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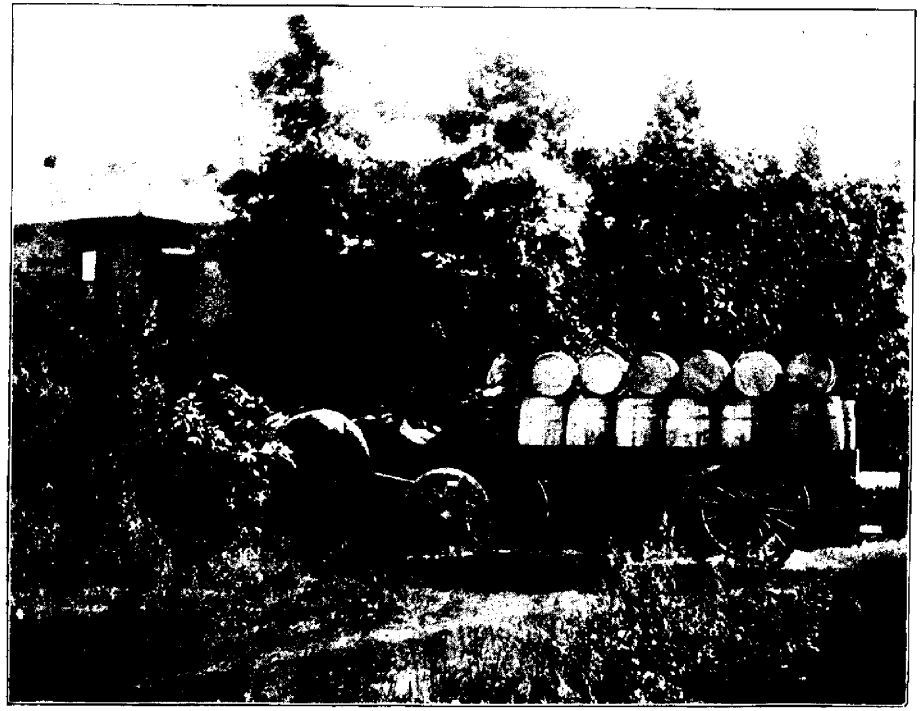

Shipping Bartlett Pears.

THE

Canadian Horticulturist

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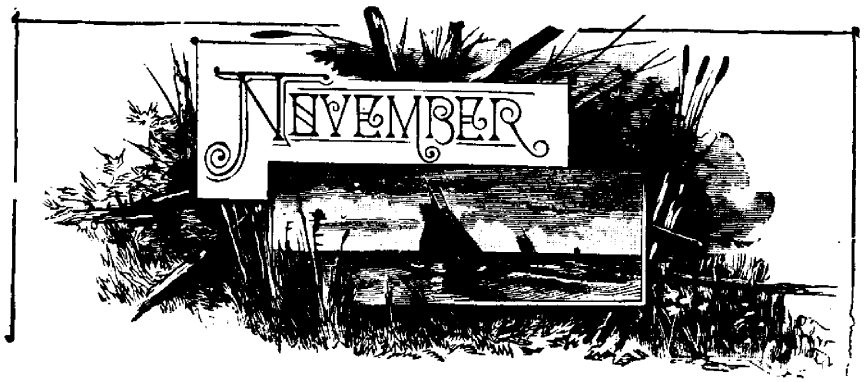


MR. GEORGE CLINE'S PLUM ORCHARD.

ONE of the largest plum orchards in the Niagara District belongs to Mr. George Cline, and is situated about midway between Grimsby and Winona. The conditions here at the foot of "The Mountain" are much the same as those at Clarksburg, where our Plum Experiment Station is situated, so that varieties that succeed at the one place may be almost counted upon as sure to succeed at the other. It is the same mountain that winds up from Hamilton to the Manitoulin Islands, passing near to Collingwood, and dividing up near Clarksburg to form the Beaver Valley. When driving through this section with Prof. Hutt, we were struck with the general appearance of the orchards which so resembled our own at Grimsby.

We visited Mr. Cline on the 14th of August, and found his force of pickers busily engaged harvesting the Bradshaw; we took a snap shot of them at work as shown in the engraving on the next page. Mr. Cline's trees are breaking down under their immense loads of fine fruit. He had nearly all varieties in his orchard, but of course, confines his attention to only a few for market purposes. Already he had harvested about 4,000 baskets—chiefly Bradshaw and Washington, and expected that his crop of all varieties would amount to about 12,000 baskets. This is not an extraordinary crop when we consider that Mr. Cline has about 5,000 plum trees, mostly in bearing.

The plums are picked by gangs of men in the orchard as shown in Fig. 1008, and brought to the fruit-house for packing. Mr. Cline's sons take charge of the work to a large extent, and superintend the packing and shipping.

FIG. 1008.—PICKING PLUMS IN MR. CLINE'S ORCHARD.

Mr. Cline's fruit-house (Fig. 1009) is simple in construction, and quite inexpensive, costing only about $300 complete. The main part is 24 x 36, built

of concrete, with cellar under the whole, the walls of which are about nine feet high. The shed addition for driving under is 14 x 36. The whole can be easily understood from the accompanying engraving.

The Bartlett pears were also being harvested at the time of our visit and shipped away in barrels to Canadian markets. A load of about fifteen barrels of them was just going off to the train, and we took a snap of them also (frontis-

FIG. 1009.—FRUIT HOUSE.

piece) in order to show our readers Mr. Cline's new fruit wagon, which is well adapted to carrying large loads of fruit. Many fruit growers about Grimsby are providing themselves with large platform wagons, which will carry about twenty barrels standing upright, but Mr. Cline prefers this long commodious box.

Mr. Cline's fruit farm is near the Mountain extending down to the line of H. G. & B. electric line by the side of which he has built his house, a two story brick, well sheltered by groups of evergreens, and other trees. (Fig. 1010.)

FIG. 1010.—RESIDENCE OF MR. GEORGE CLINE, NEAR GRIMSBY.

C. R. H. Starr, of Wolfville, Nova Scotia, says that the output of Nova Scotia apple orchards to the English markets this year will be between 300,000 and 400,000 barrels. The crop will be the greatest in the history of Nova Scotia. The year before last the export from Nova Scotia to England was 225,000 barrels, and last year it was less. The crop is light in England, but it is heavy in the United States and Ontario, as well as in Nova Scotia. Tonnage is comparatively scarce and shippers are compelled to pay about five cents per barrel more than last year.

English Rules for Judging Fruit.—The following rules, says Garden and Forest, are in use by the Royal Horticultural Society, London: The fruit is judged by points, 12 being the maximum, and these points are distributed in the following proportions: For flavor, 6; for quality, 3; for appearance, 2; and for size, 1. It is explained that "quality" is intended to mean the degree of smoothness or meltingness of the flesh (the absence of grit), or, in case of early apples, crispness and juiciness of the flesh may be considered. Quality, therefore, refers mainly to the texture of the flesh. Appearance, of course, includes color and beauty of form; but size, which counts only one-twelfth in the estimate, does not mean that the largest fruit receives the highest marking. There is a type size, which invests the fruit with its greatest value for table use, and this is counted perfection. Enormous specimens are not preferred, since beyond a certain point size is a defect in dessert fruits.

PACKING APPLES.

ALL apple growers who have a few hundred barrels or more of apples to handle should be able to pack their own apples in a proper manner for export. This is all the more important in a season like the present, when apples are so abundant, that buyers can get fine fruit at their own prices. How is it that when winter apples are selling (Oct. 6th) in England at from $2.50 to $3 50 per bl., buyers here are only paying about 80 cents per barrel? All the expenses of export are only about $1.25, and it is plain that the buyer is making more than the grower.

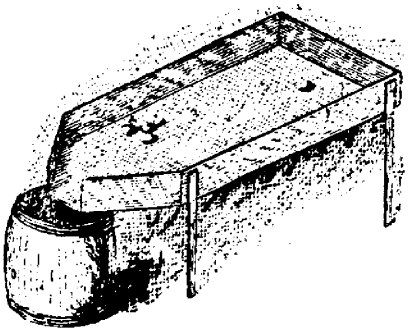


Fig. 1011.—PACKING TABLE FOR APPLES.

A few hints on the best methods of apple packing will therefore be in place, and may help our growers to get proper remuneration for their goods. Indeed in no other business except apple growing, do people ever think of waiting for somebody to come along and pack their goods. Why then should the fruit grower let his apples rot in his orchard waiting for some travelling buyer to offer him a mere song. He should on the other hand wake up to his opportunities, learn to pack his own fruit, and put himself in communication with the best markets.

Harvesting.—A common mistake is to leave apples hanging on the trees till the middle of October, by which time a large quantity of the sound fruit will be blown off by the winds, and that remaining will be over ripe. It is better to begin as soon as the apples have their full color, and this begins with some varieties about the 20th of September. Our practice is to gather apples in about the following order, according to their time of maturity; viz., Blenheim, King, Ribstons, Snow, Greening, Cranberry, Golden Russet, Spitzenberg, Baldwin, Roxbury Russet, Spy.

In the case of a large crop of a thousand or more barrels it is best to pack for the most part in the orchard. We do not favor the common practice of making piles on the ground, to be left exposed to rain and sun, and to be picked up again by hand. A packing table can be quickly made, such as is shown in the illustration, Fig. 1011; this is carried from place to place in the orchard, convenient to the trees, and the pickers dump the apples upon it, while the packer proceeds to pack them into the barrels. One good packer with an assistant a part of the time, will put up, and head thirty or forty barrels a day in this way; and keep four or five pickers at work.

In grading it is very important to make No. 1 strictly first class, free from worm-holes, knots or scab, and fairly even in size. If No 1 grade shows too great a difference in size, it is well to separate large ones, and make *No. 1. first size*, and *No. 1 second size.* In a year like the present, it will not pay to put up grade No. 2 at all. Better let them waste in the orchard than glut the market with them, and perhaps the shippers be drawn on for the freight.

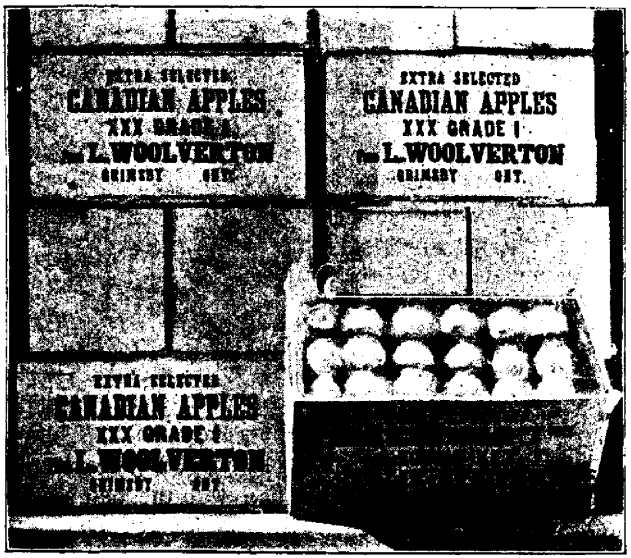


FIG. 1012.--

For extra fancy apples, such as selected Fameuse, selected Kings and Cranberry Pippins, it sometimes pays to use a half barrel or bushel case, such as was shown at the recent meeting of our Association at Woodstock by the writer. Especially for our export trade in apples to Australia, there is no doubt that the bushel case is well adapted, but for ordinary stock the barrel is the best package. We experimented considerably with the bushel case last year, and the report from Liverpool advised they be not used for ordinary stock ; that the barrel was the best possible package for the wholesale markets.

THE SCARLET PIPPIN.

WHEN paying an official visit to Mr. Harold Jones, fruit experimenter for the St. Lawrence district, last year, we were shown an apple of great beauty which originated at this station, and which seemed to possess promise of great value. Mr. Jones himself has proved it most valuable for export as a high class dessert apple, free from scab to which the Fameuse is subject, and almost equal to this famous apple in quality. Mr. Jones showed some beautiful samples of this apple at the winter meeting of our Association at Woodstock, and now Mr. Craig, of the Central Experimental Farm, at Ottawa, has had his attention also drawn to this apple. Mr. Craig has forwarded two samples to the writer, and writes :

SIR,—I sent you on Saturday a package containing some specimens of an apple called the "Crimson Pippin" sent to me by Mr. Harold Jones, apple experimenter at Maitland, Ont. I send this to you in order to draw the attention of the readers of the HORTICULTURIST to a family of exceedingly interesting, and what I think will prove valuable apples, which seem to have originated in or about Brockville. I say family of apples because from the character of the flesh and judging by its quality and general appearance I believe this Scarlet Pippin to be a relative of or to have originated from the same strain of seed as that which produced the McIntosh Red. A number of seedlings of the same character have been sent to me from the St. Lawrence district about Brockville. Only two days ago some specimens were sent in here which were grown from seed obtained from that region about 18 years ago. This latter sample would easily pass for a McIntosh Red, but was firmer in flesh and slightly more acid. I merely mention this fact in order to show what is being done in a hap-hazard way in plant breeding and to emphasize what might be done if a carefully thought out line of action were decided upon and carried to completion.

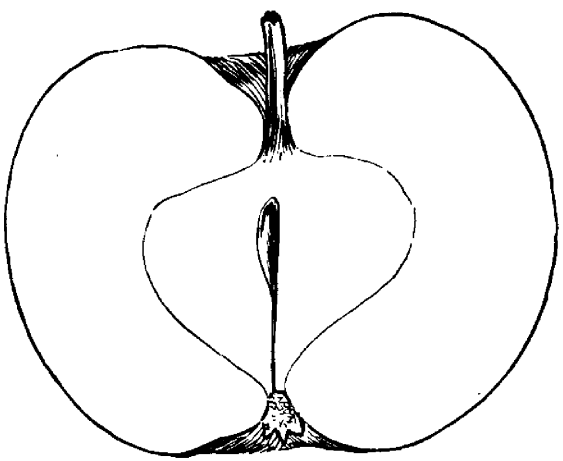


FIG. 1013.—SECTION OF CRIMSON SCARLET PIPPIN.

THE BAY OF QUINTE APPLE STATION EXHIBIT.

OUR Fruit Experiment Station near Belleville promises to be of great practical value to apple growers. One hundred and thirty varieties of apples were shown at the Industrial from this Station, and our experimenter, Mr. W. H. Dempsey, was himself present with us most of the time to give information concerning varieties. A view of some of these stations is here given by the kindness of our excellent contemporary "Farming." The fruit trees at the Station were largely planted by Mr. P. C. Dempsey, our late Director for Division No. 4, and his son, Mr. W. H. Dempsey, is

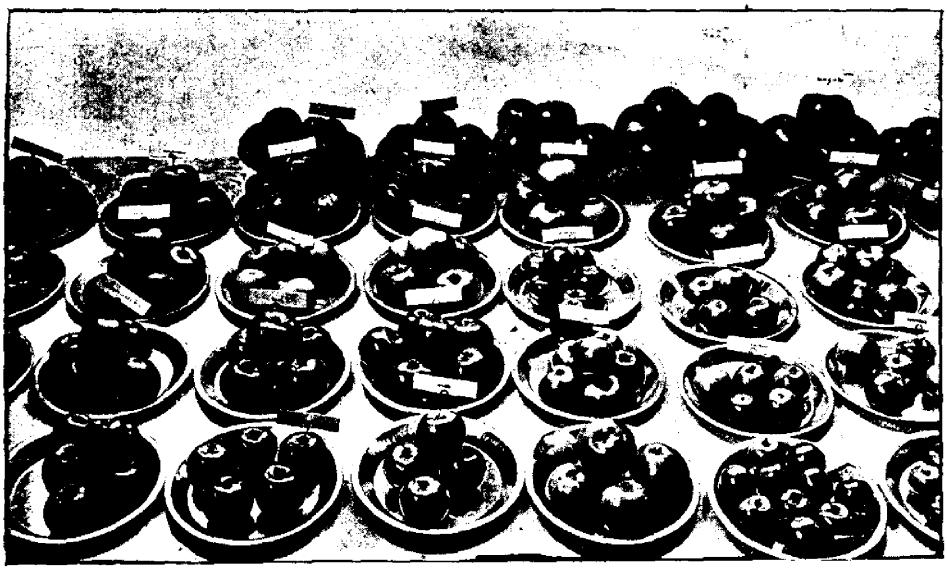


FIG. 1014.—A VIEW OF BAY OF QUINTE STATION.

proving himself a worthy successor. He not only interests himself in the many varieties top-grafted in his orchard, but takes great delight in adding all the new varieties which we are forwarding him by order of the Board of Control. It is the intention that this Station should have every variety grown in Canada under test, so that we may report upon its value.

OUR EXPORT TRADE IN FRUITS.

FORTUNATELY for the future prospects of Ontario Fruit Growers, the Department of Agriculture for the Dominion is making arrangements for the encouragement of our export trade in fruit. The exceedingly large crop of fine apples harvested the present season, demonstrates not only the great possibilities of Ontario as a fruit producing country, but it also proves the importance of an extended export trade in all our finer fruits. The other British Colonies are taking full advantage of the excellent market of the mother country, and are reaping a great increase of revenue thereby. The Journal of the Society of Arts published in Covent Garden, London, says:—

The increased facilities for exporting fruit by the adoption of cool chambers have enabled Australian fruit growers to compete with foreign States in the fruit supply for the English market. The Tasmanian trade with England has passed the experimental stage, and every season large steamers visit Hobart to receive fruit for the home market. With the exception of Tasmania, at least up to 1892, all the colonies imported more fruit and fruit products than they exported. The garden and orchard crops of Queensland, Victoria, and West Australia give the most return per acre—from £20 to £24. In the other colonies, in 1892, it averaged from £11 for New South Wales to £19 for New Zealand. The smallness of the average for New South Wales was explained by the fact that the producers could not get their produce sold and had no facilities for disposing of it.

New Zealand has left no step untaken to develop an export industry. The Government appoints pomologists and instructors, gathers information about the demand in the home market, and all advice likely to be useful to would-be exporters. Generally speaking, all English fruits grow luxuriously, and in the Auckland district, oranges, lemons, and limes flourish as well as olives, the manufacture of oil from which promises to be an important industry. Home grapes are largely sold in the Auckland market. The apple orchards near there have existed half a century, and yield returns of £40 to £50 per acre. Orchard planting is progressing, and must soon become an important industry. New Zealand has to some extent mastered the problem of landing fruit in a good condition in the London market, and the trade has passed the initial steps. It is important to notice that fruits of the proper varieties, and properly packed, have invariably realized remunerative prices. It is largely a question of packing and freights as to how great an extent the trade grows.

. . . . . .

It will be necessary to say little about fruit in *Tasmania*. Apples from

that colony have become in England one of the most acceptable fruits for the early spring, though they were unknown to us here as an article of commerce prior to 1889. Expert advice on the varieties, the modes of packing, transit, and all details was sought. Then the market was sounded, fruit brokers approached, and the information sent throughout the colony. The mail companies assisted, and the fruit, on arrival, was inspected and reported upon. All this is unnecessary now; a sound footing for the trade has been secured, and Tasmania sent us last season 160,000 bushels of apples Some improvement, however, is needed in distribution here, for the growers declare that the London middleman swallows too large a proportion of the profits.

Canada has done her part in one fruit only, and that is the apple, a trade which is rapidly assuming colossal proportions. In 1881 Canada sent to Great Britain over 45,000,000 lbs of fruit, and in 1891 over 68,000,000. The average export of apples each year from 1891 to 1893 was over 2,000,000 bushels, against only 176,000 bushels from other British possessions. In 1895 Canada's exported apples amounted to nearly two million dollars. But this is only a small part of what Canada can do in apples, as the records of 1896 will testify. Then consider her grapes, plums, peaches, pears, tomatoes, early apples, and small fruits, all of which might find a good market in the great cities of Europe, if cold storage chambers of sufficient size can be secured. This, we are glad to note, is one of the plans which the Hon. Sidney Fisher, the Minister of Agriculture, has in view.

According to the Journal above quoted, there are in Great Britain some 218,428 acres of orchards; they are increasing very slowly and, considering a trade in fruit, if we except pears in a good season, English competition need not be considered. Much development of English fruit-raising will not take place;—the difficulties are (1) the climate, (2) land tenure, (3) unprofitableness in most years. We may, therefore, look with confidence upon the permanence of this export trade.

There is also hope that Australia may become a good market for Ontario apples. Cranberry Pippins sent by the writer to Sidney in 1895, sold as high as $3.75 per bushel case, and the freight through was only about $1 per case. The only bar is want of cool chambers for crossing the tropics, but we are informed there are already cool chambers on board the steamers from London to Sidney, so when we have them from Montreal to London, the chain will be complete.

THE IRON-CLAD APPLES.

The dwellers in those cold parts of our continent where the thermometer ranges downward into the thirties and forties below zero all through the winter, and the mercury is almost sure to freeze two or three times, have been greatly

cheered by the discovery of apple trees which will endure such cold without harm, and yield good fruit abundantly. With such sorts as the Russian Yellow Transparent, Tetofsky, Duchess of Oldenburg, Switzer, Longfield, Antonovka, Titovka, Bogdanoff, Arabskoe, and the Anises, and the American seedlings, Bethel, Foundling, Wealthy and Scott's Winter, with various others now being brought into notice, there is no part of North America yet inhabited by white men that cannot grow good apples in profusion. The demonstration of this fact has been accomplished in the last fifteen years. It is the work of men unknown to fame, whose names will never be celebrated in the historical annals of any country, yet who have conferred a great and enduring boon upon many millions.—Vick's Monthly.

LORD ABERDEEN'S REFERENCE TO OUR ASSOCIATION.

IT is with some satisfaction we notice that the first gentleman in Canada, our Governor General, is a regular reader of this Journal and of our reports. In his recent address at Markham, he made reference to our work in the following terms:—"What did we read in one of the Toronto daily newspapers last Monday? We read, or might have read, the following: 'Canadian apples, London, Sept. 27. Messrs. Woodall & Co., of Liverpool, report that Canadian fruit arrived freely during the past week, and has shown more quality. The quotations per barrel are as follows: Fancy reds, 14s. to 17s. 9d.; good reds, 12s. to 15s.; 20 oz., 9s. to 11s.; White & Co., of London, report the arrival of 700 barrels from Canada, chiefly fall fruit, fetching 10s. to 14s. per barrel; also 800 Nova Scotians, chiefly Gravensteins, fetching 8s. to 12s. A large quantity came here via Liverpool, of which Baldwins fetched 11s to 13s per barrel; Kings, 14s. to 17s.; Greenings, 10s. to 11s. A lot of these were slack-packed fall fruit, and ought never to have been shipped here, as it spoils the business. There is every prospect of good business for good apples. properly packed, arriving here in good condition.'

"It is not the first time that we have heard something of this sort. If any one were to stand up in this crowd and say something hostile to Canada or her trade, I don't think he would get a favorable reception. I would not envy him. But what about sending inferior and badly packed articles to a distant market? However unintentional there is the liability to a harmful result. (Hear, hear.) I believe Sir Charles Tupper, when High Commissioner, did good service when he objected to all the apples from this continent being described as American. He encouraged a system by which Canadian apples should be classified as a distinctive article in the British market. This is, of course, desirable, but it involves responsibilities, as well as advantages. If Canadian apples are to be

classified as such, this, of itself, emphasizes the need of care and watchfulness. And I venture to say that the Ontario Fruit Growers' Association has done good service in this direction. I believe there is still some difference of opinion as to whether the inspection and grading of fruit should be compulsory. There is, in fact, already a statute providing for this, but I understand that it is to a considerable extent inoperative. If, however, the Fruit Growers' Association believe that it ought to be put in full force, I have little doubt that they will succeed, and it is to be hoped, therefore, that they will move forward in that direction, if such action seems clearly desirable. I have alluded to fruit, but similar observations might be applied to other products, and more especially to those of the dairy. And not only is watchfulness needed, but we must also agree that a system of cold storage would do much towards enabling the Canadian farmer to enter the British market. As to the association to which I have referred, and others of a similar sort, I think their existence certainly illustrates that recognition on the part of the farmers of the need of scientific, as well as energetic, methods of farming, and their existence is therefore doubly to be welcomed. Farming is a pursuit needing skill, brains and all the resources of our community, and, as I have said already, those who promote the agricultural interests, are doing a patriotic work, of benefit not only to themselves, but to future generations."

QUINCE CULTURE.

ANY soil that will grow 50 bushels of corn or 100 bushels of potatoes per acre will grow quinces. The ground should be rolling enough to drain well but not hilly enough to permit the soil to be badly washed away by rains. If it washes the top soil will soon disappear, leaving the roots near the surface, or entirely exposed, which means death to the trees. Plant in rows 14 by 14 ft. Some growers advocate planting by setting one tree in the center of each four trees, but my experience is directly against it. In squares, rows both ways, the cultivation can be done both ways, which is the easiest, cheapest and best.

Quinces, like forest trees, need but little training. During the first two years remove branches that are likely to interfere or cross, for all branches then will be main branches in time, and will seriously interfere if allowed to cross or touch each other. After that the trees will nearly take care of themselves, as far as training is concerned. Let them head low and remain so; for quinces are of a dwarf habit. If the head is formed within a foot of the ground, it will not be too low. The best tool for cultivating is a disk or cutaway harrow, followed at intervals by an Acme harrow. These tools reach beyond the team and under the branches of the trees, thus stirring the soil and keeping down

the weeds under the trees. A plow is not very satisfactory. It cannot be used under the trees without danger of barking them; it does not leave the ground level and must be followed by some other tool to smooth down the ridges. The other tools mentioned do not throw dirt enough to form a ridge either at the trees or in the space between; either of which would not be desirable.

In the selection of modes of cultivation, above all things use horse power, as it will not pay to do much hand work. Quinces are very subject to the ravages of the borer, the eggs of which are laid by a moth in the spring at the base of the tree. When hatched, the young grubs bore into the tree and there remain, feeding on the sap, wood and bark until full grown. If not protected from its ravages the tree will be killed. No perfectly sure preventive has yet been devised, although several methods have been used that are helps. One is to mound up the earth around the base of the tree in the spring. Leave it until the moth has deposited her eggs, then remove it; which will generally remove the eggs and small grubs and cause them to be killed by the hot sun. Another method is to smear the base of the tree with coal tar or other preparation, that will repel the moth and kill the eggs and larvæ. Sometimes a mound of ashes around and close against the tree answers admirably. But when once in the tree it is best to kill them by knife and wire if possible, even at the risk of some damage to the trees, as their presence there in any considerable numbers means great injury to and final death of the trees.

Rotten chips from the wood, the ashes from the house, manure from the pig-pen, cow-stable or barnyard are all valuable fertilizers. If the orchard is large, or the soil not as good as desired, these can be pieced out with commercial fertilizer; all put on broadcast and harrowed in. Salt is sometimes recommended, but in the experiment I have made with it I could discover no appreciable benefit. Of varieties, I have had best success with the Orange and Old Pear, although Champion and Meechs' Prolific are both good.—T. E. Goodrich, Union Co., Ill.

THE LAWRENCE PEAR.

Many Eastern pomologists are fond of building up their faith with Beurre d' Anjou for their corner stone. While nothing can be said against this excellent variety, as time goes by, the impression of many growers in this part of the country is that the Lawrence is second to none for the purpose. It would be a loss to be bound down to but two or three kinds of pears, and no one here would like to be without the Bartlett and the Seckel in the garden, but where marketing or preserving is in question, it is safe to say the Lawrence is unsurpassed for profit. The tree is, perhaps, not so rampant a grower as some others, but then it is hardy and healthy, and a most prolific bearer. By a little care one can have the fruit to eat all winter. Left to itself it ripens about the

time of the first frosts here, say the early part of November. But some can be gathered earlier than this and ripened indoors. When all are picked and stored indoors, they ripen one after another for a period of a couple of months. There are really but few good winter pears, which is what makes this of so much value. There is one way in which this fine pear can be had, not only all winter, but all the next summer too, and this is by canning it. It is one of the very best of them all for this purpose, possessing a flavor which suits the taste of almost every one. If a half dozen pears are to be planted, let one of them without fail be a Lawrence.—Practical Farmer.

FERTILIZING THE ORCHARD.

THERE is much yet to be learned respecting the fertilizing of orchard lands. In general, nitrogen can be supplied in sufficient quantity by thorough tillage and the use of occasional cover crops of crimson clover, peas or vetch. In fact, it seems to be easy to apply too much nitrogen on some lands, causing the trees to make a too heavy growth. Young trees make light drafts of potash and phosphoric acid, and it is probable that apples and pears do not need much fertilizing on good soils for the first three or four years, if they are given good cultivation, unless other crops are grown with them. But just as soon as the trees show an inclination to bear, judicious applications of the mineral fertilizers may be made. If this fertilizing is begun thus early in the life of the orchard, and if the tillage is good,

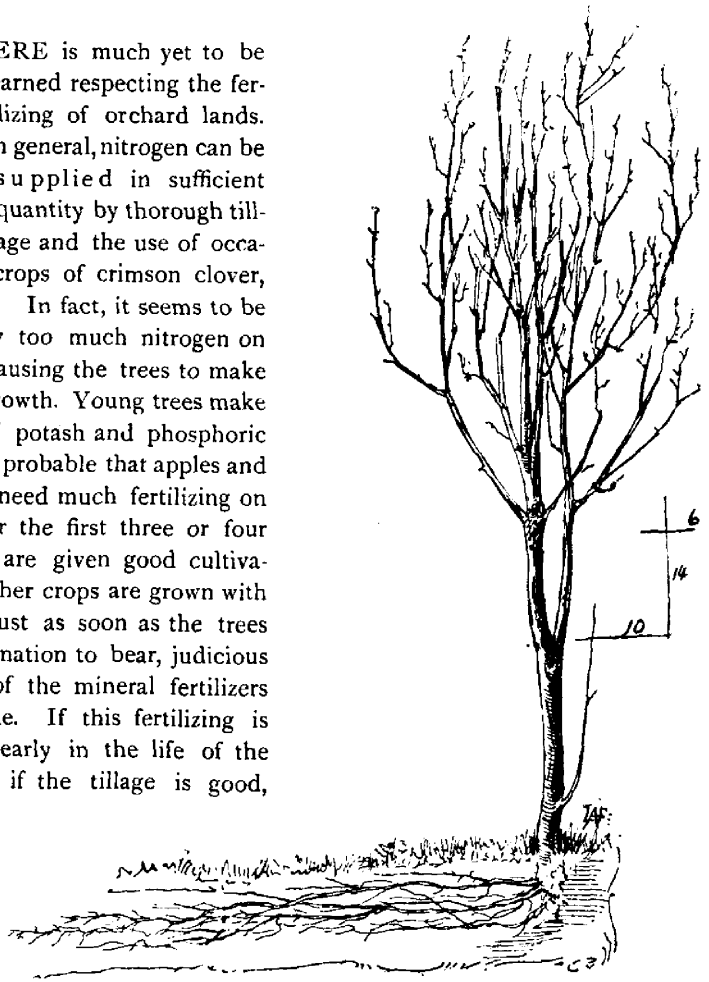


FIG. 1015.—ROOTS OF AN APPLE TREE IN SOD.

the applications need not be very heavy, but they should be applied every year. Two or three hundred pounds of high-grade muriate of potash, and an equal weight of some high-grade phosphate (as Florida or South Carolina rock or fossil bone) may be considered to be good dressings. Stable manures are excellent, but they are so seldom to be had in sufficient quantity that they are practically beyond reach.--Cornell Bulletin.

IMPROVED PROCESS IN CIDER MAKING.*

IDER apples should be placed in piles 12 or 18 inches deep under cover in well-aired sheds, to avoid heating and to protect them from frost and rain, all of which rob apples of flavor and sugar. Even a few decayed apples will cause the cider to be flat and of bad flavor. The French are careful not to mix properly matured fruit with either green or overripe fruit. To make fancy cider the fruit must contain sugar, albuminoids, tannin, mineral matter and a certain degree of acidity. Sugar is necessary to cause fermentation, and its transformation into alcohol gives to the cider its strength and body, and its preservative property. One may overcome its absence by adding, say 3½ pounds of sugar to the barrel of crude juice. Tannin is pre eminently the clarifying and antiseptic property of cider, and serves to modify the alcohol in cider, and without it the cider would soon become thick and ropy. In apples of good quality there should be from three to four grains of tannin per thousand, but certain sweet apples do not contain more than two grains. Albuminous bodies give body and softness to the cider, and help to preserve it by preventing fermentation of cider into acetic acid or vinegar. A moderate quantity of malic or tartaric acid is indispensable to proper fermentation, during which these acids act upon the alcohol as it is produced and form an ether, which gives to the cider a characteristic taste and smell known as "bouquet." Very sour apples contain too much acid and are mixed with sweet fruits to improve the taste of the cider and render it more digestable; hence, the mixing of several varieties of apples.

We judge French cider mills are not usually as good as our American machines, which make a complete mash of the fruit by grinding it up to fine pulp. After mashing the apples, the usual practice in France is to place the pulp in uncovered vats or tubs and leave 12 or 14 hours before pressing, stirring meanwhile from time to time with a wooden shovel, in order to bring the mass

*Compiled from a report of the recent French Pomological Congress, made to the Department of State by Consul Chancellor. Cider is superseding wine in France, and the utmost care is used in making it. Last year 678,000,000 gallons of cider were made in France, an increase of one-third over 1895 and nearly double the average of the past ten years.

into contact with the air. This is done to improve the color of the cider and make it richer in tannic acid, but recently it has been found that these advantages can be obtained as readily by aerating the crude juice, which is the practice in the best American cider mills. Before running the crude juice into barrels, the utmost pains is taken to have them perfectly cleaned. The barrel is washed with a bucketful of warm water containing a quart of ordinary sulphuric acid, and it is then fumigated with burning sulphur to destroy all vingar or other germs of decay. The most scrupulous cleanliness is observed in the cider cellar to avoid microbes injurious to the fine quality of cider.

After the juice or "must" is in the barrels, comes the most delicate part of the cider making, for a prompt but brief fermentation is necessary to clarify it before the sugar is entirely changed into alcohol; the remaining sugar keeps up a slow fermentation and prevents vinegar. This "working" is caused by a great variety of microbes,—one will produce a sweet cider, another a dry or sharp cider; one produces a fragrant limpid drink, another gives a flat and turbid cider. In France a leaven or culture of microbes, made from apples of the finest cider qualities, is added to common juice to improve the cider.

Fermentation is slowest at 32° F or less. At 130 to 140°, many of the germs die; between 68 and 78° they are most active. If the temperature is below 68, a small quantity of must, heated to about 120 or 125°, is poured into the barrel. Heating the cellar is condemned, because heat remains after fermentation has been established, and tends to increase the action of the ferments too much. Oxygen is essential to fermentation, hence the liquid should be stirred frequently; draw off a quantity now and then and return it to the barrel; leave the bunghole open, or preferably, stop it with a bit of cotton wool, which admits the air, but excludes injurious microbes. Fill the barrel only two thirds full of the juice at first, so that a much larger surface of the liquid will be exposed to the air. If the fermentation is retarded because the must is sour or too acid, add a little juice from a barrel that is working saisfactorily. A good cider may be destroyed by the addition of a bad ferment, due to not thoroughly cleaning the vessels used. Sometimes acid juice is neutral ized by the addition of a handful of wood ashes to the barrel and then stirred, but this produces a flat cider without color. When fermentation is active, a charactistic brownish foam rises to the surface; otherwise, there will be a white scum, which is a bad sign.

After 10 or 15 days, fermentation ceases. The liquor has become clear, the dregs settling to the bottom or rising to the surface, and the cider shows a specific gravity of 1015 to 1020. This is the time to draw it off by a siphon or by a spigot sufficiently above the bottom not to disturb the dregs. The cider is now run into a clean barrel, where it undergoes a second fermentation. When this ceases, indicated by the absence of further bubles of carbonic acid gas, the barrel should be completely closed until the time arrives for using the cider. Cider is preserved well enough in barrels when they are completely full,

but when the barrel has been partly emptied, there is danger of its degenerating in quality. Bottling cider has become a large industry in France. It is important to choose the proper moment for bottling, when fermentation is neither too active nor too feeble, so that the cider will be clear and sparkling, make a pleasant, refreshing and hygienic drink. It ought not to be bottled when its specific gravity is greater than 1015, and some experts wait until it indicates not more than 1010, then adding two lbs of sugar to one hundred gals of cider. In that way, a clear fragrant drink, sparkling as champagne, will be obtained.—American Agriculturist.

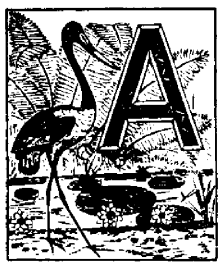
THE PEACH WITH THE APPLE.

THERE is perhaps more desire to plant the peach and apple together than any others. It would seem, upon first thought at least, that they are well suited to grow together, because they make trees of about the same general style and size, and the peach trees being the shorter lived will be soon out of the way of the apple trees. This has been tried very often and in some cases with good and satisfactory results, but my own experience and that of most others, whose orchards I have carefully observed, have not been so. The main trouble is, that the peach trees grow the most rapidly for the first few years, and rob the apple trees of a part of their nourishment. This prevents the apple trees from gaining the size and vigor which they should attain before or by the time bearing begins. In many cases the apple part of the orchard is the more valuable, although rarely the peaches pay the best, and in such cases it would have been better that the orchard had been all peaches. In a soil and climate where both succeed the better way is to plant the peaches by themselves and the apples also. Then the cultivation, manuring, spraying and general treatment of each can be done more conveniently and more cheaply. When the two are mixed in the same orchard, they may need different treatment, or, the same kind of treatment at different times.

The better way to fill up an apple orchard with temporary or short-lived trees, which will be out of the way by the time the main orchard needs the whole space is, to plant in between the permanent trees other varieties of apples which come into bearing very early. These will profitably occupy the space, and be ready to be cut back, and finally dug out, by the time their room is needed. Among such varieties are Missouri (Pippin), Wagener, Yellow Transparent, Wealthy and Whitney, which may be used, each in its region of success, or where the market suits it.—Green's Fruit Grower.

Flower Garden and Lawn.

THE BEECHES.



MONG ornamental trees peculiarly fitted for lawn planting the European beech and its numerous varieties are unexcelled. The species itself (*Fagus sylvatica*) is not, as many suppose, of slow growth, but when once established increases rapidly. With ample room, it is a widely spreading umbrageous species of clean growth, strong constitution and apparently not very partial to any one kind of soil. On the outer edge of a group of mixed trees it is especially noticeable for its long drooping branches, densely clothed with bright green foliage. The weeping beech, so called from the curious pendulous branches and numerous slender branchlets, is a tree which we can not too highly praise. It is not adapted for massing, for its peculiar structure fits it for a solitary position where it may have the benefit of the air on every side. To form a first class specimen the branches must receive due attention in its earlier years, both by severe pruning and tying into shape. The owner of a small lot would make a great mistake by introducing the weeping beech into his little collection, as it is assuredly a tree "to which distance lends enchantment to the view."

With the purple or blood-leaved beech the case is different, provided there is sufficient space for its development. The regularity of its growth and striking rich plum color of the foliage render it acceptable in almost any well regulated place. With a background of evergreens it is particularly charming and forms a living picture of which one never tires. An avenue of this form, alternated with some silvery-hued conifer, will create a rich effect where such a system of planting is admissable.

The next variety in point of usefulness is the fern-leaved beech, which is of slower growth than either of the above To enhance its beauty the branches should be encouraged to start out from the ground. It will also bear clipping equal to a box and thicken up under the process into a dense ball. Without this artificial assistance it is still an exceedingly graceful tree, with long, horizontal branches, clothed with attractive fern-like leaves. It seems equally adapted for massing or as an occasional single specimen on the lawn.

The form known as the cut-leaf beech is similar in growth to the above but has its foliage in curious green strips of different sizes and outlines.

The curled-leaf beech is extremely odd in appearance, but is only grown. as an object of curiosity. There is no beauty whatever in such a monstrosity It may be said, however, in its favor that the tree grows well and is usually well

supplied with deep green foliage. It is the *Fagus sylvatica cristata* of the catalogues. There are two forms of this kind occasionally to be found in foreign collections, with variegated leaves, but as our hot summers invariably scorch them badly it is wise to reject both.

It would be unjust to one of our most valued native trees if in this paper we were to ignore the importance of the American beech (*F. ferruginea*). It is not so dense a grower as its European relative, nor has it as fine large foliage as its foreign relative, but it possesses a beauty peculiar to itself and a character that belongs to no other tree. In a word, it is invaluable as a lawn tree in grounds of ample extent, but would be entirely out of place in the limited door-yard.—Josiah Hoopes.

GRADING A LAWN.

THE grading, when properly done, is a most costly and difficult task, and that wherein the artistic tastes and judgment of the workman most plainly come to light. Around dwellings there should, of course, be as perfect a grade as possible. Away from dwellings, especially on large lawns, many prefer an undulating surface as being more natural and, therefore, more artistic, with which idea I am in full sympathy. The undulations, when they naturally exist, should be carefully smoothed and made gradual, so that when mown with a horse lawn-mower the grass shall not be cut too long and too short in places, making the lawn look spotted, especially in a dry time, when grass cut extremely short is likely to burn out, or at least get badly injured.

I find it takes more care properly to grade a lawn with an undulating surface than on a comparatively perfect grade. The top soil for at least 12 inches should be carefully cleaned of all stones the size of a hen's egg and up, and of all roots and trash of every kind. It cannot be made too clean. For sake of both economy and good work, I use horses and horse implements as much as possible in grading. In so far as they can be used, they are much cheaper than the average Irishman with his wheelbarrow, pick and shovel, and the inevitable short stemmed pipe, smoked upside down. Where soil is not likely to wash, I think it best to let it lie (when graded in the latter part of summer or in the fall) till the following spring. Unless carefully firmed by hand, an expensive task, it is bound to settle more or less unevenly. After settling, the unevenness of the surface can be easily corrected just before seeding. Where any grading is so deep as to go into the subsoil to a considerable extent, care should be used in saving the top soil, so as to have it on top when the grading is completed. The more even the depth of this top soil, the better for the appearance of the lawn.—Country Gentleman.

CARE OF PLANTS AFTER LIFTING.

FIG. 1017.—PLANTS AFTER BEING LIFTED FOR WINTERING.

COME now to what I consider one of the most important parts of the planting operation, namely, that which has to do with caring for the stock immediately after it has been potted. It is a point on which success and failure more largely hinge than the average amateur is aware. If I were asked: Why is it that the professional plant grower so uniformly successful in bringing on the plants he lifts, while the amateur so often meets with but half success, my answer would be: Differences in care right after lifting.

Have you ever noticed that when the leaves of any soft-wooded plant wilt completely, be the cause dryness or whatever else, that they never again possess their full beauty? I have. The point I would impress is: So care for the lifted plants that they never will wilt or appreciably flag. It can be done, and this is what the regular florist does, but which the amateur usually in some measure neglects.

How shall it be done? Like many important operations in gardening it is most simple. It consists, first, in setting the newly-potted plants in a body so closely together that the pots almost touch, just as is shown by the mass of geraniums in Fig. 1017. The spot chosen for this should be one that is well shaded, and where the wind does not have sweep. Next comes intelligent watering and sprinkling. Water once thoroughly on the completion of the potting and not again for a week. But in place of watering, sprinkle the foliage lightly, half a dozen times each day. In this way the leaves can be wholly kept from flagging. So far as the roots are concerned these need, in the case of plants thus treated, almost no water, for a week; an excess would be injurious.

After a week the plants should be moved to a place having a little more light; at any rate, they should be spread out to let more air and light down

among the foliage and between the pots. But keep up frequent sprinkling, the same as before. In about two weeks they will have made enough new roots to sustain them finely in almost any situation, and that without the leaves showing any signs of wilting.

What is worth doing at all is worth doing well; surely in plant culture it is worth while to take some pains to thus get the stock into proper shape for winter.—American Gardening.

BULBS FOR HOUSE AND WINDOW CULTURE.

HEN the qualities of the Holland bulbs are considered, the beauty of their flowers, the fragrance of many of them, their hardiness, the ease with which they can be raised, adapted to the circumstances of everyone by their cheapness and the few requirements of culture, so that one having a single window can have the pleasure of them as well as one who has a greenhouse to devote to them, it is not so surprising that so many thousands and millions of these bulbs are raised, but that everyone, who admires plants, does not provide them for house culture as surely as the season of them arrives. It is gratifying to have the evidence which yearly presents itself that the love of these plants is steadily growing and spreading in every direction in town and country life.

If the bulbs are wanted merely for the bloom of one season the character of the soil, provided it be light enough, would be a matter of comparative indifference, for their blooming would depend more on the strength of the bulbs than on the quality of the soil in which they are potted. Most persons, however, after blooming hyacinths and tulips in the house, plant them in the garden in the spring to remain indefinitely, and consequently like to keep them as good as possible. A good potting soil for nearly all bulbs and house plants may be prepared by a little timely attention. A mixture of fibrous loam, leaf mold and sand with a little old stable manure constitutes the proper material; do not use fresh manure. The fibrous loam is prepared by cutting some sods and placing them in a heap, grass side downwards where they will decay. When the grass roots have rotted, and so that they will crumble down, the soil is ready for use, and it can then be mixed with a quarter of its bulk of sand and as much more of old manure. If leaf mould from the woods can be produced about as much of it can be added as a fourth of the loam. These substances well mixed together will make a valuable potting soil.

A 5-in. pot is the best size, but if one has but a 4-in pot it can be used; or if larger ones, they can contain more bulbs. If one is where pots are not easily to be had, a wooden box may be made to do good duty, and many a good wife

knows how handy are tin cans for the same purpose. Bulbs can also be grown and bloomed in wire baskets lined with moss if care is taken to give sufficient moisture. Window boxes are also desirable receptacles for them. Bulbs which have bloomed in water are so far exhausted that they are not worth further attention, but potted bulbs, after blooming, can be cared for until they finish their growth, which may be known by the leaves turning yellow. When this appearance first manifests itself less water should be supplied, until at last the plants are allowed to become dry and dormant. Then they can be planted in the garden, to be left permanently.

After rooting bulbs in a cool and dark place, which is a necessity in order to secure vigorous blooming, the next consideration is to provide them with a place where they will have a good exposure to the sun, and at the same time a temperature comparatively low. A heat as near 50° to 55° as can be maintained is best. It may be somewhat higher in strong sunshine and somewhat lower on cold nights. On mild days they should have the fresh air by opening a window. A high temperature and close air will cause them to grow spindling and feeble. Most bulbous plants require plenty of water during active growth and blooming, and a failure of the supply will shorten their season of beauty.

Great quantities of tulips, hyacinths and crocuses are planted in beds and borders, and even while the weather is still cold, and before the leaves appear on the trees and shrubs, these brilliant hued flowers make the gardens bright and pleasant. They are planted in solid masses of contrasting colors, in lines of different shades, in simple geometrical figures, or in more complicated designs. A piece of well-drained, light and rich soil is the best; if heavy this condition may be much bettered by placing a handful of sand in each hole where a bulb is placed, and after setting the bulb thereon, covering it entirely with sand. Except in heavy tenacious grounds this is not necessary, but even on moderately stiff soils it is a good procedure, and is to be advised if sand can conveniently be had.—James Vick's Sons.

MAKING FRUIT ATTRACTIVE.

Fruit is always sold very largely by its looks. The highly colored apples will always bring higher prices than those of a duller or green color. With pears there is a partial exception, as there are so many superior varieties of a rusty color that this rather than bright red has the preference. But with the pears that do color, the more highly colored any specimen may be, the better it is likely to prove. But so much depends on an attractive appearance that many growers have learned that there is money in putting a spray of green leaves to offset the color of the fruit. This is almost always done in selling the finest peaches, and fruit growers are learning to treat other fruit in the same way.

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 ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION of Ontario will be held in the lecture hall of the Dairy School Kingston. The meetings will begin on Wednesday Dec. 2nd at 2 o'clock p.m., and continue until Friday noon. The first evening there will be a joint meeting of the Kingston Horticultural Society and the Ontario Association when address are expected from Prof. H. L. Hull, of O.A.C. Guelph, on Chrysanthemum Culture, and from Mr. O. S. Johnston, Kingston, on the Rose Garden, to be followed by discussion.

Besides these there will be addresses from the Mayor of the city, the President of the Kingston Horticulturist Society, and representatives of other affiliated societies.

On Wednesday evening there will be an address by Prof. Knight, of Queen's University, on "Organic Evolution," illustrated by lantern slides. This lecture will occupy about forty minutes, after which addresses are expected from the Hon. Sidney Fisher, Minister of Agriculture for the Dominion, and from either the Minister of Agriculture for Ontario, or his Deputy.

During the Day Sessions subjects of great interest to fruit growers will be considered, as for instance :

How best to develop the Fruit Industry.
Cold Storage.
Transportation.
A Depot for Canadian fruits—London England.
Fruit Culture, and Potato Culture Combined.
Fruit and Dairy Combined.
Hardy Fruits.
Over Planting, etc.

We expect also Director Mr. Saunders, Horticulturist Craig of the Dominion Central Experimental Farm to be present and address the meeting.

There will be a fruit table for samples of fruits and flowers from various parts of Ontario, and notes of anything shown which is of interest will be taken by the Fruit Committee for publication.

THE HAMBURGH EXPOSITION of 1896 is to take place next summer, and a letter has just come to hand from the Committee for publication. It appears that no trouble will be spared to make it a grand success, and that horticulture is to receive very special attention.

A VERY LATE PLUM.—On the 10th of October Mr. A. M. Smith of St. Catharines sent us a blue plum which he esteems valuable on account of its late season. It is medium size, round, very dark, with greyish bloom; flesh tender, sugary, delicious. He also sends a red plum, of about same size, and season, but much inferior in quality.

FRUIT FOR HER GRACIOUS MAJESTY.—On Tuesday the 20th ult., we had a call from two prominent citizens of Hamilton, Mr. Anthony Copp, and Mr. Heard. The object was to secure a shipment of some choice Canadian fruit to be forwarded to the Queen. The idea was that this would advertise Canada's fruit in the most effectual manner, and lead to a great demand in Britain for it. It was agreed that several cases containing each a different variety of fruit, should be sent forward, including such varieties of apples as King, Spy, Cranberry, and Snow; the best Roger grapes, and several varieties of pears.

THE GOVERNORS OF THE DAIRY SCHOOL at Kingston have kindly offered to the Fruit Growers' Association of Ontario, the free use of the lecture-room of the Dairy School, for our annual meeting in December. The date chosen, December 1st, at 7.30 p.m., seems to be generally accepted as the most satisfactory. We hope to have some consideration given to the relationship between the two interests. Can dairymen profitably add the orchard to their cares, and can the fruit grower also add the dairy without neglecting his fruit? We expect a paper on this subject from some prominent dairyman.

DR. SAUNDERS, Director of the Experimental Farm Systems of the Dominion, has just returned from an extended tour of inspection, as far west as British Columbia. He reports that the fruit crop was much injured by cold, wet weather in blossoming period, but that on the whole the fruit crop of that country is becoming more important each year. The outlet is largely east throughout the North-West territories and to Manitoba, and better freight rates having been secured, the returns to growers are become more satisfactory. He has now under test at Agassiz about 2,000 different varieties of fruits, for the benefit of the fruit growers of the province.

APPLE REPORTS from Great Britain state that the great storms which have recently swept the British coast, have not only stripped the trees of their fruit, but ruined many of the orchards.

A FROST on Sunday night the 11th October, badly injured the grape crop not yet gathered in the Niagara District. Some growers have lost tons of their finest varieties. Evidently it pays to be forehanded with fruit gathering.

APPLES SHOULD BE GATHERED EARLIER than is customary. Not only does a large part waste by dropping through delay, but those hanging become over ripe for keeping. We found it none too early to begin harvesting our winter apples this season about the middle of September.

CURIOUS FREAK.—Mr. J. H. Wismer, Port Elgin, sends us a cross section of an apple which, on its exterior appears to be half a green apple and half a red apple. The line of division is clearly marked, and not only is the coloring of each half quite distinct, but even the dots and other characteristics. Does cross fertilization sometimes take effect upon the fruit as well as upon the seed?

APPLES HAVE DONE WELL enough in Great Britain this season, where quality has been first-class. We shipped 59 bls. of Gravenstein, Fall Pippin, Twenty Ounce, Wealthy, etc. Some of the Gravensteins' and Wealthy sold at 17/6, and the whole lot netted us $1.50 per barrel. One hundred and fifty barrels of Greenings shipped on the 19th September, sold, averaged 10/ and netted about $1. We expect to hear better reports of the colored varieties.

"EUROPE DEVOURING AMERICA'S APPLES," is the heading of a column of the New York Telegram. The article draws attention to the immense crop of apples in the U. S. and Canada and the unprecedented quantities being sent forward The shipment from all American ports up to date of about September 30, is 429,530 lbs., whereas to the same date last year the total was only 39,309, an increase of about a thousand per cent.

NEW SOCIETIES.—Now is the time for preliminary work. A public meeting should be called—provisional officers appointed—and some one engaged to canvas for new members. Fifty members are needed, and the final organization must be complete soon after January 1st.

Mr. Thomas Bealle, one of our Directors, will visit any place where his services are needed, free of charge, during the month of November, if application is made to the Secretary of the Ontario Fruit Growers' Association, Grimsby. He will thoroughly explain the working of such societies, and the proper method of forming the same.

ONTARIO SNOW APPLES are without doubt about the best dessert apples in the world. We have no doubt that they will command a high price in any market, and Mr. Glen is no doubt correct in all he writes concerning the demand for them in New York City. Indeed anywhere in the Southern cities this magnificent Canadian dessert apple should bring a fancy price during the winter season.

A CHRYSANTHEMUM SHOW would be a good thing for our Horticultural Societies to undertake in each place. Why not secure from some good florist enough fine plants to give each member a half dozen or more next May, good stocky plants, already potted, five varieties. What an inspiration such a show would be for the Society, and how it would encourage the cultivation of the chrysanthemum.

If such a plan were thought advisable, preliminary steps should be taken at once, because the plants should be started by a professional, and good stocky plants grown and potted in good time before the spring meeting of the Society. This meeting could be held in April, for the distribution of the plants to the members, and papers read on the cultivation of the chrysanthemum, so that each would know how to proceed.

ONTARIO FRUIT GROWERS are just now too much discouraged with their apple crops, and too many are allowing them to waste in their orchards. This should not be, for the finest grade will bring almost as good prices as usual. Seconds should not be gathered at all this season. Mr. E. J. Woolverton has perhaps 2,000 barrels of apples to handle, mostly beautiful Baldwins. He has just sent two car loads, three hundred barrels, to Hamburgh, Germany. We shall be glad to have a report of the results for publication.

FRUIT GROWERS should not be too much shaken in their confidence in the apple market by the discouraging reports so freely circulated by Montreal apple speculators. These men report "a collapse in the English market"; that "some recent shipments barely return expenses"; that there is "danger of being drawn upon for charges"; that "growers will do better to ship their fruit to Montreal, etc." Now, this advice is certainly "too thin," for good Canadian winter stock has scarcely begun moving yet, and what has reached England has sold at prices which are about as good as in other years. Evidently these men have an eye to business. They want to discourage our orchardists, until they are willing to almost give away their apples. Then they will step in and buy our magnificent Canadian apples for 40 or 50 cents a barrel, and ship them to Great Britain at a large advance.

Question Drawer.

Best Early Potato.

881. Sir,—Can you name a first class early potato that is profitable to grow on rather heavy soil; mine is rich clay loam, I have grown Carman No. 2 and Carman No. 3, this season and they both did better with me than any potatoes I ever grew and very few rotted. It is a pleasure to dig such fine large potatoes.

A. F., *Ridgetown, Ont.*

Would our readers who have experience with potatoes please answer. We have had excellent satisfaction this year at Maplehurst, with Burpee's Early.

The Prairie Rose. *(Question 873.)*

882. Sir,—Is there not a slip of the pen in your reply to Mrs. Wanderwoort in your Oct. issue regarding "Wintering roses?" You give Prairie Queen as a native of many Western States. This rose commonly called Prairie Queen, is properly speaking the Queen of the Prairies produced by Messrs. Samuel and John Feast of Baltimore Ms. in 1843. In 1836, they sowed seed of Rosa setigera which grows wild in the Western States, and is known as the Prairie Rose Seedlings from this sowing were fertilized by surrounding flowers from some of the best garden roses, and from their product came Baltimore Belle, Queen of the Prairies. The latter is the hardier of the two, while considered hardy I find they do better with some protection.

W. C. Egan. *Egandale, Highland Park, Ill.*

We thank Mr. Egan for his note on the Prairie Rose. The fact of the Queen of the Prairie being a seedling of the former, no doubt explains its hardiness. At Grimsby both it and Baltimore Belle are perfectly hardy.

Protecting Trees From Mice.

883. Sir,—I have about fifteen hundred young fruit trees planted here in new land that is yet stumpy, and, from last winter's experience, we expect that mice may do them considerable damage. I have thought of wrapping them with tarred paper or lath, or washing them with an emulsion of soap and carbolic acid. Will you kindly advise me the best way to protect the trees and, if you recommend a wash, please give formula.

C. E Smith, *Wyebridge.*

The wash proposed by our subscriber would no doubt be effectual, but the application of tarred paper would be simpler and quite as effective. Our own practice at Maplehurst has always been to clear away all rubbish from the trunk of each tree and place a mound of fine earth, free from sods, around the trunk about ten or twelve inches high. This will save the trees from damage by mice and can be rapidly done with a sharp spade.

Peaches at Port Hope.

884. SIR,—Can you give me any information regarding peach trees. I have a few planted on clay soil, but they die down every winter, being winter killed. They, however, shoot up each spring and grow so as to have a good sized stock. They are planted facing the south. Can anything be done to make them bear?

H. O., *Port Hope.*

The peach will not thrive north of Lake Ontario, and our correspondent will find it impossible to succeed with it at Port Hope, as both tree and buds are too tender to endure the cold of winter. The wood, as he states, is killed back, and, even if the wood endured the cold, the fruit buds would be destroyed. The only possible way by which the amateur might succeed with a special tree would be growing the stock horizontally along the ground in such a way that it might be bent over and entirely covered each winter with earth and lifted up in spring. This plan has been tried successfully with plum trees where the climate was too rigorous for them to thrive otherwise.

Plum Knot.

885. SIR,—Kindly let me know a remedy for black knot on plum trees?

H. O., *Port Hope.*

The simplest remedy for the black knot is to use the knife freely, cutting away the affected parts as fast as they appear and burning them. Success has always been had by painting the affected parts with kerosene oil. Care should be taken, however, that none of the oil is allowed to touch the healthy portions, as it would be destructive.

Carnations.

886. SIR,—Will Carnations live out doors all winter? If so, how should they be protected? I have potted a couple of plants, do they require much water?

SUBSCRIBER, *Hagersville.*

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

There are garden varieties of Carnations which are quite hardy and require little or no protection. A mulch of leaves or straw would be sufficient for them. The tender or greenhouse sorts, however, when grown outside for the summer, should be taken up early in the fall and grown in the house. They require frequent watering to keep them free from the red spider, and should be kept as cool as possible.

Wintering Dahlias.

887. SIR,—How should Dahlia bulbs be kept through the winter?

SUBSCRIBER, *Hagersville.*

Reply by Prof. Hutt.

After the tops have been blackened with frost, cut them off; lift the roots and allow them to dry in the sun for a day or two, then store away in the cellar where they will keep cool and dry.

Cauliflower not Heading.

A question answered by Prof. Hutt.

In answer to the question of Mr. F. M. Gunn, of Norwood, as to why his cauliflowers do not head, I may say I am in much the same quandary. I find since my return to the College that our cauliflowers have also failed to head. They had the best of attention. The only cause I can attribute it to, is that the seed must have been from poor stock. I understand that the greater portion of our seed comes from Denmark. I have seen it stated by good Danish authorities, that hardly any vegetable or cultivated plant is more liable to deviate and deteriorate than the Cauliflower, and that it requires great skill and experience in selecting the plants for seed, to keep up the quality of habit of sure heading. I think it remains with our seedsmen to ascertain for certain that all of the seed comes from skillful and honorable growers.

Is there a Combine of Apple Buyers?

888. SIR,—While casting about me for some light on the present condition of the apple trade, I have decided to trouble you in the matter. The market reports of Woodall & Co. (as reported in the CANADIAN HORTICULTURIST and other papers) are all good as to markets and prospects; but these are flatly contradicted by the dodger-like reports circulated by our local buyers. I have made enquiries by mail in several localities, some quite distant, and, so far as I can learn, each district is left in the hands of its local buyers and all competition avoided. From the above and other circumstances, I am under the impression the apple trade is in the hands of a big combine, and that the grower is not getting the value of his fruit. Would you kindly take the trouble to please say what you can to throw light on the matter, and an early answer would confer a very great favor on

JOHNSON LEADER, *Box 191, Meaford.*

We would not like to accuse Canadian apple buyers of combining against the growers, as hinted by our correspondent, but owing to the reports of an immense apple crop, buyers are afraid to purchase, and naturally report on the dark side. We do think they have colored the reports somewhat dark, by publishing the poor sales of summer and autumn fruits, and not allowing sufficient weight to the good prospects in the English market for good sound winter stock.

As will be seen in our apple reports, the prospect for first class winter stock is brightening; indeed, has been good all along. It would appear that Europe could use our whole apple crop, if it were sent forward gradually, and not too rapidly. But our whole crop is not going forward. Much of it has already blown off and can only be sold as windfalls to evaporating factories at home; much is wasting in the orchards for want of hands to gather, or because the owner thinks the value so little, he will not bother with them.

Owing to these circumstances we are continuing to forward our apples direct to a British salesman, believing that there is more money in so doing than in selling at home at 50 cents a barrel. So far (October 22) we have received returns for about 200 barrels partly fall apples, and the average net price has been from $1.00 to $1.50 per barrel.

On October 20, a letter was received from the agent of the Canadian Government, who says:—

"Apples from Montreal have been selling at from ten shillings to twelve shillings a barrel at public auction. The English crop has been a total failure, and, in addition, recent storms have simply ruined the orchards. During the early part of this month the English crop must all be put on the market, as it will not keep, and later on prices will be better. There is just one thing to be remembered, that the demand is limited, and any extravagant shipments to load up the market will certainly be attended with loss On no account must rubbish be sent, but the very best picked fruit."

About the same time we received from Montreal apple buyers, circulars such as the following:—

MONTREAL, October 17th, 1896.

APPLES.—The receipts have been very large. our own receipts being close to 1000 barrels per day. Yet, by push we have been enabled to sell most of these as they arrived. Prices have been good compared to other markets. The utter collapse of the English market and the great losses sustained by shippers there, has shut off all orders from the other side Prices here rule steady. Best fancy winter apples, $1.40 to $1.75 Fair to good, $1.10 to $1.30. Culls, 80c. to $1.00 per barrel. Good Spies, Greenings, Baldwins and Kings sell best.

We can use all the apples sent us. and you will get a great deal more money in return for your fruit from here than anywhere else.

MONTREAL, October 14th, 1896.

DEAR SIR.—We have several letters about the prospect of apples. It seems worse than when we issued our circular on September 5th. Demand here is very slow at $1.00 to $1 25 for medium to fine winter fruits; good red Snow apples, $1 25. The British markets have been in a terrible state for the past two weeks, scarcely making freight on several lots, while good stock would scarcely pay for barrels. They claim this is owing to so much soft, p or stock being sent forward, which no doubt has had a lot to do with it; still we thought that, at moderate prices, they could have used even larger quantities than have gone forward. In this we have been disappointed; perhaps the lower prices will cause larger consumption now and results may be better, and there should be better demand here from this forward.

We advise shippers to ship only best fruit; buyers are very much more particular in a full market than when stock is scarce, even though they are paying next to nothing for it. We are situated to handle apples to the very best advantage; our representative is in Britain now, and if our friends leave their goods to our judgment, we shall do the best we can. We have sold all we could here lately, for we feared shipment across would make less money. Any shipper that may prefer to sell here, or to be shipped to Britain, give your orders and they will be carried out to the letter; but we think you had better leave it to us, for we have prices, quantities going forward, and all particulars every day.

We do not quite understand why Montreal men should report so gloomy an outlook, unless because they want to buy at the lowest prices, and ship on their own account. True, there is every possibility of our apples overcrowding the British market, but as things are going just now, there is no danger, for very many of our growers are afraid to ship at all, and are allowing the fruit to waste upon the trees.

✱ Open Letters. ✱

Sierra Crimson Plum.

SIR,—There has been discovered in the Sierra Nevada mountains, a very valuable plum It is on account of its wonderful flavor, that brings it into great prominence; it is collected in large quantities, and made into jelly and jams, and for this purpose it cannot be excelled. The jams and jellies manufactured from it have a most peculiar and delicate aroma, which charms all who taste it. Our best cultivated plums must take a back seat when this variety is offered for sale, as it outsells them every time. It is about the same size as the Green Gage plum, a brilliant red in color, and most deliciously flavored; there is no acid in the skin, as in most varieties of plums. It is quite a good yielder. The trees never attain a large size, but are quite dwarf. Their native home is high up in the Sierras, where the snow falls twenty feet deep in the winter. They are readily propagated by seeds, as they come true, and there are no varieties.

S. L. WATKINS, *Grizzly Flats, Cal.*

New York City as a Fruit Market for Ontario.

SIR,—I purchased to-day, at the corner of Wall and Williams streets, some Fameuse or Snow apples, which came from Montreal. The price was two for five cents. Twenty apples weighed five pounds, so that the retail price is equal to ten cents per pound. The man from whom I purchased them has sold fruit from that corner year out and year in, for the past seventeen years, and is an experienced gardener or horticulturist. Very few nurserymen are as well informed as he is in horticulture He told me this morning that he paid $4.50 for the barrel of apples, and that it contained five hundred. Of the smaller ones he sold three for five cents, and two for five cents of the larger ones. Within five rods of him I could buy just as handsome Snow apples from Maryland, New Jersey, Pennsylvania and Ohio for one cent each. These facts prove what I wrote you in June, that the quality of the Canadian apple, when its character is known, will create a demand which will exceed the supply.

To-day I can purchase seven-pound baskets of Tokay grapes, of *extra quality*, grown in California, for 40 cents, or less than six cents per pound. A few days since I purchased three of the handsomest and most perfect Beurre Hardy pears, grown in California, for ten cents, I ever saw, and took them to the Hon. Charles A. Dana, Editor of the New York Sun. At the same time, I purchased two of the finest Beurre D'Anjou for five cents, also grown in California. A few days since I purchased a 7½ pound basket of Damson plums, at Washington Market, for 75 cents, or at the rate of $6 per bushel, and at that price they are scarce. Nearly one-half million barrels of apples have already been shipped to Europe from American ports, or more than ten times the amount shipped last year at this date. This market will gladly sell Southern and Western Snow apples to exporters at $1.50 and $2.00 per barrel, and buy Canadian Snow apples for home consumption for $3.50 per barrel.

Just as I wrote you in June, the scarcest fruit in this market is apples of high quality and Damson plums for preserving. I can buy crates of fine Concord grapes at 1½ cents per pound. Five-pound baskets of Delawares and Niagaras at 15 cents each, and five-pound baskets of Concords at 8 cents. If your prime fall apples are sent here and put in

cold storage on arrival and kept until the surplus from the South and West is disposed of, they will return a far higher price than if shipped to Great Britain. Canada has a monopoly in first-class apples and can sell them after their character is established in this market, duty or no duty, at prices which will secure to the producer a liberal reward. The territory in which prime varieties can be profitably grown in Canada is so small, that there is no danger of over-production, and the sooner you organize in Ontario a Canadian Fruit Growers' Association, and send agents to our chief distributing centres, the better.

FRANCIS WAYLAND GLEN.

132 Nassau St., Room 4, New York City.

Canadian Snow Apples in New York City.

SIR,—Yesterday I purchased from a fruit stand at the corner of William and Wall Streets two Snow apples, for which I paid 5 cents each. At the same time I saw a gentleman pay sixty cents for twelve of them. They were from Northern Vermont, and the owner of the fruit stand paid $6.50 for them per barrel in Washington Market He told me there was 450 apples in a barrel. A few of the smaller ones he will sell at the rate of two for five cents. The barrel will net him at retail $20. The two I purchased I took to the Hon. C. A. Dana, Editor-in-Chief of the New York Sun. We measured one of them, and it was 3½ inches in diameter; the other just a shade less.

To-day I went there and purchased three apples and put them in a small box and mailed them to yourself at Grimsby; they are fair average samples of the barrel. The man who keeps the stand told me that he had sold out nearly all of them in about one day. I have no hesitation in saying that 40,000 kegs holding a quarter of a barrel each of the same quality of Fameuse apples could be disposed of in one week in this market at $1.50 per keg. I suggest that you have the three I sent you painted on a single plate for the HORTICULTURIST. The large one which I gave Mr. Dana was even more highly colored than any of the three I sent you The quality, as you will see, is best.

Mr. Dana is not only a great scholar, writer, editor, philosophic thinker, clear and far sighted political leader, but also a good horticulturist. He has, perhaps, one of the largest collections of hardy trees and plants in this country at his home at Oyster Bay, and some time when he takes a day off I am going to go out there and write a description of his country seat for the HORTICULTURIST. Although he has nearly reached his four score mile post, he is only a boy in the freshness of his love for nature and his sympathies for humanity. He leaves his home at ten minutes before 8 in the morning, and when he reaches the steamer all of the New York papers are handed him, and by the time the boat reaches the dock in New York, he has read all of them and marked the articles which he wishes his secretary to cut out and lay upon his editorial desk. After he arrives at his office he works incessantly until four in the afternoon, and then takes the boat for home, and spends an hour or so before sun down with his plants, fruits and trees Beyond all question he is the greatest living American, and I am sure the readers of the HORTICULTURIST will enjoy reading a description of his home on Long Island.

In the summer of 1846 I began my first day's work in a nursery owned by John J. Thomas, for many years the editor of the Cultivator and Country Gentleman. tying pear buds into Hawthorne stocks. I continued to work in the nursery summers until I was fifteen years of age, and attended school winters, and then became the foreman of the Commercial Nurseries of Rochester, owned by Bissell & Hooker. At the end of three years before I was nineteen years of age, I purchased the interest of Mr. Bissell, and the firm of H. E. Hooker & Co. was organized. I continued in partnership with Mr. Hooker until 1861, when I went to Canada to assume the management of the Joseph Hall Machine Works at Oshawa, Ontario, and remained there twenty-five years.

Since 1846 I have taken an active interest in the progress of horticulture, floriculture and agriculture. I shall write some letters to you making suggestions as to fruit culture in Canada, which I hope will stimulate the planting of apple and plum trees in Ontario.

The enormous surplus of apples of indifferent quality, although of handsome appearance, will be sent to Europe, and will probably overstock that market, but relieve this market of the surplus, then any prime Canadian apples which have been kept in cold dry storage will command good prices. If there is any surplus of Damson plums in Ontario, they should be sent here at once.

FRANCIS WAYLAND GLEN, *132 Nassau St., New York,*

The samples sent by Mr. Glen are truly excellent, but differ from the common Canadian Snow apples. They evidently belong to the Snow apple family, and are probably McIntosh Red. A colored photo of which was in our Journal for November, 1893, and was highly commended except for its fault of scabbing almost as badly as the Fameuse. No doubt there would be money in growing it, for its quality is about equal to the Fameuse, and it is larger and more showy. The Scarlet Pippin, figured on page 382, is another apple of this class, which may possibly be entirely scabproof; and, if so, will also be a most profitable apple for any market.

Beurre Bosc Pears in New York Market.

SIR,—I stopped at the fruit stand of James N. Bagnall, at the corner of Wall and William Streets, just as he was opening a keg (¼ barrel) of the finest and largest Beurre Bosc I ever saw. He only paid $1.25 for the keg. Why? Because they were badly packed, and when they reached this market were bruised, and the bruised spots were discolored. The best of them he was selling for 5 cents each, or three for 12½ cents. Just beside them he had some very handsome Beurre D'Comice which came from California. They had been carefully packed in soft papers, and the skin was not in the slightest degree bruised or disfigured. He was selling them for 10 cents each or three for 25 cents. He has been thirty-five years in the fruit business at that corner I made a mistake in a previous letter in saying he had been there for twenty-three years only. He sells the choicest of fruits of all kinds to the wealthy bankers and brokers of the Street. He seldom displays his fruit before 10 a m. in the morning, and closes his business soon after 4 p m. in the afternoon.

The object of this letter is to emphasize the value of careful packing. Had the Beurre Bosc have been carefully packed, they would have readily sold for $3.50 or $4 for the ¼ barrel.

FRANCIS WAYLAND GLEN.

Dated October 21st, 1896.

Those Snow Apples.

SIR,—Yours of the 19th inst., came duly to hand, contents are noted, and in reply beg to say: In my opinion you are mistaken about the apples I sent you being McIntosh Red. I compared them with Fameuse from Montreal, Western New York and Pennsylvania, and I am confident that they were genuine Fameuse. Since I sent them to you, I found some Fameuse at the opposite side of Wall Street just as handsome and as large selling for one cent each; they were from the Southwest. Skin very thick, flesh far from firm, flavor too mild to be refreshing or appetizing. The person I bought those of which I sent to you, is an old gardener and has sold fruit from the same stand for twenty-three years, and is as good pomologist as I have met since I sold out my interest in the Rochester Commercial Nurseries.

I have no interest, direct or indirect, in any nursery, or in any firm or corporation selling trees. My only desire is to promote the growth of such fruits in Ontario as will command a profitable sale in the continental market

The South and California can beat Ontario in pears, peaches, early plums and grapes, but Ontario and Quebec can beat any part of the United States in apples and late plums. My opinion is that the foreign demand will relieve this market of the surplus of handsome fruit (apples) and then the market will be opened at good prices for fruit of prime quality, such as Ontario and Quebec can give us. If you send your fruit to Europe now, you will compete there with a surplus from this country and be forced to sell at comparatively low prices. On the contrary if you place your prime apples in dry cold storage and then offer them for sale in Boston, New York and Philadelphia, Cleveland, Detroit and Cincinnati, later in the season you will command better prices than you will if you ship them to Europe.

I refer to prime fruit only, put up in comparatively small packages or quarter barrels.

In our houses, with a furnace in our basement or cellars we cannot keep fruit for any length of time and therefore many consumers will gladly pay $2.00 for a quarter of a barrel of prime apples who would not pay $6 or even $5 for a whole barrel.

A few days since I took Mr. Dana some very large seckle pears, grown in California. The next day when I called upon him he told me that they were the best seckles he had ever eaten. They were three times the size of the ordinary seckle grown in this section, and I paid five cents for three of them; such facts as these which I can multiply indefinitely convince me that Canadians should grow apples and let California and our Southern States grow pears. Nature or God in Nature has so ordained it, and why should Canadian pomologists undertake to antagonize the inevitable, or in other words the Omnipotent.

I am made to say in one of my previous letters published in the HORTICULTURIST, that Early Joe apples grown in my garden at Oshawa, were bitter, whereas I said they were "brittle."

FRANCIS WAYLAND GLEN.

Dated October 14th, 1896.

Ammonia.

SIR,—I think that J. E. K. Herrick's query in the October HORTICULTURIST (page 372), probably refers to the strength of the ammonia used in dissolving Copper Carbonate in making the ammonia solution, which is used late in the season as a substitute for Bordeaux mixture, and not to ammonia as a fungicide by itself. I have never known ammonia to be used as a fungicide by itself, and I do not think that it would be of much service. To dissolve 5 ounces of Copper Corbonate, 2 quarts (I 'Winchester') of ammonia of the strength known to the drug trade as '880 fort is necessary. This quantity may then be diluted with 45 gallons of water—the usual capacity of a coal oil barrel. It is then ready for use.

JOHN CRAIG, *Ottawa.*

The Black Currant, Success.

SIR,—The above mentioned currant, sent out by you a few years ago, fruited with me for the first time this season, and I was greatly pleased with it. It is fully two weeks earlier than the others I have, which, I presume, are Black Naples, and ripens its fruit more evenly, nearly all at once, which is a very desirable feature. The quality is excellent. When at Ottawa Experimental Farm the other day, I saw Prof. Craig putting up a quantity of fruit, and comparing the different kinds. I found no black currants any better than Success, and that was Prof. Craig's opinion. This has been a splendid year in this section for all kinds of small fruits, and I am glad to say more attention is being paid to them. Apples are also a tremendous crop. In many orchards the trees are breaking down.

C. W. YOUNG, *Cornwall.*

Our Book Table.

PRINCIPLES OF PROFITABLE FARMING, OR HOW TO RAISE LARGE CROPS FOR THE LEAST MONEY, is the title of a pamphlet published and sent free of charge to any farmer applying for it, by the German Kali Works, 93 Nassau St., New York.

The Markets.

The British Apple Market.

Messrs. Jas. Adam, Son & Co., write:—

SIR,—Arrivals from all ports show the enormous total of 70,000 barrels, a quantity never previously reported in any one week, so early in the season, and the result has been a complete collapse of the market. This is deeply to be regretted, as the losses to shippers must inevitably be considerable, but, with so much of the fruit being in faulty condition, and, even where sound, so tender as to call for immediate disposal, there has been no alternative but to force sales at best possible Even as it is, dealers here complain bitterly of the unreliable character of the stock, and are so completely tired of the soft varieties that there is little chance of any improvement in the position of affairs until quality inspires more confidence, and shipments are considerably reduced.

Of course, winters must undoubtedly find a more ready outlet, but it will be necessary for shippers to pay particular attention to the selection and packing of fruit for export, as in such an abundant year, as this is proving itself to be, quality and condition must of necessity be good to command proper attention. As it is, quantity seems to have been the aim of many exporters, so much of the fruit being of a class totally unfit for shipment, and we would again remind all interested that the cost of transit and handling is identically the same on a good barrel as on a poor one.

We give at foot quotations for sound only, which in themselves offer strong evidence of the varied quality, and, from the outside prices paid for some varieties, it will be seen that even now the trade appreciates, and is open to take, good stock, at reasonable rates Unfortunately, catalogues show still greater ranges than our quotations indicate, and, lamenting as we do the deplorable results, we hope, with due discretion and reasonable judgment, the season may not prove an altogether disappointing one. Abundance is always the forerunner of cheapness, and operators will do well to bear this in mind in their further negotiations.

Quotations: Canadian—Greenings, 6/3 to 10/9; Snows, 9/ to 13/; Colverts, 5/3 to 8/; Ribston Pippins, 6/6 to 10/9; Kings, 8/6 to 14/6.

Mr. M. H Peterson, of Toronto, writes under date 16th October:

Jas. Adam Son & Co., Liverpool, this day cable: "Market active, prices very firm."

B. & S. H. Simons, Glasgow, this day cable: "For winter stock market has advanced."

Messrs. Woodall & Co., Liverpool, write under date Oct. 10th:—

SIR,—As shewn above, the week's receipts are 84,188 barrels, which for this early period is immense, and approaches the highest figures touched in the height of the previous heaviest season. It was expected that this week's arrivals would probably consist of good sound full sized winter stock, but this has been only very partially realized. The bulk was winter fruit, but generally small and unattractive, most of the Baldwins being wanting in color Added to this, the condition, especially of New York shipments, has been unsatisfactory, which is very unusual at this early period, and can only be accounted for by being hurriedly packed and shipped in damp, warm weather, which corresponds with what has been experienced here during the past month.

Large quantities have been received from Boston, some of which were absolute rubbish, and should never have been sent, as however scarce apples may be, these never would fill requirements, or be worth the heavy freight and shipping expenses. There have, undoubtedly, been some few good parcels, notably from Canada, but taken as a whole, the fruit was disappointing, and, consequently, buyers of first-class fruit are not operating. The results of the week are disastrously low prices, but it cannot be said that the capacity of the market has yet been tested as to whether it can pay satisfactory prices for good sound fruit with receipts similar to the present.

Under date October of 21st:—

Jas Adam, Son & Co., Liverpool, this day cable:—"If the quality is fine, market better, with more enquiry and an upward tendency. Baldwins, 6/ to 10/; Greenings, 6/ to 10/; Spies, 8/ to 9/; Kings, 10/ to 12/."

B. & S. H. Simons, Glasgow, this day cable: "Spies, Baldwins, 9/ to 11/; Kings, 10/ to 12/; Cran Pippin, 20 oz, Gravenstein Snow, 8/ to 9/; Greening, Spitz, Seek, Can. Red, Ribston Pippins, 7/ to 9/; Russet Cohert, Talman Sweet, 6/ to 8/."

Duthort & Co., London, also cable: "Baldwin, Greening, 9/ to 10/: Spies, 10/ to 12/ Kings, 12/ to 14/."

Our Apple Markets.

LIVERPOOL.—Messrs. Simons, Shuttleworth and Co., cable to-day (Oct. 23rd) as follows: Prices to-day remain about the same, the market is stronger, but prices do not show any advance. Quality and conditions are being well paid for, but lower grades and conditions are very weak. The lower prices are inducing a larger consumption, and with smaller shipments we anticipate an advance. Only the finest fruit wanted.

GLASGOW.—Messrs. Simons Jacobs & Co., cable to-day (Oct. 23rd) C. Reds, Baldwins, Greenings, Spitz., Seeks, Ribston Pippins, Gravensteins, 9s. to 11s.; G. Russets, R. Russetts, Colverts, Jennettings, T. Sweets, 8s. to 10s.; Spies, Cranberry Pippins, 20 Oz; Pippins, Snows, 10s. to 12s.; Kings, 11s. to 13s. The Market is booming.

LONDON.—Messrs. Garcia, Jacobs & Co., Cable: Prices to-day (Oct. 23rd) rule nearer our highest quotations. The market is showing decided improvement. Baldwins, 9s. to 11s. Greenings, 8s. to 10s.; Spies, 10s to 12.; Kings, 12s. to 14s.; Cranberry Pippins, 11s. to 13s.; Ribston Pippins, 13s. to 15s.

The Export Apple Trade.

The Montreal Herald of October 22nd, says: "A good deal is heard these days of the wonderful success United States apples are meeting with in the British market. The New York and Boston papers are continually finding satisfaction in the fact that shipments so far are three times heavier than they were last year. And in all their talk Canadian apples are ignored. It may be remarked that the apples which we are weekly placing in the leading English markets are of good quality, and are quietly working their way into favor. Returns at present indicate that Montreal is sending out more apples than any one United States port, while in fact last week more were shipped from this port than Boston and New York combined. Here are the figures for the week ending October 17th:

New York	17,842	Barrels.
Boston	33,105	"
Montreal	66,283	"

Up to date the shipments from Montreal to European ports approximate 350,000 barrels. New York has sent out about 200 000 barrels, Boston 278,000 barrels and Halifax in the vicinity of 95,000. The total Canadian shipments are therefore about 440,000 barrels, and the outward movement gives no indication of abatement.

THE WHOLESOMENESS OF APPLES.

The season of apples is upon us, and their wholesomeness should be again emphasized. The Bulletin of Pharmacy is authority for the statement that apples are the very best thing to eat just before retiring for the night. The statement may be received with incredulity by some persons, but the authority goes on to state that "no harm can come even to a delicate system by the eating of ripe and juicy apples just before going to bed."

That the apple is rich in phosphoric acid is well known. What is not so well known, the Bulletin points out, is that it thoroughly disinfects the mouth excites action of the liver, promotes a sound healthful sleep, helps the kidney secretions, and prevents calculus growths, obviates indigestion, and is one of the known preventives of diseases of the throat. These are benefits enough to make us all apple eaters, surely.—N. Y. Times.