbs at different periods, plants of it may be had in bloom at Christmas, and from that time onwards till quite late in the spring. What has assisted to bring this lily so much into favour is its adaptability for church decoration, for which purpose it is now much sought after, and for which it is well suited on account of the purity and great substance of its flowers.

Those who would like to have Lilium Harrisii in flower at the date mentioned above should obtain bulbs and pot them at once, consignments having lately arrived from Bermuda; and home-grown bulbs are ripe and ready for transit; but for early work I am of opinion that those imported are the better of the two. The soil most suitable for potting the lily is the orthodox mixture of peat and loam, with a dash of sand, just to keep the mass open. The way in which these plants look best, and are the most useful for furnishing purposes, is to put one bulb in a pot, and as the roots require but little space, fine specimens may be grown in 48's, or at any rate in 6-inch pots. In potting, the bulbs should be nearly buried, and the soil made quite firm, when, if the soil is fairly moist on being used, no water will be required till the plants have made a start. To encourage this, it is a good plan to stand them in a close frame, or under the stage of a green-house, and cover them with cocoa-nut fibre or leaf-mould, which will conserve both moisture and warmth, and thereby induce speedy root action, and after this takes place the pots must be removed to a position where gentle heat can be afforded, but at the same time they should have plenty of light to keep them from drawing.—J. S.

THE OLEANDERS.

THE oleander, *Nerium splendens*, is a handsome evergreen, and is often found in the greenhouse of the amateur, and also in the window garden of those who have no greenhouse. It is one of those plants which I think are general favorites with those for whom this column is written. It will do well in a mixture of fibrous loam, leaf-mould and sand. It is a thirsty subject, and when in full growth, providing the drainage is good, can scarcely have too much water. It is easily propagated by cutting off the ends of the shoots, or what, perhaps, is better, by short slips pulled off with a heel. It is a very interesting occupation to root these in bottles of water. Get a few two-ounce medicine bottles, and fill with soft water, and insert the cuttings about two inches, and stand in the window; in a short time they will be seen to emit roots, and they may be then potted into small pots, and placed in the window again. When the cuttings or

slips are struck in water, great care must be taken, or in potting much injury will be done the tender fibres. They will root equally well in sandy soil; this must never, however, be allowed todry, or the roots will perish. Care must be taken when cutting thestems that the hands are free from wounds, as it "bleeds" very freely, and its sap is said to be poisonous. It is said to poison the water of the streams in Algeria, either by drip from its leaves or by the sap exuding from its roots. There are single and double varieties, pink and cream, or fleshcolor. Most of the flowers are almond scented, and the double pink variety is particularly so.

F. C.

CHINESE SACRED LILY, OR NARCISSUS.

THIS variety having come into prominence within the last few years, many of the readers of THE HORTICULTURIST may not be acquainted with the marvellous simplicity with which this bulb is developed. The Chinamen all over Canada and United States consider it a sacred duty to have one or more of these flowering during the winter, and I must confess that nothing is simpler, and at the same time more satisfactory to grow.

As seen in the illustration the bulbs are grown in bowls or basins, in the bottom about an inch and a half of ordinary sand is placed, on which the bulb is placed, and around the bulb a number of pebbles to prevent the bulb from toppling over when in bloom. The basin is then filled with water so as to cover the bulb about half an inch, they may then be placed in a shaded part of the room for four or five days, after which they may be brought to the light, and left there until in bloom, which may take five or six weeks, the water may be poured off every day, when they will flower quicker, but if the amateur does not care to take this trouble, change the water every week.

FIG. 20.—CHINESE SACRED LILY, OR NARCISSUS.

The great advantage this variety has over many other winter flowering bulbs is that the bulbs remain for such a length of time in good planting condition, and can be procured or kept and planted when wanted up to the month of April. Now, with

Hyacinths and other such bulbs, you cannot do this, the bulbs exhaust themselves to such an extent that they are unfit for planting later in the winter.

The flowers of the Sacred Narcissus are similar to the Polyanthus Narcissus, and equally as fragrant, and I would advise any person not wishing to try the Spotted Calla, to endeavor and find a place for this easy growing bulb. Many pretty bowls or basins may be used for this purpose, and sometimes such cannot well be used in winter, can be applied for growing the Sacred Lily.

Toronto, Ont. HERMANN SIMMERS.

NEW YORK FRUIT CONSUMERS.

NEW YORK CITY, the metropolis of America, with its suburban cities and towns, furnishes a fruit eating population of over three millions of people. New York being the leading port of entry, the bulk of imported green and dried fruits find their way into consumption through this vast commercial emporium. There were received at New York during one year, 795,745 boxes and cases of oranges from the Mediterranean, equivalent to 70,180,875 pounds of fruit, or 3,509 car loads; of lemons, 1,389,386 boxes, representing 111, 150,880 pounds or 5,557 car loads; of bananas, 2,462,747 bunches, representing about 73,882,400 pounds or 3,694 car loads; of pineapples, 5,071,094, equal to 10,142,188 pounds or 506 car loads; of Almeria grapes, 215,000 barrels, equal to 13,975,000 pounds or 699 car loads. From Florida about 350,000 boxes of oranges, 31,500,000 pounds or 1,575 car loads. From this it will be seen that the amount of green imported tropical and citrus fruits, not including California shipments, entering New York in a single season is something enormous. Here we havea grand total of 310,831,353 pounds of fruit, which would require 15,540 cars to haul and 5,297,396 boxes, cases and barrels in which to pack it. In addition to this, the amount of domestic or home grown green fruit consumed is very large. There are no statistics available as to quantity but some idea may be gained from the fact that of peaches alone seventy car loads arrived at New York in a single day during the peach season. What a market this vast multitude of fruit eaters, who now draw their supplies from all parts of the globe, will furnish for California's fruits in the near future. This season a very small quantity, was sent to New York. As near as we can learn, only 159 car loads or 2,700,000 pounds of fruit were shipped this season from California to supply the demands of upwards of three millions of people in and about New York city, say nothing of the state and interior towns. This is not a pound for each person.—*California Fruit Grower.*

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.

OUR RUSSIAN EXCHANGE.

OUR readers will be interested in knowing that the first box of stock from Russia, for testing in Canada, has just come to hand. It contains fifty fine yearling trees of the Koslor Morello Cherry, which was described in volume xii, page 216; pits of a new Seedling Ostheim Cherry, superior to the old Ostheim, of a new and valuable seedling black cherry, called Niemetz, and of Ausjustin's Seedling Apricot, a valuable Russian variety. Forty of the trees we have handed over to the Experimental Farm for testing, and as soon as we can secure them in sufficient quantity, we will distribute them. Mr. Niemetz writes that he could get no more at present, as all that Mr. Mitschourine had were bought by the government for the inhabitants of Siberia. Surely if this cherry will do for Siberia, it should do for Manitoba.

We are also in receipt of some packets of the Russian Pea, described on page 16, and should they prove valuable, they will be propagated and distributed. We hope thus, in time, to introduce into Canada, many useful fruits, especially valuable for our cold North.

A NEW PEAR.

AT our winter meeting last December, in Windsor, Mr. P. C. Dempsey, of Trenton, exhibited a new pear of his own growing, which, at this date, January 1st, is in prime condition for eating. It is a cross between Duchess de Bordeaux and Josephine de Malines. The size of this pear is above medium; form, ob-ovate pyriform; color, yellow, with numerous brown dots; stem, about two inches in length; flesh, yellow, coarse-grained, firm, juicy, of an excellent aromatic flavor.

ABRAHAM'S OAK is the name given to an old oak at Mamre in Syria, supposed to mark the spot where the patriarch pitched his tent in the desert. It is a venerable old tree,

and has attained an enormous size, the circumference at the trunk being twenty-three feet, and its diameter at the spread of the branches ninety feet.

THE DOMINION CONVENTION OF FRUIT GROWERS.

THIS first Dominion Convention of Fruit Growers has now been finally arranged to be held in the City Hall, Ottawa, on Wednesday, Thursday and Friday, the 19th, 20th and 21st of this month.

Papers will be contributed by delegates and others from Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward Island, British Columbia, Manitoba, and North-West Territory.

Among the subjects to be discussed will be Transportation of Fruits—Packing and Selecting Fruit for the Home and Foreign Market—Express and Railway Freights—Fungus Disease and Blight—Small Fruits and their Commercial Value—The Commercial Apple Orchards of Ontario, Quebec, Nova Scotia—Relation of Insects to Fruit Culture—Export of Winter Apples: Profits, Drawbacks—Utilizing Surplus Fruit Products: Canning, Evaporating — Injurious Insects Affecting Fruits: Remedies to Prevent Ravages—Profitable Forest Planting—Adaptation of Russian Fruits to Canadian Requirements, etc., etc.

Special railroad and hotel rates will be obtained for those desirous of attending.

A cordial invitation is extended to the Associations in the United States to send delegates to this Convention.

Samples of new or little known fruits are specially solicited.

In order to bring out a fair exhibit of fruit grown in various parts of the Dominion, the honorable, the Minister of Agriculture, has placed at the disposal of the Convention, prizes on seedling, fresh canned and evaporated fruits, to the amount of some $400; and exhibitors will be governed by the following rules:

1. All exhibits to be the production of the Dominion of Canada.

2. The name and address of the exhibitor to be attached to each exhibit on cards which will be provided for this purpose.

3. In addition to the prizes mentioned in this Schedule, the Judges shall have the discretionary power to award cards of "Highly Commended" and "Commended" for such exhibits as they consider worthy of same.

4. The decision of the Judges must, in all cases, be considered as final.

The Convention of the Dominion Dairymen's Association, will also be held at Ottawa, on the 18th and 19th of February.

A joint meeting will be held on the evening of Wednesday, the 19th, for the discussion of subjects of interests to both.

Prize lists and programmes may be obtained from W. W. Dunlop, P.O. box 1145, Montreal, who is acting secretary for the Convention.

PETER HENDERSON.

ALTHOUGH not a fruit grower, yet his eminence in the allied science of floriculture, makes the decease of this famous florist, a direct loss to us as Horticulturists. That singular disease, La Grippe, which is carrying off so many people with so litt'e warning, made him its victim, and he died of resultant pneumonia on the 18th ult.

He came to New York at the age of nineteen, and after serving as gardener in two or three situations, he began for himself in Jersey City, in 1847; his books on Market Gardening showed the result of practical work in that department, and was so highly appreciated that over 100,000 copies have been sold.

Latterly he has given himself principally to the business of Seedsman and Florist, and his name is familiar to our readers through our advertising columns. To show the extent of his business, it may be stated that his greenhouses covered five acres, and his average force was one hundred hands.

His last work is now in press, in his "Hand Book of Plants," and thus in his work he still lives.

QUESTION DRAWER.

THE BARTLETT PEAR.

5. Having been for many years interested in horticultural matters in England, I was surprised on my arrival here, of seven years ago, to find that well-known pear "Williams' Bon Chretien," to be so largely grown and known here, only under the name of "Bartlett. Can you tell me why this fine pear should be deprived of its right name?—Yours faithfully, ARTHUR GEO. HEAVEN.

We are told that the rose would smell as sweet if called by any other name, and so, fortunately, the change in name cannot deprive this pear of its excellent qualities. The name "Williams' Bon Chretien," or *Good Christian*, is a good name, and, no doubt, was bestowed upon it on account of its being sound to the core, and not deceiving the eater as such pears as the King Sessing, for example, which are hypocrites, presenting a fair exterior, but rotten at heart.

The pear originated in Berkshire, England, about the year 1770, and was propagated by a Mr. Williams, of London. When the pear was first brought to America, its English name was lost, and it was dubbed the Bartlett, after Mr. Enoch Bartlett, of Dorchester, near Boston, who cultivated it and disseminated it throughout the country. It France it is called *Poire Guillaume*, or the William, which is, of course, its proper name, but it is now so universally known in America as the Bartlett, that it is quite impossible to correct the misnomer.

This pear is a greater success in our climate than in England, and is the leading pear in our markets during the month of September.

For some years past we have been in the habit of thinning out the crop of Bartletts in the month of August, barreling the prematures up and shipping themaway. Owing to their tendency to ripen, if gathered green, the experiment has proved a success, these prematures usually bringing a fair price, while the remainder, thus thinned, grow to a better size.

POMACE AS MANURE.

6. Would a mixture of pomace and straw from cider mills be suitable to put round bearing apple trees? I am about to try it, but perhaps some of your subscribers can speak from experience.—Yours truly, J. B., *Meaford*.

There is no doubt a certain amount of value in apple pomace as a manure for fruit trees, for the apple skins, seeds and pulp contain a per centage of potash and phosphoric acid, elements which are especially useful as fertilizers for the apple orchard. But, in practice, the writer has found very little direct benefit from the application of them, probably because not in a condition to be taken up by the growing plants. In our opinion, it would be better to compost with other manure, and then apply after it is well rotted.

We shall be glad to hear from our readers on this subject, either from a scientific or a practical standpoint.

WINTERING GERANIUMS.

7. IN the January number of the HORTICULTURIST, "An Englishman" asks if geraniums can be wintered successfully in a frost-proof cellar, and is answered in the affirmative by Mr. Gilchrist. Geraniums may be wintered in a cellar in another way than by planting them in boxes. If pulled up by the roots in the fall, and hung from the cellar beams, top down, they will retain life till spring, when, if cut back and planted, they will grow and make vigorous plants the following season. For years I have carried over geraniums in this way, and have now a good supply for spring use depending from the ceiling of the house cellar. Care must be taken not to place them too close to each other. I "bunched" them together on one occasion when the leaves and stems mildewed, and their vitality was destroyed.

Owen Sound. R. MCKNIGHT.

OPEN LETTERS.

APPLE WORMS.

Editor Canadian Horticulturist.

SIR,—In the end of the apple harvest of 1887, we had a considerable quantity of second-class apples which lay in piles under the trees, beneath a covering of straw, for about two weeks. We found them very much destroyed, for a small codlin worm, as we imagined, very small indeed, its burrow no larger than a pin hole, went hither and thither all through the apples in every direction—often at the mouth of the hole a yellow refuse looking substance. Hauling home the last pile or two we had to use the lantern, and were almost suffocated and blinded by tiny little black flies which we could not help connecting with the *so small* worm in the apples. Fortunately we have seen little or nothing of it since.—W. S. FORBES, *Ancaster P.O., Ont.*

KIND WORDS.

Editor Canadian Horticulturist.

SIR,—Would you be so kind as to send me some sample copies of the CANADIAN HORTICULTURIST, December number, if possible, on account of the so well prepared index, with which any intelligent and well-read man, interested in its subject matter, must be satisfied. I want to send one to my once dear pupil, the acting principal of the Grande Ligne Mission Institute, where I taught for nine years. They have a large farm and garden, and I want them to get acquainted with you. For my part I highly appreciate your intelligent, painstaking and tasteful work, and I wish for yourself and for our Association the best success.—Yours very respectfully, L. PASCHE, *Bryson, P.Q.*

FRUIT IN SIMCOE COUNTY.

Editor Canadian Horticulturist.

SIR,—We think your journal is improving in interest, especially in the care of plants, with their cultivation and preservation; likewise the best varieties of fruits for markets, and careful sorting and packing of the same, all of which is most valuable information for those who grow fruit for sale.

My grapes were killed with the frost last June, but they have made a good strong growth, and, if all is well, will do better another year. We shall keep them covered a little longer this year. The gooseberries were good; the Downings and Smith's Improved were a large crop. Currants were excellent, loaded down. The plums were a good crop but spoiled with too strong application of Paris green; we are led to think that there is a great difference in the strength of some Paris green; it varies in strength very much, so that it cannot be used without care. The cherry trees, sent one year ago last fall, have made small growth this season, although they look healthy and are doing well. Princess Louise apple was affected with something that stunted the growth. I think it will recover as it looks healthy. If all is well I will report another year upon the trees and plants received.—Yours truly, CHARLES HICKLING, SR., *Barrie.*

A WINTER JINGLE.

GRANDMA is softly crooning;
  Knitting at her stocking,
Her foot upon the cradle,
  The waukrif baby rocking.

Mother at the spinning wheel.
  Spinning fleecy yarn,
Jenny baking cakes o' meal,
  Father 's in the barn.

Nan is sentinel o' the fire,
  Her mission is the griddle,
Kate is milking in the byre,
  And Tam is at his fiddle.

Grandpa sits at the window
  Reading at his papers,
Daft Jock, with arms a-kimbo,
  Is cutting up his capers.

Lizzie sits upon her creepie
  Singing to her dolly,
Bub " is resting very sleepy,
  Head pillowed on his Collie.

Oh, weel, I love our cosy cot,
  And our restful winter days;
A gift from Heaven is my lot,
  To the Giver be the praise.

Tho' all around is cold and gray,
  Swallows and summer bees
Soon again will find their way
  To the blossoms and your eaves.

Storm-blasts will soon be over,
  Soft air will come again,
And we'll gambol in the clover
  Through all the Summer's reign.

The lilies and the roses
  Will soon look blithe and gay
And we shall gather posies
  In the coming month of May.

Mount Royal Vale. GRANDMA GOWAN.